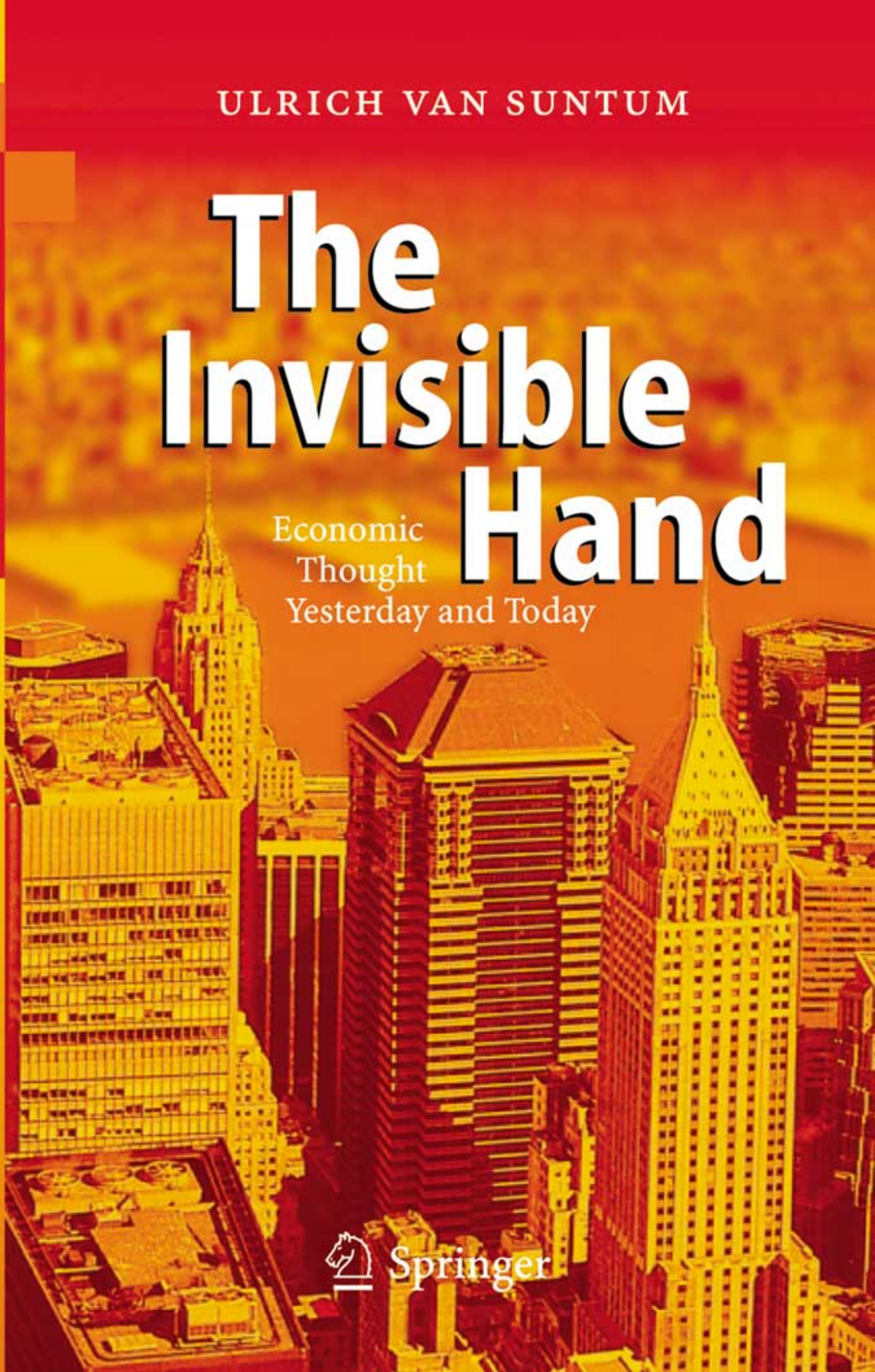
ULRICH VAN SUNTUM

The Invisible Hand

Economic Thought Yesterday and Today



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Economic Thought Yesterday and Today

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Springer

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Foreword

The economies of the European Union are today highly integrated. Constitutive part of this high degree of integration is the euro which unites most of the Member States within the euro-zone. In order to ensure prosperity and stability of this Union in the spirit of the European Stability and Growth Pact, economic policies in both the Union and its Member States need to be monitored and co-ordinated appropriately. This applies in particular also because of the enlargement process which adds a further dimension to the continuous challenge of having to deal with different economic policy concepts and traditions in our Union.

Understanding the economic and socio-political debates in the individual Member States of the Union and elsewhere requires a solid knowledge not only of the economic but also of the social and historical background of these debates. In economics, more than in the natural sciences, human norms and conflicts play a central role in addition to logical relationships and empirical findings. Therefore, looking only at economic formulae and empirical facts will not be enough.

Most economic textbooks, especially from the Anglo-Saxon area, tend to concentrate more on the technically correct and often model-based presentation of their subject-matter than on its socio-political background. However, in view of the significance of economic reality for every citizen in Europe, it is also important to reach those who have not obtained a university degree in economics.

I am, therefore, very pleased that Ulrich van Suntum has managed to write a textbook that provides on one hand a theoretically correct in-depth presentation of its subject matter and is, at the same time, easily understandable also for the non-economist. Undoubtedly, it will provide a valuable contribution to economic debate in Europe on all levels. I consider this textbook a welcome new contribution to the long tradition of stability-oriented German economics in socio-political perspective.

Prof. Dr. Romano Prodi
President of the European Commission
Brussels, Belgium

What this book is about

Every day we read newspaper reports about economic problems such as high unemployment or rising government debt. On television we follow discussions and parliamentary debates about matters like appropriate wage increase rates or the correct level and distribution of taxes. Yet, even though these issues concern us all, our knowledge of even the most basic economic principles behind these issues is relatively superficial. This can be said even of the parliamentarians themselves, only few of whom have actually studied economics. Already in the 19th century the German economist, Johann Heinrich von Thünen bemoaned the fact that a country's economic fortunes were often decided by people who had not the slightest idea of the problems involved. Today if anything, this situation has become even worse than it was in Thünen's times.

One thing we should bear in mind though is that in the past, economics and law were still taught by the same faculties. The first chair for "Political Economy" was set up as late as 1805 at the East India College in Haileybury in England and was occupied by Robert Malthus who had originally been ordained a minister of the Church of England and became one of the leading figures of classical national economics.

Later, however, the law faculty and the economics faculty drifted ever further apart. The same applied to other related areas such as the political sciences and administrative studies. This development was probably inevitable as these subjects became increasingly specialized. However, economics, which is occasionally called the Queen of Social Sciences, lost more and more contact to its people as a result. Nowadays even learned economists are often no longer able to understand the highly mathematical discourses published in the various specialist journals and many of the important findings that used to be part of the common knowledge of a national economist have sunk into oblivion.

This book therefore aims at presenting the most important economic contexts in a way that is understandable even to the non-expert. At the same time it also aims at helping students of economics re-gain an overview of their subject that they may well have lost while dealing with so many individual economic issues. Instead of mathematical formulas the reader will find only simple illustrations on the following pages as well as numerous examples of history that are there to show that any theory can only be properly understood against the backdrop of its historical origins. Many of the theorems described sound rather obvious, but the book also

raises apparently paradoxical issues that may not appeal to common sense at first. Conversely the reader will also learn of ideas that seem just as plausible as they are wrong. At the end of the day, the art of economics consists in being able to distinguish between the one and the other.

Does anything like "economic laws" actually exist? This question was the subject of bitter controversy as early as the 19th century. The proponents of what was called the Historical school, first and foremost their spiritual leader Gustav von Schmoller, rejected such an idea outright, claiming that economics was an empirical science, which, in contrast to the natural sciences, was not governed by universally valid laws.

The opposite view in this so-called *Methodenstreit* was propagated by the neo-classical school of economics, lead in those days by the Viennese economist, Carl Menger. Menger and his followers believed that the market was indeed governed by certain laws, which would always withstand any political attempts at direction. This controversy culminated in 1883/84 in what were at times highly acrimonious polemics between the opponents. In the end, however, it was the neo-classicists who won the day. In 1914 – the year of this death – the Austrian economist, Eugen von Böhm-Bawerk published his famous essay "Macht oder ökonomisches Gesetz?" in which he convincingly argued that no matter how powerful the state was, it would never be able to bypass certain economic laws. Economic history, notably the demise of the socialist economies at the end of the 20th century, has proven a powerful confirmation of this theory.

The British neo-classical economist, Alfred Marshall once said it was impossible to tell the truth for only half a penny. This book has therefore turned out a little more extensive as well. That does not mean of course, that it contains the entire truth. At the end of each section the reader will therefore find references for further reading that are particularly suited for more in-depth study. Moreover, the individual chapters have been written in such a way that they can be read independently from one another. I asked not only my colleagues and collaborators to review them but friends and acquaintances as well who have no economic background. I am much obliged to them for their advice and many critical comments. Needless to say, all remaining errors and faults are solely my responsibility.

I am especially indebted to the Ludwig-Erhard Foundation and the Initiative Soziale Marktwirtschaft for having provided such generous support to the English translation of "The invisible hand". Not least I would like to express my gratitude to Caroline Hemingway for her careful translation of my book.

Münster, November 2003 Ulrich van Suntum

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Chapter 1
People and Markets (Microeconomics)

The Scottish moral philosopher Adam Smith (1723–1790) is widely regarded as the founder of classical economic thought. He compared competition to an invisible hand leading the individual pursuit of self-interest to the maximum public good.

The Invisible Hand of the Market

From Mercantilism to Market Economy

We take it for granted these days to be able to buy almost any product we like as long as we have the money to pay for it. If we wish to eat fresh rolls for breakfast we will find a baker's shop on every street corner, offering bread and pastries in all imaginable variations. In today's large department stores the sheer variety of products on offer is almost overwhelming. From a video recorder to a poisonous tarantula spider, everything is available there that we could possibly imagine. If we want to purchase a car, we can choose from different models from all over the world and in every price category, from a small economical car to a luxury sedan. Of course we should never lose sight of how much money we have to spend. But within the limits that this poses we can set out on the assumption that no matter when, there will always be an extremely wide range of products on offer in the shops.

This is not the case everywhere in the world and it was certainly not always the case in Europe either. In the Communist states of Eastern Europe the most urgent everyday necessities such as food, clothing or heating materials were often not available. Whenever luxury items like meat or high-quality imports entered the markets in these countries, long queues would form outside the shops. However, frequently even those who were prepared to pay high prices for such items would come away empty-handed because stocks were so limited. Official prices were low but they mostly existed only on paper. In reality many products were not available in the shops at all. At best it was possible to purchase them through connections or on the black market.

Nevertheless, there have been times like that in Germany as well. Initially, following World War Two, the Germans did not have a free-market economy, but a state-controlled system of rationing instead. Even though officially, butter, bread or shoes did not cost much, it was only possible to buy such products using food vouchers and other coupons. Selling such items at prices above those fixed by the state was regarded as usury and severely punished. By applying such measures policy makers hoped to spread what little post-war production there was over the population as fairly as possible.

However, as prices were so low nobody was interested in producing such items. Those who did so anyway often hoarded their supplies, hoping for better times and prices. Thus, this enforced system of rationing only aggravated the problem of supply shortages rather than improving matters.

Meanwhile barter of goods for other goods flourished. Sitting especially pretty were those selling nylon stockings or American cigarettes, because such items could be exchanged for virtually anything. Farmers also did relatively well. People from the cities used to haul carpets and valuable furniture to the farms in order to exchange them for a sack of potatoes for instance. The whole system was a

classic example of where government price controls can lead. Whilst production remained at a standstill and the bulk of the population hardly had enough to eat, black marketeers were making a fortune.

It was the subsequent Minister of Economics, Ludwig Erhard (1897–1977), who eventually put an end to this game. As director of the so-called Bizone he pushed through the lifting of price controls on 24th June 1948, only six days after the currency reform. Political resistance to this measure was enormous, with the trade unions even proclaiming a general strike. However, the success of this liberalisation was so phenomenal that any criticism soon abated. Henceforth the shops were full of items, the existence of which nobody had previously ever known of. At the same time, production increased and with it also incomes, so that the products on offer were actually sold.

In spite of initial problems with the maintenance of price stability, especially during the Korean crisis in the mid-1950s, Erhard stuck firmly to his liberalisation course. The unprecedented economic upswing in West Germany that began at that time has often been coined as an economic miracle. In reality though it was not a miracle, but simply the logical result of the laws of the market.

We owe the first systematic description of these laws to the Scottish national economist Adam Smith (1723–1790). His most important work "The Wealth of Nations" appeared in 1776, the same year the American Declaration of Independence was signed. In actual fact Smith was a moral philosopher but he is now widely regarded as the founder of classical economic thought, which until then had not existed as an autonomous science. His personality pretty much fitted the description of an absent-minded professor. For as long as he lived he was said to have had the habit of talking to himself and once he was even seen walking around the streets wearing his dressing-gown. Just before his death he burned all his notes and manuscripts in the presence of his friends so as not to leave anything unfinished for posterity.

With his book "The Wealth of Nations" Smith wanted above all to get his own back with the mercantilist economic system of his days. Similarly to Socialism later, this system was based on rigid price controls, restraints on competition and countless other interventions by the state in economic life. Adam Smith challenged this with his concept of economic liberalism trusting primarily in the free play of market forces. Undoubtedly, his book rang in the historic end of mercantilism and became, as it were, the bible of market-orientated economists. Even today it is still customary to wear the Adam Smith tie at the meetings of the neo-liberal Mont Pelerin Society.

As a moral philosopher Smith was interested in why people worked and offered products on the market. Even though he truly believed that there was a certain degree of selflessness involved in this, claiming that there were evidently some principles in man's nature, which made him interested in the fortune of others, he was enough of a realist to realise that this was not the whole truth. On the contrary, most people had more than their fair share of laziness and self-interest. Therefore one could not just rely on them producing the goods required by a national economy on a voluntary basis, but there had to be some strong economic incentives for each

individual to do so. This was even more the case when production was organised according to the principle of the division of labour. Because those who produce to satisfy not only their own needs will generally expect some form of compensation for doing so.

Therefore, according to Smith the most important incentive for people to produce goods was the income that they could earn by doing so. A much-quoted sentence from his work of 1776 reads: "It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest." Thus of all things, it is self-interest that is the most important driving force to increase the welfare of a nation and of all the people living there.

A little further on in his book Smith describes this mechanism with his famous metaphor of the invisible hand of the market. Not only the craftsman and labourer but also the capitalist is led in his decisions "by an invisible hand to promote an end which was no part of his intention". Thus, it is by the very pursuit of his own interests that the individual will promote those of society. As regards public interest on the other hand, Smith was sceptical: "I have never known much good done by those who affected to trade for the public good."

That was laying it on very thickly and perhaps Smith was exaggerating a little here. One must not forget, after all, that these statements were directed primarily against the mercantilist system of his days, which, as we know, was the exact opposite of market and competition. Smith himself once wrote that false notions were like crooked willow canes. In order to get them straight again one had to bend them strongly in the other direction first.

It is true that mercantilism had produced the strangest effects. One of the most important pillars of competition restraints in those days was the guild system that was in actual fact more of a stone around people's necks than anything else. For example it was by no means possible in those days for everybody to become a baker no matter how suited they may have been for the job. The crafts ordinance imposed enormous obstacles on everybody. In France, in order to become a skilled artisan, a person had to work as an apprentice for five years, in England even for seven years. After that he had to work as a journeyman for another five years before he could become a master and set up his own business. In order to prevent too much competition from developing a hat-maker, for instance, would never have been permitted to employ more than two apprentices. Had he broken this law he would have had to pay a five pounds penalty, one half of this to the King and the other half to the informer.

But that is not all. Each trade was only allowed to offer particular services so as not to get in the way of the other guilds. Smith reported among other things that a wagon-maker was not permitted to produce wheels but had to buy them from a wheel-maker instead. However, even today comparable regulations still exist. For instance, if one wants to have a kitchen installed in Germany one has to call upon the services of three different artisans. A carpenter would not be permitted to connect the water and a plumber may not carry out any electrical installations. This means that in next to no time one has to pay for the journey and hourly wages of three different artisans. Allegedly, this system guarantees the quality of labour

and serves to reassure the consumers. However, in practice it will often result in consumers doing the job themselves or in hiring a labourer on the black market, which can hardly be the object of the exercise.

In other economic sectors and professions as well, this mercantilist style of thinking still prevails. Even though the German law against restraints on competition of 1957 still advocates competition as a fundamental principle, most of it is taken up by so-called exceptional areas, above all by the transport sector, the energy sector and the insurance business. Another sector that is exempted in many countries from the free play of market forces is the agricultural sector, particularly in Europe, where it is heavily protected from competition from other countries. One of the main reasons put forward for this is that food supplies must be guaranteed in times of crises. However, in the case of most of these protected items, the European Union has reached a degree of self-sufficiency of over 100 per cent, i.e. it even exports these items to the world markets. The real reason therefore for imposing such restraints on competition is to protect farmers' incomes. They do have a very influential political lobby, after all.

One classic example of how absurd competition restraints can be is the way in which commercial road haulage was handled in Germany until only a few years ago. Depending on the type of goods that needed to be transported, hauliers either needed a red, blue or a yellow licence. These licences were strictly limited in quantity and thus in great demand. Considering the fact that they were sold for 100.000 $ and more on the market, we can only estimate what profits were made at the expense of consumers as a result of these competition restraints.

The official justification for this system of licences was to prevent cut-throat competition from developing. Interestingly though, such a development had not been observed anywhere when the system was finally abolished in 1992. Even so, a number of regulations still exist in this area that are so absurd from an economic point of view that they would have even astonished Adam Smith. A lorry transporting lemonade from Hamburg to Munich, for instance, may not take back Bavarian beer to Northern Germany, at least not if the lorry is owned by the company producing the lemonade. If necessary, the lorry will have to return to Hamburg empty! The alleged purpose of this regulation is that commercial road haulage must be protected from competition caused by company-owned transport. A more profound reason for this does not exist, and it quite obviously results in entirely unnecessary economic and ecological costs.

Monopolies and the Cournot Point

As economic history has shown, the state has not always been a good guardian of competition. Again and again policy makers will let themselves be misguided by influential interest groups to intervene in markets, allegedly because the markets in question are not functioning properly or because they have antisocial effects. It is true that there are cases where problems exist. For instance, nobody would speak

out in favour of a free drug trade, to mention but one extreme example. Likewise, no serious economist would deny the problems of environmental pollution or the peculiarities of the market for medical services.

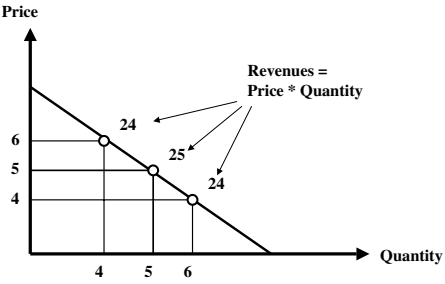
Nonetheless, these are specific issues and each one of them requires careful analysis. We shall see that in most of these cases it is not too much but too little competition that causes the actual problem, even though in some cases, a certain degree of state intervention is inevitable. However, our primary aim should be to establish and lastingly ensure conditions of competition in all those areas where this clearly makes sense and where they will work.

According to Smith it was mainly politicians, whom he once described as "cunning and clever creatures", who were inclined to restrict competition. Nevertheless, he was already aware of the fact that competition also always bore a tendency to self-dissolution. There was hardly a gathering among merchants, he once wrote, where they would not try to agree on prices. Naturally, this was not in the interests of the invisible hand. The latter could only work if every supplier had to truly compete for his clients, obliging him to offer high-quality products at affordable prices.

Monopoly on the other hand seemed to be the exact opposite of competition in this respect. A pure monopoly exists when there is only one supplier on the market, for example the owner of the sole source of water for miles around. One might assume that such a monopolist would always offer his products at the highest price possible. Smith also seemed to share this opinion. However this is, to say the least, misleading. For if the monopolist wishes to maximise his total profit he cannot only focus on the price of his products but must also consider the quantities he can sell. And these quantities will decline the higher his prices become. It follows therefore that there must be a price somewhere in the middle, at which the monopolist will be able to maximise his profit. It is the French mathematician and economist Augustin Cournot (1801–1877) who should be credited as being the first person to provide an exact analysis of this problem, in 1838. In his honour his solution is referred to as the Cournot point, indicating at which price a monopolist will maximise his profit.

In the case of the owner of the water source, let us assume for a moment, so as to simplify matters, that he can produce this water without any significant costs to himself. In this case, his profits will be highest if the price represents the maximum product of the price times the quantity sold. Maximum turnover and maximum profit will tally with one another in this simple case. For example, if the owner of the source managed to sell exactly 5 litres of water per day at a price of 5 $ per litre, he would achieve a turnover of 25 $. If he raised his price to 6 $ he would sell only 4 litres per day, whereas if he lowered his price to 4 $ his sales would rise to 6 litres per day. In either case he would achieve a return of only 24 $ per day! Therefore, it obviously makes most sense for the monopolist to keep his price at 5 $. As long as he has no production costs he will achieve the highest possible profit at this price.

Matters become more complicated when production costs are incurred, say, 2 $ per litre of water. Cournot demonstrated that in this case, the profit-maximising price would always be higher than if production did not cost anything. Sales will be



As sole supplier the monopolist is free to determine his price. However, he will achieve the highest return not at the highest possible price but at a medium-range price.

accordingly lower, so that maximum turnover and maximum profit will no longer tally.

It is easy to understand this. In our example the monopolist would achieve a profit of 15 $ if he kept his price at 5 $, i.e. the result of 25 $ turnover minus 10 $ in costs. Increasing the price to 6 $ would push his turnover down to 24 $ but costs would also drop to 8 $. Thus profits would be higher at 16 $ than if he continued to maximise his turnover. Exactly how high the new maximum-profit price will be depends, among other things, on how buyers react and cannot be determined in our simple example, which takes account of no other factors.

What is most important is that the monopolist will in any case ask for a much higher price than that covering his unit costs. We must not forget that he will have calculated regular payment of interest on his capital into his price as well as a supplement to compensate for his entrepreneurial risk. Even under conditions of competition a certain level of profit has to be guaranteed in order to make any lasting production possible. However, in general, a monopolist's profits will be far higher than such normal profits.

This is where the problem lies in terms of national economics. For obviously, a monopolist's profits do not reflect the earnings of the economy as a whole but have been achieved entirely at the expense of consumers. Under conditions of free competition consumers could expect to be offered a greater number of products at lower prices. Taken to the extreme, competition would push the price down until it ultimately covered only the production costs of 2 $ per litre of water in our example. Any higher price would imply above-average profits and thus attract new suppliers. Therefore, it is only because a monopolist does not have to fear any competitors that he attains the Cournot point. In a competitive market on the other hand more products would be available for consumers at lower prices.

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Competition in Theory and in Practice

From "Perfect Competition" to Dynamic Competition

Until the beginning of the 20th century, people believed that the intensity of competition depended above all on how many economic agents were participating in the market. Nobody contested the fact that monopolies were invariably a bad thing and that competition would function better, the greater the number of suppliers on the market competing for the buyers' favour. After some time people began to substantiate this conclusion with mathematical models, which led to the development of the model of so-called perfect competition. This model was based on the assumption that products were being bought and sold on ideal markets by completely rational individuals capable of reacting more or less instantly to any changes, so that profits would never rise above normal, not even for a second. The credit for having provided a mathematical description of market processes must go above all to the Cambridge economist Alfred Marshall (1842–1924) and his colleague from Lausanne, Leon Walras (1834–1910), whose results were later referred to as the neo-classical model.

Nevertheless, it did not take long until the usefulness of this model was called into question. Naturally, the mathematisation of economics provided some understanding of contexts that the classicists, with their homespun methods, had not

yet been aware of. Walras was able to show, for instance, that under certain circumstances, it was possible to achieve perfect equilibrium of supply and demand in all markets. This so-called microeconomic general equilibrium also bore the advantage of every production factor being fully utilised and no scarce products being wasted. It was, as it were, the mathematical proof of Adam Smith's theory of the invisible hand of the market.

Even so, the price for this was too high. What did this model have to do with reality? Did one not observe all the time that individual markets were not in balance, giving rise at least temporarily to "abnormal" profits or losses? And was the rational "homo oeconomicus", focussed solely on the maximisation of profit and utility, not in fact a monster who was incapable of meeting even the simplest of moral expectations let alone reality? Thus, the neo-classical model did not seem to be of much use to explain real facts. But how was it possible then to justify a market-orientated economic system?

It seemed that the neo-classical school of thought had scored an own goal. Suddenly Adam Smith's differentiated picture of mankind had been superseded by the distorted image of a completely rational and purely selfish individual, the so-called "homo oeconomicus". Moreover, Smith's realistic description of entrepreneurial behaviour had given way to a bloodless, mathematical analysis that no politician was able to understand anymore either. Even worse: when applying the standards of the neo-classical model it was very easy to discover so-called market failures at every turn. After all, the model only served to describe certain basic principles in mathematical terms and could never have corresponded exactly to reality. However, this only served as a new excuse for the kind of state intervention in markets that Adam Smith had so vehemently fought against.

Later, economic theory strove to restore a more realistic picture of competition. In 1933 Joan Robinson (1903–1983) and Edward Chamberlin (1899–1967) independently discovered the model of what was called imperfect or monopolistic competition, taking into account that every seller generally had some leeway to determine his prices, even when surrounded by other competitors. A Volkswagen Polo for instance, belongs to the same category of car as a Nissan Micra, nonetheless, these two cars are by no means identical products. Likewise, a person may chose to employ a slightly more expensive artisan if he has found him to work satisfactorily in the past. He cannot be sure after all that a less expensive artisan will work equally well or reliably. Therefore, it is possible and even highly likely that not only different products and services are traded on the market at varying prices but also very similar ones.

Monopolies, too, were later seen in a slightly different light. In his publication "The Theory of Economic Development" of 1911, the Austrian economist Josef Schumpeter (1883–1950) pointed out that basically, every inventor of a new product was initially in a monopolistic position. According to Schumpeter this is the most important incentive for any so-called pioneer entrepreneur to put new products and processes on the market in the first place. However, over time, increasing numbers of imitators will enter the stage and the entrepreneur's initial lead over his competitors will melt away. According to Schumpeter, this dynamic sequence of

innovation and imitation constitutes the actual essence of competition. This also includes new businesses and products constantly displacing existing businesses from the market. Schumpeter also referred to competition in descriptive terms as a process of creative destruction.

Friedrich August von Hayek (1899–1992), Schumpeter's Austrian colleague and winner of the Nobel Prize in 1974, went one step further. Even though Hayek also believed that competition was first and foremost a process of discovery, he did not think that this applied only to the development of new products and production methods. According to Hayek, the existing variety of products and consumer wishes alone was far too complex for it to be possible for a body like a government planning authority to have a clear view of things. One day consumers may wish to eat beef, the next day they may prefer to eat pizza instead and the day after they may go in for Chinese cuisine or organic food. In other areas consumer wishes are no less varied nor any less capricious, as can be observed each season in the fashion sector.

How then is a government planning authority supposed to know, in view of this complexity, which goods and how many of them will be wanted when and where? How should it go about concretely satisfying this enormous variety in demand? It is only the decentralised knowledge of hundreds of thousands of entrepreneurs, merchants and managers who are all looking to maximise their advantage that can actually solve this "search problem". Anybody who has ever experienced the bottlenecks in supplies and the limited range of products on offer in a planned economy will no doubt agree with Hayek's central ideas.

Competition Policy: Harvard versus Chicago

In practical competition policy this modern interpretation of competition gave rise to a number of problems. Obviously, the intensity of competition depended not only on there being as many suppliers as possible on the market. Some even argued that competition would be particularly intensive if there were only a few major suppliers on the market, a condition that is also referred to as oligopoly. A good example of an oligopolistic market is the petrol market, where only a few very large petroleum companies act as suppliers. As soon as Shell lowers its prices, Esso, Aral and all the other companies soon follow suit, if only so as not to lose too many customers.

Producers watch each other like hawks on the automobile market as well so that they can instantly react to their competitors putting a special model on the market with a new model of their own. On the other hand, the danger that competition-restraining cartels are set up is especially great in oligopolies. It therefore very much depends on the individual market whether an oligopoly really jeopardizes competition or not.

Thus, to simply examine the structure of markets is not enough to tell the intensity of competition. As an alternative it was suggested to use market results

as a criterion to assess market competitiveness, a concept that is referred to as workable competition. This concept was developed primarily in the USA, notably by John Maurice Clark (1884–1963), who suggested measuring the admissibility of monopolies above all by whether they sold their products at reasonable prices.

In practice though it turned out to be extremely difficult to determine how high a reasonable price should be. Since, by the nature of things, no comparable products from other suppliers exist in a monopoly, one has to rely entirely on the monopolist's analysis of his costs to determine whether his prices are reasonable. However, the monopolist can manipulate these costs quite easily, for example by paying his employees higher salaries or by providing luxurious office space and claiming that these are unavoidable costs. Obvious examples of this in Germany are the coal mining industry as well as the electricity companies and water works that have regional monopolies. As it happens, the managers and board members of these companies include many former politicians who were previously responsible for the authorisation of monopolistic prices.

Nevertheless, in the absence of salutary competitive pressure, even the real costs of a monopolist will often be higher than they would normally be. The American economist Harvey Leibenstein (born 1922) coined this effect with the term of so-called X-inefficiency, which constitutes another disadvantage of monopolies besides excessive profits. How, after all, is anybody supposed to be able to establish something like a reasonable market price under such circumstances? Many antitrust cases in the USA, that were supposed to force dominant companies to break up their cartels, failed when it came to the problem of presenting concrete proof of negative market results.

For this reason the so-called Harvard School of competition policy suggested examining the market behaviour of suppliers alongside market structure and market results. Indeed, dominant companies can choose from an almost infinite arsenal of discriminatory measures vis-à-vis their customers, suppliers or other competitors. This is why a dominant computer manufacturer can afford to sell his products only to those customers who will also buy his low-quality software or why a producer of beverages can decide to sell only to those department stores that do not offer the products of other beverage companies at the same time, even if some customers prefer the taste of these products. Finally, there is also the broad area of mutual price agreements and other cartels, which occur time and time again, particularly under conditions of oligopoly.

Even so, it is not so easy in practice for the cartel authorities to control market behaviour. Take for instance the case of petrol prices at petrol stations. If BP, Shell and Esso raise their prices at the same time, this does not necessarily have to mean that there is a cartel agreement behind this move, as most customers would suspect. Indeed, the cartel authorities have failed on several occasions to prove that the petroleum companies conclude abusive price agreements. The reason why petrol prices increase could just as easily be that crude oil has become more expensive or that the exchange rate for the dollar has gone up. In actual fact, anybody closely observing the petrol market will note that petrol prices decline when the dollar rate falls.

Moreover, it is especially under conditions of perfect competition that one would expect that homogeneous goods always cost the same, no matter who the supplier is. For then especially, no supplier could afford to ask for a higher price than his competitors. Market prices would adjust everywhere to a level where they just about cover normal production costs. Therefore, the fact that all suppliers ask a standard price does not actually say anything in itself about whether the market is competitive or not.

The so-called Chicago school of competition theory drew a radical conclusion from all these problems. If, in the end, neither the market structure nor the market results nor the market behaviour can be used as criteria to control competition, it is best not to try at all. Because in that case anti-trust rules or an authority to supervise the abusive conduct of dominant companies will not help matters either. Instead, the only thing that is important is that new competitors can access the market at any given moment. As all attempts by businesses to abuse their market power are ultimately aimed at achieving supernormal profits they will draw new suppliers to the market automatically.

Even a monopoly can be economically useful from this point of view, at least temporarily. As long as it only reflects the natural lead of a particularly resourceful business, the extra profits that this company will achieve are entirely acceptable. This is, after all, the single most important incentive for people to constantly search for new products and better production methods. The only thing that has to be guaranteed is that other businesses can follow suit and that they are not excluded from the market on a lasting basis. A monopoly should therefore always be open to attack, as the Chicago economists used to say. In terms of competition this so-called morphological monopoly poses no problems because sooner or later it will dissolve itself anyway.

The history of electric organs is a fine example of this. Electric organs were first put on the market by the American company Hammond, that owned a patent for this. Even today, people still use the term Hammond organ, despite the fact that such organs have been sold by numerous other companies like Yamaha or Hohner for years already. Although Hammond's initial monopolistic position brought the firm high profits, this position had already begun to crumble even before the patent had expired. This was because in the meantime the electromagnetic sound-producing technique used by Hammond had become technically outdated and increasing numbers of purely electronic organs and synthesisers were being built. This example shows how, under some circumstances, the existence of a monopoly can even encourage technological progress. As it happened, Hammond himself did not keep track with these developments for a long time, believing he was protected by his patent, and eventually he was displaced from the market.

Natural Monopolies and Government Market Access Barriers

In practice, the Chicago concept would mean above all that every kind of legal market access barrier would have to be dismantled. This would apply, for example, to the regional monopolies of municipal public service providers as well as it would to the still existing guild systems inasmuch as they restrict competition in the trade sector. Moreover, one would have to ensure that competitors from abroad are not discriminated against by customs duties or other protectionist measures. And needless to say, the state itself should not act as a monopolistic supplier either, as it did for such a long time in the postal and railway services and in fact still does in many countries.

With these ideas competition theory had come very close again to the views that Adam Smith had put forward. Indeed, the main advocates of the Chicago School were convinced liberals, first and foremost George Stigler (1911–1991), Nobel Prize laureate in 1982. There are plenty of examples of newcomers entering the market and breaking what once seemed like invincible monopolies. One of these examples was the successful challenge posed to IBM by firms like Apple and Microsoft that were initially only the size of a double garage. Other giants, too, such as General Motors, AEG or Coca Cola have had to give up their dominant positions owing to pressure from new competitors. In some cases they have even had to withdraw from the market entirely.

It is far more difficult to find examples of monopolies that have been able to prevail on a more permanent basis. Even then most of these will be cases where it is the state itself that restricts market access. One example is Ivar Kreuger's monopoly for matchsticks of 1926, another example is the German postal monopoly, which was originally in the hands of Prince Thurn and Taxis and hardly changed until 1989. Even today, the German Post Office still retains the sole right to deliver normal letters.

In the case of the postal and railway services, policy makers argued for a long time that these were so-called natural monopolies, where effective competition was not possible in principle. A natural monopoly occurs when only one firm can supply the entire market at a lower price than any other number of firms. Imagine, for instance, that several railway companies are competing on a track, say, between San Francisco and New York. Most likely, their services will not all be fully utilised, resulting in a wasteful supply of superfluous capacities. Under the pressure of competition only one railway company will ultimately be able to survive, whilst all the others will have to withdraw from the market. The conclusion was therefore that the state should only permit one supplier from the outset to use such tracks. In most cases, it was the state itself that ended up taking over these services, not least so as to pocket the monopolistic profits involved. The Deutsche Reichsbahn, for example, brought the German state such high profits right up into the 1930s that the state was able to pay off the majority of Germany's reparations from World War I from these.

However, over time this policy proved to be disastrous, not least owing to technological progress. Soon the railways came under competitive pressure from cars, later also from aeroplanes. Economists refer to this as a case of substitution competition that can make life very difficult even for a natural monopoly. For at the end of the day it will not make much difference whether the railways have lost customers to a parallel competitor or to substitute commodities like cars or planes.

The Deutsche Reichsbahn already incurred increasing losses as a result of these developments, but its successor, the Deutsche Bundesbahn, even evolved into a bottomless pit of subsidies with two-digit billion losses each year. Government subsidies did little to incite the railways to operate more efficiently or in a more customer-friendly way despite competition from other modes of transport. After all, competition clothed in a state guarantee of compensation of losses is no real competition.

Eventually, in the 1980s, a general debate on deregulation started up that did not stop at the "natural" monopolies anymore either. Even though people still believed it would not be very effective to construct several competing railway tracks, telephone networks or gas or water lines in parallel, they did not see why the use of these networks should not be leased to several competing suppliers. And why should the same not also be possible with telephone companies and other network-based public utilities? In the age of the computer it is easy to organise such things without any major technical problems arising and thus to create more choice for customers. Furthermore, with the invention of mobile phones entirely new competitive products have appeared on the market. And as far as the terminals themselves are concerned, like telephones, answering machines, fax machines etc., there is no reason at all why these should not be offered to buyers by several competing suppliers.

When the postal services were gradually opened up to private competition at the end of the 1980s German consumers were at last able to purchase mobile phones and all the other technological innovations that had already been commonplace in the USA for some time. Until then a blue push-button telephone with a redial button had marked the height of progress in Germany. The market for the delivery of letters and parcels was opened up too, albeit with great caution. From then on the state monopolies suddenly had to make at least some effort not to lose too many customers.

Even so, in spite of these positive experiences, political resistance to the deregulation of these natural monopolies is still high, especially in Europe. Admittedly, there are some technical and economic problems involved, which we cannot deal with in detail in this book. But it is a fact that the Europeans place more trust in legislation and state controls than in the powers of competition. This even suits the companies concerned, because life is often good under the protection of government-fixed prices, especially if they serve to keep irksome rivals out of the way. Some entrepreneurs will even be so audacious as to ask for subsidies in order compensate for the alleged disadvantages resulting from government price regulations. Needless to say, under such circumstances, a downright morass of

mismanagement, sleaze and bureaucracy can develop very easily, which can only be eliminated, it seems, by radically opening up markets to new competitors.

It is true that the Chicago recipe is by no means undisputed, even among economists, and possibly, a certain number of network-based monopolies must remain, making a certain degree of supervision of abusive price policies indispensable. Even so, a lot would already be gained if the cartel authorities dealt with the competition restraints imposed by the state with the same zeal as they do with actual or alleged abuses of market power in the private sector. But most importantly, they should be aware of their limits when it comes to assessing what a reasonable market price is. Competitive prices can neither be simulated nor calculated, in the end it is only competition itself that can determine them.

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Prices, Costs and Profits

Alfred Marshall's Scissor Theorem

Why is leather expensive and why are synthetic materials cheap? Why do rents go up all the time whilst prices for computers keep going down? What determines the price of a second-hand car or of real estate? And is it immoral to sell a painting for 2 million dollars, after having paid only 10,000 dollars for it?

People have been asking these kinds of questions ever since barter trade and markets have existed. They are also the start to any dealings with the economic sciences. Some say that it would be possible to turn even a parrot into a good economist, provided it was taught how to say the words supply and demand. However, then we can also immediately go on to ask what supply and demand depend on for their part. Why, for instance, are not more homes constructed when there is such

an obvious need for housing? Why does the automobile industry not construct solar-powered vehicles even though many people would be interested in buying one? And why on the other hand do the Europeans produce so much butter that they cannot even sell it all and have to destroy their excess stocks?

Many people see darker forces at work here. For example, there is the widespread belief that entrepreneurs simply "make up" their prices without consumers having much influence on them. Sometimes they are even accused of withholding better and cheaper products from the market on purpose so as not to destroy their prices. And if demand for a particular product increases, businesses are said to exploit this development to raise their prices instead of producing more of the same product. As far as a monopolistic supplier is concerned, there may even be some truth in these assumptions. However under conditions of competition, things look a little different.

The classical economists of the 19th century used to claim that under conditions of competition, the prices of products would eventually always be equal to the average cost of production. For if prices were higher, new suppliers would be drawn to the market and prices would go down accordingly. If, on the other hand, prices dropped below unit costs, production would not be profitable in the long term and would come to a standstill. Of course one has to take into account that unit costs always comprise a certain share of profit. The equity an entrepreneur puts into the business should at least yield the customary rate of interest and provided that he works in the business himself, he must also be paid a wage for this, the so-called entrepreneurial wage. However, as far as any further "excess profits" were concerned, the classicists believed that they would be eliminated sooner or later by competition.

According to this theory, demand only has a short-term influence on the prices of goods, if any at all. For example, people observed that the price of black cloth would rise when the number of funerals increased, say, due to epidemics or war. The main reason for this was that it was impossible to expand supplies quickly enough, resulting in a surplus of demand. However, if demand increased on a more permanent basis, the production of cloth would rise as well, meaning that prices would eventually fall until they covered unit costs.

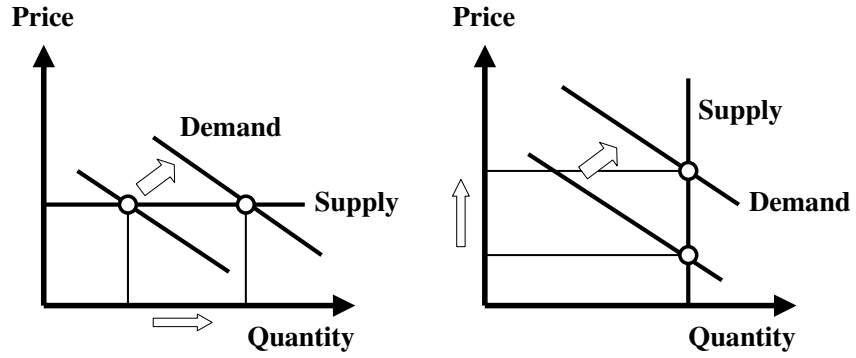
There is of course an exception to this rule, and that is the case of goods that are fixed in supply. The most important example of these so-called scarce resources is land. Since it is not possible to expand the supply of land by producing more of it, rising demand will inevitably push up prices without, however, prompting the usual increase in supply. The British economist David Ricardo (1772–1823), who was a landowner himself and probably the greatest theorist in economic classicism, even feared that economic growth would suffer as a result. In his opinion, rising land prices could not but lead to an ever-increasing share of rent from land in the national product, leaving less and less scope for entrepreneurial profits and productive investment. However, this law of the falling rate of profit has turned out to be false, especially as land has become ever more productive in view of technological progress. Business productivity was always a little ahead, as it were, of increasing profits from land.

Nonetheless, even today many people would argue that in the case of non-expansible commodities like land, the market cannot function. It is true that rising demand for such commodities will result in ever higher prices. This is, after all, the reason why rents rise faster in most countries than the prices of most other commodities. Yet, this is still not a sign of market failure. On the contrary, rising market prices point to the fact that land is becoming increasingly scarce and with this they fulfil the important function of making people put the land to its most productive use.

This is the way most classical economists also saw matters, which meant that they employed two different price theories in parallel. On the one hand, there were the normal products, where rising demand would boost production, with prices remaining unchanged in the long term and tallying exactly with the costs of production. On the other hand, in the case of non-expansible commodities such as land or rare works of art, rising demand would only result in higher prices since supplies were fixed. Cases other than these two extremes were not foreseen in classical theory.

As is so often the case, the truth is somewhere in-between. In the case of most goods unit costs are by no means a fixed variable as the classicists had assumed they were. On the contrary, they vary with the quantity produced! The higher the demand for a product is, the higher the unit costs will be. This means that supply and demand both determine the price of a product.

The Cambridge economist Alfred Marshall (1824–1924) once put it like this: the price and output of goods are determined by both supply and demand, with the two curves intersecting like scissor blades at equilibrium. In graphic terms, Marshall's scissor theorem corresponds to a price-quantity-diagram, where the quantity demanded is depicted as the falling element of the price and the quantity supplied as the rising element. The point where the two curves intersect represents



The classicists believed that the price of a product always equalled the average cost of production, regardless of demand (left-hand illustration). Only in the case of non-expansible goods like land would rising demand also lead to higher prices (right-hand illustration)

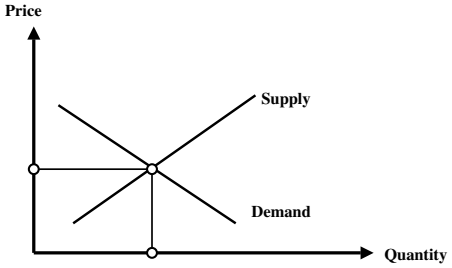
the equilibrium price. At this point the quantity supplied is exactly equal to the quantity demanded, meaning that the market will clear.

The Laws of Large-Scale Production and Their Limits

The assumption expressed by the rising supply curve, that unit costs will begin to rise as production increases, may seem strange at first glance. Have we not always heard that larger quantities are generally produced at lower cost? Are there not a number of impressive examples for this, for instance the introduction of the assembly line by Henry Ford in the automobile industry? Should the supply curve in Marshall's diagram not be sloping downwards instead of upwards?

Without question, there is some truth in these frequently expressed arguments. When output increases it is possible to use otherwise unprofitable machines and installations because the costs of such installations can be spread over an increasing number of units produced. Consequently, the greater the output, the lower unit costs will be. This law of mass production was advocated above all by the American economist Joe Bain (born 1912).

Nevertheless, it would be wrong to make too much of this principle. Because when output increases, other economic principles also begin to come into play that have exactly the opposite effect. These include above all the principle of marginal revenue, which was first described by the German farmer and economist Johann Heinrich von Thünen (1783–1850). To illustrate his theory Thünen used the example of digging up potatoes in a field. At first, this would proceed quickly because the largest potatoes that were just lying around on the ground after ploughing would be collected first. However, the more potatoes needed to be dug up, the more difficult and time-consuming this would become, with costs rising accordingly. The smallest potatoes that would have to be painstakingly dug out of the ground may even not be collected at all, because the additional revenue earned would eventually no longer cover the costs of harvesting. However, this implies nothing other than that the costs per kilo of potatoes would rise with increasing harvesting.



According to Alfred Marshall, (1824–1924) the price and output of goods are determined by both supply and demand. The two curves are like scissor blades that intersect at equilibrium.

The same goes for industrial production. As output rises, the number of skilled labourers at a production plant will eventually no longer suffice. Transport costs will rise as well because primary materials will have to be brought in from ever further afield and ever increasing numbers of customers living ever further away will have to be supplied so that the higher quantities produced are actually sold. At some point it will become necessary to set up subsidiary establishments at other locations, meaning that the advantages of large-scale production will be momentarily suspended.

However, there is an even more important factor limiting the advantages of large businesses over their smaller competitors and that is the rising cost of administration. Whereas a medium-sized entrepreneur may still have a fairly good picture of where his business stands, larger enterprises will require huge administrative departments to do this. Not only does this limit a company's flexibility when trying to adapt to ever-changing market conditions, but costs will also spiral, the larger the company gets. Experience shows that administrative departments soon begin to lead an existence of their own, ultimately administering mainly themselves. This tendency is particularly obvious in public administrations, where employees have to fill in an extensive form for each pencil they need. Even today a German civil servant will have to provide detailed information on a multiple-page form, if he uses his private car for official use, about the exact circumstances of use right down to the cubic capacity of the car.

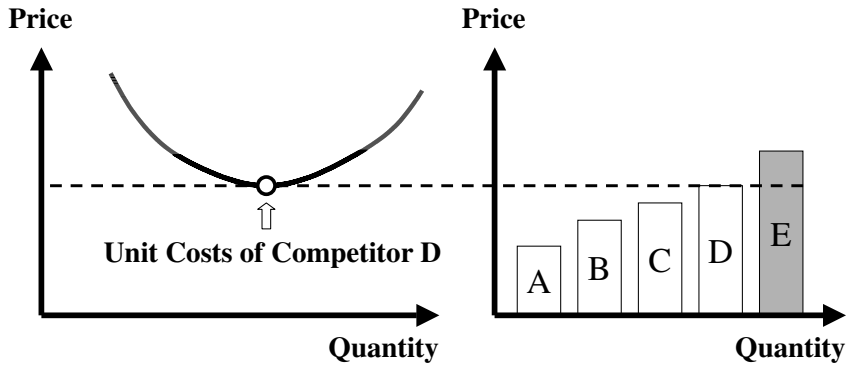
The British sociologist C. Northcote Parkinson even claimed in ironic exaggeration that, going by a particular mathematical formula, bureaucracy would continue to increase even when production had begun to decline again or when it had come to a standstill. Parkinson's law may well be an exaggeration, but it does illustrate very clearly why small and medium-sized firms are often able to produce more cheaply than large companies.

Also in terms of competition, the limits to the advantages of size through large-scale production are significant. Otherwise one would have to fear that the competitive selection process would drive all competitors from the market until only one large enterprise remained as sole supplier. However fortunately, such a tendency towards concentration does not exist on most markets.

Moreover, most products vary greatly nowadays in terms of their quality and special characteristics. For example, a vast number of different small cars exist that could not be produced on a single assembly line, if only for technical reasons. This product variety is even greater for instance in the fashion industry. This is why, in competitive markets, even when there are clear advantages in mass production, there will always be some niches for smaller producers.

Turgot's Law of Returns and Marshall's Producers' Surplus

If we combine the law of the advantages of large-scale production with that of diminishing marginal revenue we will find that in the case of most goods, unit



According to the law of diminishing returns the average cost curve of an individual firm will be U-shaped (left-hand illustration). In the case of the "marginal supplier" D, these costs will just about be covered by the market price. Supplier E on the other hand will have to withdraw from the market (right-hand illustration).

costs will follow a U-shaped curve when output increases. At first unit costs will decline but as output increases, there will come the point where they will begin to rise again. This is known as the so-called law of diminishing returns, the basic principles of which were already described by the pre-classical economist Anne Robert Jacques Turgot (1727–1781). The law of returns actually sets a limit to the size of each individual business, because no firm will be able to expand its production beyond the point where the price covers the cost of the unit last produced – the so-called marginal cost. Johann Heinrich von Thünen had discovered this principle as well, making him one of the founders of the theory of marginal productivity, which is still valid today.

However, not all businesses operate with the same degree of efficiency. Some businesses' costs will be higher than average, whilst others will be able to keep their costs lower. Those that operate the least efficiently will eventually have to withdraw from the market. Therefore, the market price will ultimately be exactly equal to the production costs of the supplier that only just manages to remain in the market. This supplier is also referred to as the marginal supplier. All other sellers on the market, who are able produce at less cost than the marginal supplier, will make extra profits beyond the normal yield on their capital. Alfred Marshall referred to these profits as the producers' surplus. These extra profits are not a rent in the usual sense of the word, but a reward for having produced at less cost than the marginal supplier did.

If demand for a commodity rises, all suppliers on the market will react by expanding their production. However, owing to the factors described above they will only be able to do so with rising costs, which means that those companies that were previously unable to compete on the market, will also get another chance to do so. Thus, the market price of a commodity will rise with increasing demand.

If, on the other hand, technical progress enabled every supplier to produce more cheaply, prices might fall even if demand increased. This has been the case particularly in the computer industry. Nowadays a PC costs as much as only a calculator would have done a few decades ago. Measured in relation to our incomes most products have in fact become cheaper over time owing to technical progress. Nevertheless, this is more a long-term effect. In the short run, i.e. at the current level of technical development, we will have to resign ourselves to the fact that the price of a product will rise the more of it we wish to consume.

Trade Margins and Speculation

Most items are not sold directly by the producer to the final consumer. Rather, they pass through the hands of one or even several traders, who will each add a surcharge to the price they themselves paid for the product. For instance, if we trade in our used car at a car dealer's, we will see already the next day that the dealer will be offering the car at a significantly higher price than he paid us. Are such trade margins economically justified or should they be rejected outright as senseless increases in profit?

This question has been already discussed at great length among economists. Already the ancient Greeks used to look askance at merchants, accusing them of enriching themselves at the expense of consumers without bringing any additional value to the products they were selling. For this reason their profession was held in the lowest esteem and it was not for nothing that Hermes had been deemed simultaneously the God of theft and the God of merchants. Even though the Catholic Church of the Middle Ages did not go quite so far in its condemnation of merchants, it certainly went no further than to concede that trading was not a sin, but never that it was pleasing to God.

Even the 19th-century classicists believed that trade and commerce were unproductive activities. Although they conceded that commodities had to be delivered by merchants to where they would ultimately be consumed, even Adam Smith refused to acknowledge this as a contribution to the national product. In his opinion commerce was an aspect of economic consumption like all other services, contributing to the consumption of scarce commodities but not to their production.

However, after some serious thought this view can hardly be upheld. Why, after all, should contributing to the national product only consist in doing something like mining coal but not in transporting it afterwards to the final consumer? Or to put it differently: If commerce were not a productive service, why would anybody pay for it?

Clearly, it is far cheaper in many cases for consumers to buy their products from professional retailers than to collect them from the producer themselves. It would require far more effort to find the right second-hand car by looking up vast numbers of newspaper advertisements than by selecting one from a professional dealer. The extra price the dealer charges for his services is nothing other than

a reward for the service he is rendering to the consumer. Conversely, the trader also has to carry the costs of maintaining large stocks. Nowadays, it is considered completely natural to include the services of the retail trade in the net added value of a national economy.

The situation is somewhat different with profits that are gained from pure speculation. A speculator does not partake in the transportation of goods, nor does he distribute them to the consumer. He simply buys stocks cheaply, for instance crude oil or other easy-to-stock raw materials, in order to re-sell them later at a higher price. Is it possible to justify such speculative profits from an economical point of view?

Opinions among economists differ very widely on this subject. Nonetheless, it would undoubtedly be wrong to consider speculative profits simply as an unjust means for wealthy capitalists to enrich themselves. After all, speculators also take risks, namely when prices develop differently from what they expected. And by taking these risks they may even be reducing those of other market participants, for instance those of the consumers!

Let us assume that a speculator buys up large quantities of wheat after a good harvest. This will drive up the price of wheat and mean that consumption will remain within certain limits. In the following year, however, crops may be destroyed almost entirely by hail or storms. This is the moment when the speculator will be able to sell off his stocks at high prices. He can even claim that by doing so he is preventing a hunger epidemic from breaking out! Whatever way one looks at it, had he not been so wise as to build up the stocks that he can now put on the market, the price of wheat would have undoubtedly risen far higher.

This is a positive case. However speculation can also have a destabilising effect on the market. For instance speculative purchases of wheat can lead to price increases, which may in turn incite other speculators to jump on the bandwagon. In this way the price may be inflated without there being any economic grounds for this. Conversely, as soon as prices reach a level where the first speculator gets cold feet, this may have the same exaggerated effect in the opposite direction.

Many argue that especially on the stock exchange and on the foreign exchange markets speculation will mostly have a destabilising effect. Markets for raw materials on the other hand seem to benefit from speculation. This is because such markets are subject to natural fluctuations in supply. It can therefore make economic sense to build up stocks, although, for obvious reasons, the costs and risks of this should not be ignored either.

Ultimately, the controversy about whether speculation is right or wrong may be one that will never be finally solved at theoretical level. Obviously, this depends very much on the specific market and on the particular circumstances. As far as the foreign exchange markets are concerned, it is not least a country's economic policy that will determine whether destabilising speculation can take hold and how far it can go. We shall be dealing with this problem in more detail in the chapter on exchange rates.

Fair Prices and Government Intervention Into Markets

We have seen that prices are a product of the interaction of supply and demand and that they will ultimately tally with the costs of the least efficient supplier. This also makes sense from the point of view of the national economy, because the marginal supplier's costs are at the same time the costs that an economy would have to pay if output increased by one additional unit. Apart from a few exceptional cases, with which we shall be dealing in later chapters, market prices established under conditions of competition mirror the relative scarcity of commodities.

However, does that mean that these market prices are also fair? Imagine we are on holiday and a poor street vendor offers us a wooden figure of Buddha at a very low price. Should we not as wealthy Europeans be willing to pay him more than what seems to us a relatively low market price? And what would happen, if there were no competition? Surely, if we had a serious illness we would offer a doctor any sum of money if he was the only doctor who was able to cure us of a life-threatening disease? But would it be right if he took advantage of this situation? In other words, is it at all possible to define fair prices and should one try, if necessary, to make them prevail in spite of market forces?

Let us begin with the issue of a fair price. The economists of the early Middle Ages, most of whom were monks or high-level dignitaries of the Church, referred to this price as the justum pretium. Many of them believed that this price was fair in principle, feeling that the fact that the market price levelled out supply and demand gave it a natural justification. This does not mean that they would have accepted suppliers taking advantage of temporarily favourable market conditions or even of emergency situations so as to raise their prices. A price was considered appropriate if it covered the cost of labour and expenses for raw materials and other primary products. This criterion of "laboram et expenses" (labour and expenses) influenced the entire literature of the Middle Ages on this issue. Nevertheless, it was also considered quite normal that wages differed in relation to whom they were being paid, the principle being that everybody should live in accordance with his or her social status. A prince or a bishop would therefore be paid much more than a simple farm-labourer, so that he could finance the standard of living that went with his social status.

The actual question of justice arose primarily when no market price existed or when it was impossible to bring this into a sensible relation with production costs. This problem arose above all in the case of scarce resources, for which even the classicists had later to develop a separate price theory. How much was an ancient manuscript to cost, for example, of which maybe only one copy existed on the market?

The Church's solution to this problem was something to the effect of taking the seller's assessment of the value of the product as the decisive factor. If the manuscript was very dear to the seller, for instance because he had been given it by his grandmother, this should be reflected in the price. If, on the other hand, the seller did not rate the value of the manuscript very highly, for instance because he

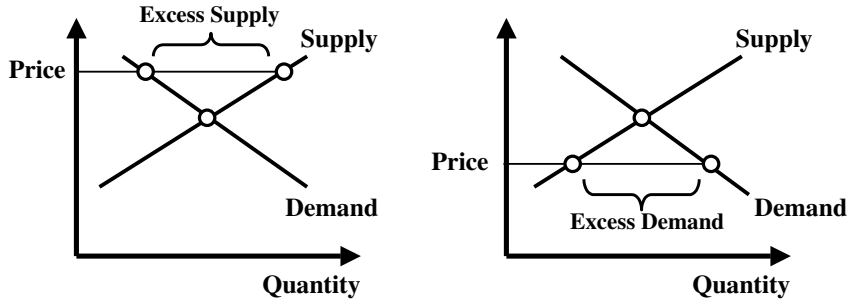
knew that it contained hidden defects or that other copies existed, he should sell it at a correspondingly lower price. However, it was not that easy to insert these moral demands into real market life. For this basically depended on the seller's conscience and on his admitting that the product on offer was of a lower quality.

Our present-day concept of fair prices is actually not that far removed from that of the Middle Ages. Most countries even have laws restricting people's freedom to agree on prices. For instance, a seller may not fraudulently conceal a defect in a second-hand car. Conversely, the buyer may not take advantage of the seller's ignorance or of an emergency situation to push the price down further than would be reasonable. Such contracts may be deemed immoral by the state and be declared void, which is basically only right.

Nevertheless, problems will arise if the state tries to intervene in the formation of market prices as an instrument of social policy. Let us assume, for example, that the state imposes a maximum rent per square metre in order to lower the price of housing or to prevent the charging of exorbitant rents. If this maximum price was below the market price – and only then would it make sense – it would inevitably lead to demand exceeding supply. Because if prices fall, demand will rise whilst supplies will fall. In other words, the state would create an artificial housing shortage!

As the price is not supposed to rise, housing will have to be allocated to people by different means, for example by imposing certain social criteria or by pulling strings or via the black market. However, going by the experience that has been gained with such allocation systems, it is highly doubtful that such procedures would be more just than if price controls were lifted. High market prices may seem unjust at first sight but they do prevent individual consumers from being discriminated against or favoured on the market for personal reasons. Any government wishing to provide cheap housing for low-income earners should therefore subsidise their rental costs rather than intervene in the formation of market prices.

Things are no better if the state imposes minimum prices. This instrument is employed, for example, in the European agricultural market, where policy makers



If the state sets a minimum price that is higher than the equilibrium price, there will be a surplus in supply (left hand illustration). In the case of a government maximum price there will be a shortage of supply (right-hand illustration).

have tried to provide farmers with an adequate standard of living by imposing minimum prices on butter or pork. As the government-guaranteed prices will be above the market price, they will lead to an artificial surplus in the supply of the foodstuffs in question. However, higher prices would obviously hardly help the farmers if nobody bought their products. For this reason, the European Union felt compelled to buy up the excess supplies and to destroy them afterwards or sell them at dumping prices overseas. Not only is this blatant economic nonsense, but it also costs a lot of money, of which only a fraction actually goes to the farmers as additional income.

Therefore, even in this case it would be better to tackle farmers' incomes instead of manipulating the market price. For instance, the state could grant farmers tax breaks or pay them direct income subsidies. Whether farmers need to receive any financial support at all is another question to which we shall return when discussing the external relations of a country. However, if policy makers do decide that this is necessary, they should do so in the most direct way possible and not by imposing minimum prices on agricultural products.

Herbert Giersch (born 1921), maybe the best-known German economist of our times and long-time president of the Institute for World Economy in Kiel, illustrated the difference between these two procedures using the example of a taxi driver. Assume we wanted to do the taxi driver a favour. Would it be advisable to ask him to drive around the block one more time so as to raise the price of our trip? Obviously, this would be nonsense because a large share of the additional price that we would pay the driver would instantly go on costs for petrol and depreciation of the taxi.

It would therefore make more sense simply to give the taxi driver an appropriate tip. The driver would gain more from this even if the tip were slightly lower than the additional revenue he would have earned for the extra journey around the block. Both market participants would therefore benefit from doing the good deed in this way. Artificially boosted market prices on the other hand are of relatively little use to the supplier and will only result in economically absurd surplus production.

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The Utility and Real Value of Commodities

The Classical Paradox of Value and Gossen's Laws

So far we have taken it for granted that the market price is a reflection of how the buyer estimates the value of a product. In one sense this is true. For example, nobody would buy an expensive sports car like a Ferrari if they did not think it was worth the money. And if the wholemeal rolls seem too expensive at the corner shop, we shall buy them elsewhere or eat ordinary bread instead. At least under conditions of competition, it does not seem too far-fetched to say that one can deduce from a product's market price how people estimate the value of this product.

However, as always, things are not as simple as they appear. First of all, not everyone can afford a Ferrari. But does this really mean that it has less value for a poor person than it does for a wealthy person? And as far as the rolls are concerned, we would probably be prepared to pay any price for them if we were threatened by starvation. So what is the real value of these items? Is their market price not merely a coincidental product of the relationship between supply and demand?

Economists have been pondering on this problem for centuries. In the Middle Ages people used to differentiate between a product's value in use and its exchange value. The use value was said to represent something like the actual use of a product whilst the exchange value reflected its market price. Under normal circumstances these two values were supposed to coincide more or less, for obviously, nobody would spend a lot of money on items they deemed useless. Yet, there were some important exceptions to this rule.

One of these exceptions was what came to be called the classical paradox of value. Adam Smith struggled with the fact that diamonds that clearly have very little practical use command a higher price than water, which is essential to life. How could this be reconciled with the utility of these two goods? If it was true that in contrast to water, diamonds were of no real use, a kilo of diamonds should cost a lot less than a kilo of water. But this was not the case even in those days.

The classicists solved this problem by defining diamonds and precious metals as rare commodities, which were governed by special laws. However, this was more a stop-gap than anything else, because it still did not explain why there was any demand in the first place for such goods, let alone why people were sometimes prepared to pay quite astronomical sums for them.

It was only the neo-classicists who really managed to solve the problem of the classical paradox of value, namely by developing what was called the subjective school of value. The history of this school of thought has been relatively intricate. Its most important theories were published independently of one another in 1871 by the Englishman Stanley Jevons (1834–1910) and in 1874 by the Lausanne economist Leon Walras (1834–1910). Still arguing with Walras about copyrights, Jevons eventually realised that the credit for these theories should in fact go to a third economist,

namely to the German economist Hermann Heinrich Gossen (1810–1858) who had come up with the decisive principles already two decades previously. It is in his honour that we still refer to Gossen's laws.

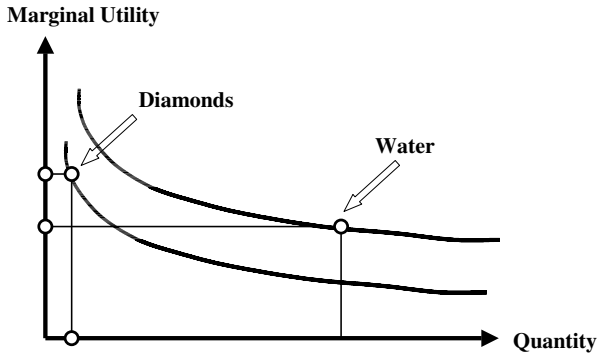
Gossen was in actual fact a jurist but was drawn much more towards mathematics. After he had tried and failed to acquire some wealth by selling insurance policies against hailstorms and cattle mortality he turned to theoretical economics. However, the book that he published in 1854 was so difficult to understand that nobody was interested in it at first. It was only by coincidence that a colleague of Jevons rediscovered it long after Gossen's death. Jevons did not hesitate to acknowledge Gossen's authority on the subject and Walras agreed with him on this point.

Gossen thought of his work as a theory about people's feelings of satisfaction and dissatisfaction. In those days his mathematical approach to this problem was still very unusual in economic teaching. Indeed, Gossen was so proud of his achievements that he even compared himself to Copernicus and his celestial laws. Jevons, too, strove to develop what he called a "differential calculation of pleasure and suffering". However, he was much better than Gossen at illustrating his theories in a way that people were actually able to understand. Together with Walras and the Viennese economist Carl Menger (1840–1921) it can be credited to him that Gossen's laws were disclosed in the first place and systematically enshrined into economic thought.

Now, what do these laws tell us and why are they still regarded as the solution to the riddle of value and price? Gossen's first central theory was that the utility a person derives from the consumption of a product is no absolute amount. On the contrary, it declines with each additional unit of that product. For example, our first litre of water per day is worth life itself because it quenches our thirst. However, the more litres of water we have, the more we will use the water for successively less urgent purposes. We will use it to wash, cook and clean and ultimately we will maybe even use it for pure pleasure and let it into a swimming pool.

However, on the market the price of a litre of water cannot vary in relation to the purpose for which it is used. According to Gossen the market price was always determined by what the last unit of a product was worth to people. If the water cost more, people would no longer consider it worth the purpose, for which they had intended to use it, for instance, they would not go swimming. If, on the other hand, the price were lower, people would begin to use the water on even less important things, for example to construct a pond in their garden. Nowadays, people would say that ultimately, the price of water would be equivalent to its marginal utility. Going by Gossen's first law, it seems that the marginal utility of water will decline with each additional unit of water. Note the similarity of this law to Thünen's law on diminishing marginal return, which we already described in the previous chapter.

Gossen himself even believed that it was possible to measure marginal utility in absolute units, for instance in euros or dollars. However, this proved to be an error – which is not difficult to understand – because the amount of money that somebody is prepared to pay for a diamond depends also and not least on his income. As a rule, people do not all earn the same incomes. Therefore, an absolute unit or scale by which utility can be measured does not exist. On the contrary,



Hermann Heinrich Gossen (1810–1858) solved the classical paradox of value: diamonds cost more than water because they are rarer and therefore have a higher "marginal utility" for people.

an individual person can only estimate the utility of one commodity in relation to that of another commodity and it is pointless therefore to search for any absolute measure of utility.

Gossen went on to ponder on how people would distribute their limited income to purchase different commodities. Imagine a low-income earner with a monthly income of just over 1.000 $. Assume also, to simplify matters, that he can only choose between two commodities, e.g. between water and bread. As both these commodities are essential to life, he will obviously want to buy both. Yet, how much he will buy of each still remains an entirely open question.

To solve this we need Gossen's second law. Both the prices of the two commodities and the individual needs of our low-income earner are relevant. Assume that a litre of water costs twice as much as a pound of bread. Say the water costs 10 $ and the bread 5 $. According to Gossen's second law our low-income earner would divide up his 1000 $ in such a way that he would derive exactly twice as much pleasure from the last litre of water he buys as he would from the last pound of bread he buys. In other words, if he used his income optimally, the ratio of the marginal utilities of two commodities would be exactly equal to the ratio of their market price.

How does this help economic analysis? Let us move away from money for a moment and imagine that people exchange their goods directly with one another. A shoemaker exchanges his shoes on the market for bread and clothes, a baker buys shoes and jackets in exchange for rolls and so on. Gossen's laws would imply that such exchanges are of benefit to all concerned. All participants will benefit even though, owing to the fact that the goods have been exchanged, not a single additional unit of a commodity has been produced! As the shoemaker will possess many shoes at first but not a single roll, the marginal utility of a roll will be far higher to him than that of a pair of sandals. For the baker it will be exactly the opposite and therefore both parties will benefit from the exchange of their goods.

The widely held view that one party is always cheated in commerce is thus wrong. On the contrary, commerce is beneficial to all those involved in it.

Pareto Optimality and Distribution of Income

From Gossen's laws we can conclude that people will go on exchanging goods and other services until they can no longer draw any mutual benefit from this exchange. Therefore free trade is an important prerequisite to achieving what is called Pareto optimality. This is reached when, under the given circumstances, an economy can no longer achieve any gains in utility. Of course people will always find ways of feathering their nest at the expense of others. However, under conditions of Pareto optimality all possibilities of achieving mutual utility gains through the exchange of goods are being fully exploited. People therefore also say that this optimality is achieved when it is no longer possible to make anyone better off without making someone else worse off.

This line of thought goes back to Vilfredo Pareto (1848–1923) who was born in Paris to a Genoese family of merchants. His parents were so enthusiastic about the 1848 revolution in Germany that they named him Fritz Wilfried, which became Vilfredo Frederico upon his return to Italy. Pareto took over Walras' chair of political economy in Lausanne. The Lausanne school of neo-classicical thought was very mathematically orientated, dealing amongst other things with the question of how the welfare of an economy could be measured. Today this particular branch of economics is referred to as Welfare Economics. As one of its founders, Pareto came to a surprising conclusion that has remained largely undisputed up till this day, namely that any attempt to measure an economy's welfare by adding up the utilities of its inhabitants will necessarily fail, if only for purely theoretical reasons!

With such theories Pareto came out against the then reigning school of the so-called utilitarians, which included in particular Jeremy Bentham (1748–1832) and Francis Hutcheson (1694–1746), one of Adam Smith's tutors. The utilitarians defined the wellbeing of a society to be "the greatest happiness of the greatest number", with which they ultimately meant the sum of individual utilities. It was precisely this kind of simple addition that Pareto could not accept at all. He also believed that any other form of aggregation – for instance the multiplication of individual utilities – would necessarily fail due to the problems of measurement involved.

For example, it would be completely absurd to claim that utility is necessarily higher for a wealthy person than it is for a poor person, just because the former has more money to spend. At best one can determine for an individual whether his utility will diminish or increase if his income rises. However, it is impossible to weigh up a loss in utility for a poor person against a gain in utility for a wealthy person and to derive a result from this. These are two entirely different scales of measurement that are not comparable in principle.

The problem is not much different when comparing the performances of sportsmen. Does a sprinter who runs 100 metres in 10 seconds achieve more than a high-jumper who jumps over a crossbar that is 2.40 metres high? Obviously, such comparisons are hardly feasible, because it is impossible to apply a single scale of measurement. The same applies to the comparison of one individual's utility with another's. Nobody can say with any scientific exactness that a poor person will derive more utility from a theatre ticket than a wealthy person. It may seem a little easier to answer this question in the case of essential items such as bread and water. However even then this will always involve some form of value judgement and cannot therefore be substantiated from a purely scientific point of view.

Pareto drew a radical conclusion from these problems, namely that an economy's welfare would only increase if nobody was any worse off than before and at least one individual experienced an increase in utility. If, on the other hand, 99 individuals improved their conditions but one person experienced a deterioration, it would already no longer be possible to make a definite statement about an economy's welfare. Pareto therefore recommended restricting oneself to the more modest objective of creating a situation where nobody could be made any better off without making somebody else worse off, as is the case in Gossen's equilibrium in exchange.

This has nothing to do with any sort of fairness in distribution, just as it has nothing to do with the real utility of a product, whatever is meant by this term. Pareto's sole aim was to make the relative best of an initially sub-optimal situation by fully exploiting all conceivable possibilities of exchange to the mutual benefit of all involved.

Now, a balance in trade in Gossen's sense may well be a necessary condition to reach Pareto optimality, but it by no means suffices. On the contrary, there are a number of other conditions that have to be fulfilled as well, particularly in terms of production. In reality it is not the case that shoes and rolls simply exist and all we have to do is to trade in them. On the contrary, such goods have first to be produced. However, as there is an overall limit on the production possibilities of an economy, we have to make a second choice and that is to decide which goods we would like to produce and in which quantities.

Some people are of the opinion that producers should concentrate above all on producing those goods that are in high demand. But one also has to take into account that the production costs of each item vary. This brings us to another prerequisite in order to achieve Pareto optimality, which is, in the end, also a matter of a relative comparison. Assume, for example, that it costs twice as much to produce a shoe as it does to produce a bread roll. In other words society would have to forgo the consumption of two rolls in order to produce one additional shoe. If this were so, preference should be given to the production of shoes only for as long as they cost at least twice as much as a roll.

People also refer to a product's opportunity costs in this context, which in this case would amount to two bread rolls for one shoe. The second condition for Pareto optimality is therefore that, if there is equilibrium in production, the opportunity costs of two products must be equal to their price ratio. For if this were not so,

it would be possible to increase wealth by reallocating production and that would mean that the optimal structure of goods has still not been attained.

However, in general it is competition that will bring about precisely this result. We have already seen that under conditions of competition, the prices of goods reflect their relative production costs. Only in the case of monopolies or other distortions of competition is this condition for Pareto optimality not fulfilled. Therefore even in terms of production, free markets are an important prerequisite to making sure that the scarce production factors are deployed as efficiently as possible.

Nonetheless, even then deploying the production factors "as efficiently as possible" is only feasible with a given distribution of income. Because this also determines at the end of the day, which consumer needs will assert themselves on the market and which items will thus be produced in which quantities. If the distribution of income changes, it is likely that the optimal production structure will change as well.

But this does not mean that there is anything to be said against the idea of Pareto optimality and the conclusion that as many markets as possible should be guided by scarcity prices. For if people are not satisfied with the way incomes are distributed, it is this that should be corrected rather than abolishing market freedom. As long as producers are competing with each other, this is the surest guarantee of all that everybody will be able to draw the highest possible utility from his income. No more and no less is at stake when economists advocate competition-orientated market prices in as many markets as possible

Consumer Sovereignty and Merit Goods

So far we have tacitly assumed that the individual consumer knows best himself what he needs. This principle of consumer sovereignty has a long tradition among economists, but it is by no means undisputed. Even liberal economists would admit that at least as far as minors, drug addicts or the mentally ill are concerned, certain restrictions have to be imposed. However, these are exceptional cases that do not really touch on the central problem. The decisive question is rather whether the supply of products should be determined solely by the sometimes foolish desires of consumers or whether there are also good reasons for the state to intervene to correct things.

Some economists are of the opinion that the state should encourage consumers to increase their consumption of certain goods, applying greater or lesser pressure depending on the product in question. The most frequently mentioned concrete examples include cultural items or health services, the benefits of which are often underestimated by consumers. On the other hand, the state should discourage the consumption of less desirable products such as cigarettes or alcohol. The first category of goods is referred to as merit goods whilst the latter category is known as

demerit goods. These terms go back to the economist Richard Musgrave, who was born in 1910 in Königstein in Germany and later emigrated to the United States.

Musgrave put forward several other reasons why the state should intervene in market processes, especially in certain cases of so-called market failure. We shall be dealing with these in the following chapter. However, as far as merit goods are concerned, they are not in fact an issue of market failure, but rather the result of a general doubt about whether people are capable of estimating correctly the benefits of the goods they wish to consume.

It is true that if we look at what some people spend their money on, we cannot but agree with some of these doubts. Who really needs a set of 24 stainless steel knives except maybe a mass murderer? In the affluent societies of the West, even children often develop a marked preference for luxury toys and expensive brand products. Moreover, are we not all manipulated to a certain extent by advertising, which tries to instil needs in us that we do not actually have? By the end of the 60s, criticism of the consumer society had reached its peak. At the same time public institutions like kindergartens or schools were said to lack even the barest necessities. Does this mean that we have all been misled by the laws of the market? Should we not define the real value of commodities by using completely different criteria than those of supply and demand?

In the 1970s policy makers began to develop so-called social indicators to determine the real quality of life in an economy. These indicators included above all public spending on items like hospital beds, educational establishments and transport infrastructure, but also factors such as the quality of the environment and housing. During the following years, the share of public goods in the national product rose considerably in many countries. New schools and universities were built and large sums of money were spent on public cultural institutions like theatres and museums as well as on the continual expansion of social security.

All this was financed primarily from taxes and other compulsory payments. However, this gave rise to the following two problems. For one thing consumer behaviour only changed to a very limited degree. The more the state took over the provision of educational and health services, the fewer people were prepared to spend their own money on such things. Soon people began to take it for granted that the state should pay for their medication and school books, that they should live in subsidised housing and that they should pay far less for the use of public services such as libraries and swimming pools than would have been necessary to cover the actual running costs of such facilities. On the other hand, people continued to spend their private money on the same useless or even harmful goods such as cigarettes and alcohol.

The second problem concerned the financing of public services. As such services were being provided to people at far lower prices than their actual cost or even free of charge, demand for such services knew no bounds. Consequently and paradoxically people felt even more strongly than before that there was a shortage of such services, prompting the state to provide even more of them. In almost all Western industrial nations taxes and levies rose significantly during the 1970s as a result of such developments and eventually it became clear that replacing

the market with a largely politically determined supply of goods posed almost insurmountable financial problems for the state.

Liberal economists have always had their reservations about the concept of merit goods, indeed, some have even rejected this concept outright on very fundamental grounds. After all, who can actually decide which goods are beneficial and which goods are harmful for people? Ultimately, it is only the politicians who can decide on such matters. However, if they did so, they would at the same time be declaring that those same citizens who voted for them were unable to decide for themselves. According to the liberals there had to be a very good reason to question the sovereignty of consumers. This applies especially in a democracy where it is taken for granted that people are able to decide for themselves. We shall be dealing with such reasons, inasmuch as they are founded on a solid theoretical basis, in the following chapter.

However, when it comes to distinguishing between the real needs and the excessive consumption of luxuries, the state would be better advised to refrain from intervening too much in what people consume. Ultimately, people have to be able to decide on such matters themselves and this may even depend on character. Even John Stuart Mill (1806–1873), the last of the great classical economists, held a similar opinion. It was not wealth as such that he objected to but the tendency of wealthy people to spend their money on superficial luxuries instead of for instance on helping the poor.

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Causes of Market Failure

Should the State Act as Night Watchman?

Economists are often accused of seeking all the good in the world only in the market and in competition. To politicians they sometimes seem like remote theoreticians

from an academic ivory tower, whose belief in the market boils down to "Manchester capitalism", which is unacceptable already for social reasons. Furthermore, even from a purely economical perspective the market does not always lead to the best results and therefore has to be corrected at a political level.

The 19th-century classicists were already the object of such criticism, being accused of propagating an economic policy of "laissez-faire", a term that was first coined by the physiocrat economist Jacques Turgot (1727–1781). Laissez-faire means as much as letting things simply run their course. Later the term "Manchester capitalism" was also adopted for this concept, named after the centre of the English free trade movement towards the end of the 19th century.

Taking this concept to its extreme, the role of the state would come down to that of a night watchman, as the socialist Ferdinand Lasalle (1825–1864) once said. Lasalle was a leading politician in the workers movement and founded the General German Association of Workers in 1863, the predecessor organisation of the Social Democratic Party of Germany. He died already at the age of 39 in a duel with his lover's husband.

Nonetheless, if one reads the works of the classicists, there is certainly no indication of them assigning the state a role of mere night watchman. Admittedly, both the physiocrats and the classicists trusted fervently in the powers of the markets, at least much more than they did in politics, but even Adam Smith acknowledged that there were certain tasks going beyond matters of internal and external security that only the state could perform. Among these he included above all the provision of infrastructure, for example roads and street lighting. John Stuart Mill (1806–1873), who later completed the classical construction of thought, was even regarded by many as a closet socialist. For example, he was an advocator of a radical inheritance tax and one of the first champions of women's rights.

Today people distinguish between three broad areas, in which the state should have a particular economic responsibility, a distinction that goes back to Richard Musgrave. According to Musgrave one important function of the state consisted in stabilising the economy, another in rectifying the distribution of income that resulted from market processes. We shall be dealing with these two problems in more detail further on in this book.

The third area where Musgrave believed the state had an important role to play was that of so-called resource allocation, which consisted in deciding how the scarce production factors should be employed as well as what kind of goods and how many of these an economy should produce. In actual fact, this is precisely the problem that the market should solve. However, according to Musgrave there were cases where corrective intervention by the state was indispensable.

Musgrave drew a clear distinction between private, merit and social goods, believing that only private goods could be governed entirely by the laws of supply and demand. Indeed, there is no conceivable reason why the state should influence demand, for instance, for bread rolls or jeans. For such goods, no better mechanism exists than the laws of supply and demand.

On the other hand, as regards merit goods, Musgrave believed that the state should definitely intervene in their allocation, as we have already seen in the pre-

vious section. Considering that either too many or too few of such goods will be consumed if left to market forces or that people will want to consume them for largely irrational reasons, the state should set positive or negative incentives, for example by subsidising sports clubs or by taxing cigarettes. However, to a consistently liberal economist, such state intervention in consumer sovereignty would hardly be justified.

Natural Collective Goods

Things are different in the case of so-called social goods, which should rather be described as natural collective goods. These are not an issue of people being able to decide for themselves nor of how they should be distributed, as one might think at first. Rather, natural collective goods are products that, for one reason or another, cannot be provided by the market in sufficient quantities even though people would dearly like to buy them. According to Musgrave there were two main reasons for this type of market failure.

The first reason is that certain items have no rivalry in consumption. The standard example of such an item is a road or a bridge. Once built, one would hope that as many people as possible use the bridge because this would entail hardly any extra cost. Utilisation of the bridge by Mr. Taylor will not rival with the utilisation of the same bridge by Mrs. Smith, unlike the case of an apple that can only be eaten by one of them. Therefore, according to Musgrave, nobody should be deterred from using the bridge as much as possible by having to pay a fee.

Yet, under conditions of competition, a private owner of a bridge would still have to charge user fees in order to recuperate his costs for having constructed the bridge. This in turn would deter many consumers from using the bridge. Therefore, according to Musgrave, financing a bridge from private means would only result in what would be an economically absurd under-utilisation of its capacities. It would be far better to finance the bridge from public funds and then let the public use it for nothing.

In principle, this argument applies to all products, the cost of which is mainly made up of so-called fixed costs and where consumption by another individual will therefore hardly cause any additional cost. This is also referred to as a natural monopoly. Other examples of such items, apart from bridges and roads, include dykes, railway tracks and telephone networks as well as public drainage, the police service and national defence. Such monopolies are deemed "natural" because they involve almost only fixed costs and because unit costs will decline with every additional user. As we have already seen, it is possible if costs develop this way, that only one supplier will ultimately remain on the market – as a monopolist. In fact, most of these items are supplied by the state or by government-protected monopolistic companies.

Nevertheless, we must also be cautious when arguing with the concept of non-rivalry in consumption. For example, if the bridge is frequented so much that it

starts to show signs of over-use, this argument will no longer hold good. It may make economic sense therefore to charge a user fee just to prevent demand from becoming excessive. Indeed, if demand is so high that the fees even cover the costs of construction, the bridge can and should be financed from private means. The same applies to heavily utilised railway and telephone networks. In fact, the actual product itself, e.g. electricity or water, bears all the hallmarks of rivalry in consumption. It is only the network that this does not apply to. Therefore, in many countries today, the state only provides the networks, which are then used by private electricity, water or telephone companies.

Thus, the fact alone that fixed costs are high is not justification enough for the state to provide a facility. Otherwise there would also be no point in constructing facilities such as private indoor tennis centres or golf courts, the costs of which will also be largely independent of how much these facilities are used. It is nevertheless much easier, for technical reasons alone, to charge an entrance fee to a tennis court than it is to a road. It is also said that the transaction costs of market-based financing would differ in these two cases. Strictly speaking, the differences between private and public goods go back primarily to such disparities in the transaction costs.

More recently, in discussions about the problem of non-rivalry in consumption, people have used the term club goods. Ideally, such products should be financed from a two-part fee, consisting on the one hand in a standing charge and on the other hand in a charge that varies with use. The German railways for example, offer a rail-pass (called a "Bahncard") allowing travel on all their routes at half-price. For only little more money people can even buy a network pass, permitting cost-free travel on the entire railway network for a whole year. These are the kind of measures that businesses can implement in order to cover their fixed costs without preventing consumers from using free capacities. Where such solutions are possible, Musgrave's problem of non-rivalry in consumption no longer holds as an argument against the private provision of such goods.

The Non-Applicability of the Exclusion Principle

Let us turn now to the second possible reason for the existence of natural collective goods, namely what is referred to as the non-applicability of the exclusion principle. Even though non-excludability often arises in conjunction with non-rivalry in consumption, it is nevertheless something entirely different. The most important examples of non-excludability are environmental problems.

Take the example of a forest. Even though a forest has a certain utility for its owner, namely in the form of proceeds from the sale of wood, it also fulfils an important ecological purpose. It is a home to rare animals and contributes to the formation of oxygen, which is vital to our survival. Regrettably though, it is not possible to define a market price for such things. On the contrary, everybody can enjoy clean air for free, without having to pay a fee to the owner of the forest for

doing so. One could also say that nobody can be excluded from consuming clean air because they are unable to pay for it. This clearly distinguishes collective goods like "clean air" from purely private products like pastries or dungarees. As a result, commodities that are not governed by the exclusion principle are offered on the market either in too low quantities or even not at all.

Another example is a dyke. Just like a bridge, a dyke has no rivalry in consumption. However, unlike the bridge, a dyke is characterised by non-excludability. Even though everybody whom the dyke protects from flooding has an eminent interest in the dyke being built, it will not be possible, as opposed to the bridge, to exclude those who have not paid for its construction from nevertheless benefiting from it. Therefore, in most cases it will also not be possible to finance the dyke from market-based charges. In the past, policy makers tried to solve this problem by obliging everybody living in the immediate vicinity of the dyke to participate in its construction. Those who refused were condemned by Friesian dyke law to move their place of residence according to the motto "those who do not pay cannot stay". Today dykes and other investments that are not governed by the exclusion principle are financed from taxation. In this case we really are dealing with what are by nature public goods that cannot be provided by the market.

Externalities and Environmental Problems

Let us take another look at the environment. After all, environmental problems do not just consist in there being too few incentives to actively improve the environment by means of, for instance, forestry measures. On the contrary, the main problems are caused by the various emissions that pollute the environment, bringing it to the brink of destruction at times. In the view of the public, it is mostly the unscrupulous entrepreneurs and their greed for profit that are the cause of air and water pollution. However, the economic theory of market failure shows us that the true cause of this problem lies elsewhere. This is also confirmed by the fact that in the former Socialist economies, the environment suffered at least as much as it did in the capitalist economies of the West.

Both economic systems have in common that – unlike private resources such as coal or iron ore – there is no automatic excludability in the enjoyment of the environment, for it is not the individual who pollutes the environment who bears the costs of his actions but the general public. This is why everybody believes they can exploit the environment at the expense of everybody else. This applies just as much to the profit-seeking capitalist as it does to the manager of a public enterprise, who can fulfil his production targets more easily in this way. Even private individuals will find it far easier to dump their waste in the wilderness than to dispose of it in an environmentally friendly way. We are therefore dealing with a general free-rider problem that has little to do with the economic system in which it takes place.

It is best to analyse any possible solutions to this problem by using the term externalities. An externality is a cost or a benefit to third parties, i.e. to those not directly involved in the production or consumption of the product. The first of our two examples mentioned above is one where the externalities are positive, i.e. the owner of the forest and the builder of the dyke provide the public with a benefit, for which they cannot set a market price. Hence, under pure market conditions, people would plant fewer forests and build fewer dykes than would actually be desirable.

Environmental pollution on the other hand is an example of a negative externality. The economic agents do not have to carry the economic costs of the problems they cause. Therefore, people will tend to pollute the environment more than they would otherwise do.

How can we deal with this problem most effectively? The most obvious solution may seem at first to prohibit any type of pollution and to enforce this ban through severe controls and high sanctions. However, this would also mean an end to any type of business. For example, it is impossible to produce or to run cars without damaging the environment at least to a certain degree. The same applies to the railways and to almost all other items in our daily lives, even to services. A hairdresser, for instance, needs energy and water to wash and blow-dry his customers' hair, and his customers will have to use more or less environmentally friendly modes of transport to get to his shop. It is far more realistic therefore, to try and keep the pollution that inevitably goes with any business activity within acceptable limits.

Assume these limits have somehow been identified and imposed at the political level. The next step would be to decide who was permitted to pollute the environment to what degree and for what purpose. To do so, two conditions would have to be met: first, the sum of environmental damages should not exceed the identified limits and secondly, the so-called "pollution rights" should be distributed as fairly as possible among the individual polluters.

Even though terms like "pollution rights" may make any convinced environmentalist's hair stand on end, at the end of the day, every kind of environmental policy inevitably boils down to distributing such rights, even if this is not always fully clear and transparent. Even those who impose strict prohibitions or conditions are distributing the right to pollute the environment, namely in terms of the quantities that are still permitted. The only question therefore is how this can be done in the most useful way possible. But what does this mean exactly?

Let us first of all be perfectly clear about the fact that we are dealing yet again with the distribution of a scarce commodity. If the emission of carbon dioxide were limited to, say, 100.000 tons per year, these 100.000 tons would practically acquire the quality of a scarce production factor. They could be used to drive cars, manufacture shoes or heat houses. The carbon dioxide would be no different from other scarce commodities like steel, capital or labour, where we also have to decide on their most efficient use. The most obvious solution seems therefore to apply the same mechanism to the use of carbon dioxide as to all other commodities, namely that of market and competition.

The most consistent implementation of these theories goes back to an idea of the Chicago economist Harold Demsetz (born 1930). Demsetz actually suggested creating tradeable pollution rights in the form of certificates and selling them to the highest bidder. In our example this would mean that certificates would have to be printed, indicating, for instance, that the owner of the certificate may emit one ton of carbon dioxide per year. Should a person wish to emit 100 tons, he would have to purchase 100 such certificates, meaning that the certificates would have to be tradeable on the free market at any time. If a firm introduced new energy-saving techniques and therefore emitted less carbon dioxide than initially foreseen, it could sell the superfluous certificates to other firms or to private households. As with any other scarce commodity, the price of these certificates would be determined by supply and demand.

As this kind of artificially created environmental market would be governed by the exclusion principle, it would remedy the initial market failure. Only those who have purchased the necessary certificates would be permitted to produce pollutants. At the same time the certificates would only be used by those who need them most urgently, because everybody would have the choice of either purchasing a certificate or of reducing pollution by the appropriate means. If such measures were easy to implement – for instance simply by driving less – nobody would buy a certificate, as this would be comparatively expensive. On the other hand, if there were only limited possibilities to reduce emissions, the polluter would just have to buy the necessary number of certificates. Ultimately, pollution would be lowered in those areas where this leads to the least cost and losses in utility. This would of course make economic sense.

Moreover, people would have a strong incentive to look constantly for new ways of reducing pollution because they would have to buy fewer of the costly certificates as a result. The most attractive thing about this model is that the whole process would take place without the government actually imposing any legislation. It is not the state that would have to seek the means of protecting the environment and then oblige citizens to adhere to them, but businesses would do so of their own accord in order to save costs!

Nevertheless, as is so often the case, it is the details that present the most problems in this model as well. One of the problems with the issuing of certificates is that many pollutants only begin to have a really damaging effect when they occur in high concentrations within one region. This is the case, for instance, with noise pollution, to a certain extent also with air pollution and definitely with water pollution. Therefore, the certificates would have to apply to specific regions, which would make this system relatively complicated. Furthermore, it would have to be ensured that nobody is actually emitting more pollutants than their certificates permit. This would be extremely costly to implement and in the case of mobile sources of pollutants like cars hardly practicable at all.

Therefore, in spite of the theoretical elegance of this solution, it would unfortunately only work to a limited degree in practice. Nonetheless the idea as such has its uses because at least it shows us what could be feasible in an ideal case in

theory and can therefore serve as a yardstick for other solutions to environmental problems.

One alternative to such a system would be to levy environmental taxes as the British economist Arthur Cecile Pigou (1877–1959) suggested as early as in 1912. Pigou taxes could be levied on individual energy sources, for instance, depending on how much environmental damage these sources cause. In the case of carbon dioxide emissions this could be a very useful solution, because here the extent of pollution depends almost entirely on which type of energy and how much of it is used. However, tax levels would have to be adapted constantly to make sure that pollution never rises above an acceptable level. Even though this might pose problems due to fluctuations in economic growth, hopefully such measures would serve to control pollution at least to a certain degree.

Even so, there are certain pollutants where this method would not work. One of these is the noise pollution caused, for example, by a lawn mower. We would hardly accept our neighbour disturbing our hard-earned rest on a Sunday afternoon just because he paid a tax to mow his lawn. This applies all the more to the emission of cancerous substances or other substances that are directly harmful to people's health. In such cases one has no choice but to regulate matters, i.e. to ban certain emissions or to restrict them by law to harmless levels.

Are Environmental Taxes and Charges Unjust?

Let us now turn to a fundamental objection against all market-based solutions to environmental problems. Many people would argue that to issue eco-certificates or to charge environmental taxes is unjust. For then only large companies or rich people could afford to pollute the environment, whilst "ordinary people" would have to restrain themselves. Even though this argument may sound convincing at first, it could basically be used to argue against any type of market price. To be really consistent one would have to withdraw other scarce commodities from the market mechanism as well, like petrol, water or bread, and submit them to government allocation.

However, experience tells us, not least that of the former Socialist economies, where this would lead. Inefficiency, waste and corruption would be the inevitable consequences. Not least, a political battle would develop about who was entitled to the scarce environmental capacities, which could easily end up to the disadvantage of minorities. Once the state begins prescribing how much petrol, warm water or heating oil every citizen is allowed to use per year, arbitrariness and permanent political strife are unavoidable. Therefore it would not only be an economic but also a political error to combine decisions of allocation with questions of distribution. It would be far more efficient and less liable to cause conflict to regulate the use of commodities via supply and demand and to solve distribution problems where they arise, namely in the area of incomes and taxation.

Furthermore, it would be unrealistic to expect that only a few large enterprises would purchase environmental certificates whilst small companies and individual persons would do without them. This has not been observed with other scarce raw materials either. Even a business making a lot of money will only purchase expensive resources like environmental certificates if it really needs them and cannot replace them with more modern production techniques. Nobody can say that small enterprises or private individuals would necessarily be at a disadvantage. In this sense the anonymous market treats all buyers as equals, in contrast to government authorities that may act according to highly arbitrary criteria.

Voluntary Negotiations: The Coase Theorem

Among economists there is the widely held view that externalities necessitate corrective measures by the state. This view is not entirely undisputed and one famous economic theorem holds that under certain circumstances private negotiations as well can solve the problem of externalities. This theorem goes back to the American Ronald Coase (born 1910) who was awarded the Nobel Prize for his work in 1991.

Coase tried to explain his basic idea by using the example of a cattle dealer driving his cows across the meadow of his neighbour. Obviously, this is a clear case of a negative externality because the cows will feed on the meadow without their owner having to pay any charge for this. However, one could also take the opposite view. If what the cattle owner was doing was legal, the owner of the meadow would be generating a positive externality to his own benefit by keeping the meadow in good condition without having to pay for it.

According to Coase, it did not actually matter who was the legal owner of the meadow. In either case both parties would have a powerful incentive to come to a voluntary agreement on payment, thereby internalising what was initially an external effect. The only thing that mattered was that it was clear about what belonged to whom.

Assume for the moment that the meadow and all its rights of use belonged to the neighbour of the cattle owner. In this case the latter would have an interest in acquiring the user rights from his neighbour. The two parties would thus begin to negotiate in order to agree on a price for the meadow.

Suppose the opposite, i.e. that the cattle owner had the right to let his cows graze wherever he liked. Going by Coase, the two parties would begin to negotiate in this case as well, because the owner of the meadow would now want to prevent the cattle owner from using his meadow. He would thus offer money or another form of compensation to the cattle owner in order to make sure that he makes his cows graze elsewhere.

Whether these negotiations will lead to any success does not depend, according to Coase, on which of these two cases we choose. On the contrary, the result will always be the same in either case. If the cattle owner's benefits are greater than the

damage caused to the owner of the meadow, the cows will graze on that meadow. If, on the other hand, the damage is greater than the benefits, the cows will be kept away from the meadow. In other words, the negotiations will always arrive at the optimal result, regardless of how property rights are distributed – they just have to be absolutely clear!

Even though the Coase theorem is theoretically elegant it is not very practical, as even Coase himself admitted. Theoretically, for instance, those people living near a nuclear power station could get together to try and persuade the operator of the power station to shut down the reactor by paying him some kind of bribe. However, it is extremely unlikely that they would do this. Because just like with our example of the dyke, if the negotiations were successful, nobody could be excluded from the benefits of these measures, no matter whether they had participated in the bribe or not. Again we have a free-rider problem here, making the financing of the public "nuclear-free zone" from private means virtually impossible. In such a case, voluntary negotiations are likely to fail, even if everybody wanted the same thing and was able to raise enough money to successfully "bribe" the operator of the nuclear power station.

Coase circumvented these problems in his cow-and-meadow example because there was only one person inflicting damage and only one person suffering from it. This may be an ideal case but it will not occur very often. Furthermore, even in this ideal case, one must take into account that the two constellations of property rights may result in identical solutions in terms of allocation but have an entirely different effect in terms of distribution. In other words, the cows would graze on the meadow only if the benefits to the cattle owner exceeded the damage inflicted. However, if the meadow belonged to the cattle owner's neighbour, he would find himself in a better position at the end of the day than if he had had to pay the cattle owner to keep his cattle off his meadow. This asymmetrical effect of distribution can lead to considerable political problems when trying to implement the Coase theorem.

The Environment and Politics

Let us briefly recapitulate the conclusions, at which we have so far arrived. With any luck the Coase theorem will result in voluntary negotiations coming to a satisfactory solution to the problem of externalities. But we cannot rely on this. If those inflicting the damage and those suffering from it do not come to an agreement, the state will have no choice but to intervene. The most appropriate way of doing so would be by instituting the appropriate market mechanisms, for example by issuing certificates or by charging environmental taxes. However, if this does not work either, legislative measures will have to be imposed, whether we like it or not.

Meanwhile, the so-called "green" parties, too, are turning to market-economy-based solutions to environmental problems, after having initially been more in favour of prescriptive measures or of legislation. One thing that may have con-

tributed to their change in attitude is that the state can make a lot of money from environmental taxes and levies. Provided these levies are earmarked for specific purposes, the revenues earned from them will be spent primarily on the protection of the environment. Taxes on the other hand, even if they are imposed on mainly ecological grounds, have no specific purpose by definition, in line with the so-called principle of non-affectation.

In actual fact, there is no reason why the revenues from environmental taxes should necessarily be spent on the protection of the environment. Their function, after all, is to reduce the consumption of scarce environmental resources, such as clean air or water, to a tolerable limit. However, they will fulfil this function regardless of what the revenues are spent on. Of course it would be possible to use these revenues to build a nature reserve for example. But the actual scale of such measures has nothing to do with how many revenues are earned from environmental taxes. Why, after all, should the size of a nature reserve depend on one particular source of revenue?

Under certain circumstances it can even make sense to combine the introduction of eco-taxes with simultaneous cuts in other taxes, for example in order to promote new investments and the creation of jobs. In this case the state would not make any additional money and the question of earmarking taxes for a specific purpose would resolve itself.

It is even more difficult to justify the use of ecological taxes to influence consumption, unless the actual target of environmental protection calls for this. If, for example, the price of petrol were raised on ecological grounds, in principle this should apply to all other uses of petroleum as well, as it should to all other energy sources depending on the respective damage they cause to the environment. It makes no sense, either from an ecological or from an economical point of view, to raise the price of petrol on the one hand but to subsidise coal on the other hand, as in the case of Germany for example. Eco-taxes will only fulfil their purpose if they are applied consistently and without political considerations to any activity that is harmful to the environment.

Finally, environmental taxes will only work if there is no possibility of circumventing them. For instance, it would not make much sense charging a tax on the greenhouse gas carbon dioxide in only one country. For the industries concerned could transfer their production sites abroad and continue to pollute the global environment from there. The first country to take such a step would merely suffer job losses without gaining anything at all for the environment.

Yet again we are dealing with a free-rider problem here, only this time at an international level. From the point of view of each individual country it would be rational to let other countries take the lead in protecting the climate. In this way those countries doing nothing could benefit from the measures of others without having to participate in their costs. This problem can only be solved if policy makers conclude the necessary international agreements. Ideally, one could issue certificates to individual countries, permitting them to produce only certain quantities of carbon dioxide. The governments in these countries would then have to

take appropriate measures to ensure that these emissions remain within the limits set out in the certificates.

However, it is the initial issuing of such international certificates, which would cause considerable distribution problems. If the certificates were auctioned off, the poorer countries would probably feel they were at a disadvantage right from the outset. On the other hand, it would not be possible to issue the certificates simply by going by the size of a country's population because the industrial countries are hardly likely to accept this. One must also bear in mind that in future it will be above all the overpopulation of the earth that will be the main cause of environmental problems. From that point of view alone, it would be out of the question when allocating such certificates, to give preference to those countries with high population growth.

It is not easy to find an equitable solution to such allocation problems. Yet, we must do everything we can to come to an international agreement in this area. Even an only partially satisfactory solution would be infinitely preferable to continuing to pollute the environment in the process of international competition.

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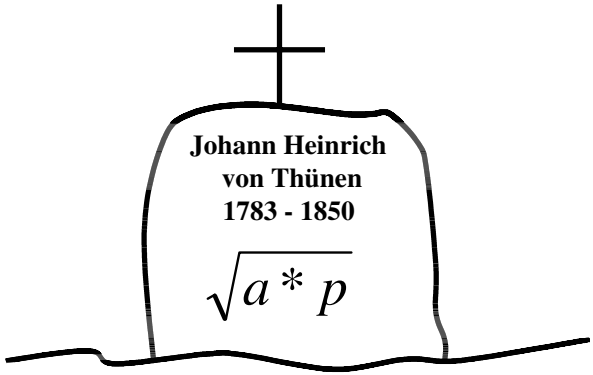
Fair Wages and the Right to Work

Thünen's Equation for a Natural Wage

There can hardly be an issue in economics that has caused so much controversy as that of fair wages. Economists have been reflecting on this issue for centuries,



Johann Heinrich von Thünen was so proud of his wage equation that he even had it carved into his tombstone. It still stands in front of the church in the small town of Belitz in Mecklenburg.

arriving sometimes at the most intriguing conclusions. One fine example of this is Johann Heinrich von Thünen's equation for a natural wage. Even today Thünen is still quite rightly considered one of the greatest economists of all times, however, as far as the issue of wages was concerned, he earned himself a highly dubious reputation. And this, despite the fact that he was so proud of his wage equation that he even had it carved into his tombstone, which still stands in front of the church in the small town of Belitz in the German land of Mecklenburg. Yet most economists would agree that this equation would have been better left inside the grave.

Thünen derived his equation from an interesting theoretical model that already came relatively close to the subsequent ideas of the great theoretician on capital, Eugen von Böhm Bawerk (1851–1914). Thünen's model built on the assumption that, in principle, there was nothing to stop workers from becoming capitalists themselves. To do so they only had to join forces with others and use their joint savings to acquire machinery and stocks, which they could then use to employ other workers as day labourers.

However, according to Thünen, this would inevitably give rise to a conflict regarding the optimal level of wages. On the one hand, high wage levels meant that workers would save a lot, making it relatively easy for them to accumulate the capital they needed. Moreover, their subsequent profits would have to be divided only among a relatively low number of "worker capitalists". On the other hand, high wages would raise the cost of employing day labourers, thus lowering overall profits again.

Thünen was searching for an optimal wage that would produce the highest return on interest per worker capitalist. Going by his famous equation on his tombstone this wage was equivalent to the geometrical mean value derived from the average product per worker on the one hand and the level of subsistence on the other hand.

The one was obviously the highest wage imaginable whereas the other was the lowest, giving the equation a certain intuitive meaning.

Thünen also demonstrated that given this wage level, even the day labourers would not be placed at a disadvantage, because the worker capitalists' profit rates would equal the current interest rate that the day labourers would earn on their savings at the bank. It is hardly surprising therefore that Thünen believed he had discovered the "natural" wage.

Nevertheless, Thünen's model world was too unrealistic to be really convincing. For example, why should workers necessarily be interested in increasing their earnings on interest of all things? Was it not much more likely that they focus on their total income including their wages? However, if this were so, Thünen's wage equation would no longer have any relevance.

Above all, it was questionable, whether workers were in any position at all to accumulate larger savings, especially in Thünen's days. Although even Thünen himself was aware of this he believed that it would be possible to solve this problem with wealth-creating measures. In fact he introduced a system of profit-sharing for his workers on his model estate in Mecklenburg, which remained in force long after his death and brought him great acclaim as a practical social politician.

Karl Marx's Labour Theory of Value

Whilst Thünen was concentrating above all on agricultural production, Karl Marx (1818–1883) was born in the middle of the industrial revolution. The son of a lawyer from Trier, he studied philosophy in Berlin and felt drawn to both the sciences and to politics. His critical journalistic work soon forced him to go into exile. From Brussels he wrote, for the London Communist League, the central theories of his famous Communist Manifesto of 1848, calling for the abolition of private ownership of the means of production as well as of inheritance rights and suggesting that in future, production should be organised centrally and that it should become mandatory for everybody to work.

Later Marx moved with his family to London where he lived in extreme poverty, earning only very little money from occasional newspaper articles. This is also where he wrote his major work "Das Kapital", consisting of three volumes, the first of which appeared in 1867. Marx received much spiritual and above all financial support from his friend Friedrich Engels (1820–1895), a textile manufacturer from Wuppertal. The two men's friendship went so far that Engels even took on paternity for an illegitimate son of Marx – a secret that Engels would only reveal on his deathbed.

Marx rejected the capitalist economic system outright. However, he also had little time for the then popular teachings of the so-called utopian Socialists. Rather, Marx attempted to establish a theory of "scientific Socialism", taking up the ideas of the classical economists, especially those of David Ricardo, from whom he also borrowed the labour theory of value. According to this theory all goods can be

exchanged in accordance with their inherent units of labour. Adam Smith had also posited this theory, albeit only for primitive forms of economy. Going by Smith a beaver, for example, would fetch twice the price of a deer on the market if it took twice the time to hunt a beaver as it did a deer. For nobody would hunt beaver if they were not compensated for the additional time they needed with an accordingly higher price.

Marx believed that the labour theory of value could also be applied to the highly developed economic system of capitalism. However, he refined this theory into his famous theory of surplus value, which says that in the long run every commodity will only fetch the price that is equal to its cost of production. Marx referred to this price as the exchange value of a commodity. He applied this principle also to labour. However, this means nothing other than that nobody will ever earn more than they need to just about secure their subsistence! The level of subsistence will be equal to the quantity of goods that is just necessary for the reproduction of labour.

Nevertheless, Marx believed that labour was an exceptional commodity in that it was capable of producing far more than the number of goods required for its reproduction. This excess of labour's use value beyond its exchange value was what Marx called the surplus value. However, according to Marx it was the capitalists who appropriated this surplus value to themselves. The share of surplus value in a price was the same with all goods, meaning that, ultimately, all goods could be exchanged in relation to their inherent labour.

Marx tried to illustrate his theory using the example of working hours. Of the ten-hour working day that was typical for his time only six hours were necessary to earn the level of subsistence, i.e. the quantity of goods a worker required to earn his living. The other four hours were what Marx called surplus working hours, during which surplus value was being generated. Marx believed that the capitalists were constantly striving to increase this surplus value and that they could do so either by lengthening people's working hours (absolute surplus value) or by increasing hourly productivity through the use of machines (relative surplus value). In both cases, however, the workers would gain nothing.

Marx believed that this contradiction between the use value and the exchange value of labour would eventually lead to the downfall of the capitalist system. If capital provision per labourer continued to rise, but demand did not, the result would be cyclical crises in sales and a decline in profits until the system would finally break down. That would be the day when the proletariat took over ownership of production plants. In the ensuing Communist system the means of production would no longer be in private hands, so that any surplus value would at last go to the workers, which was only right and proper.

Ultimately, Marx's argument boiled down to denying the right of existence of profit. Since even the machines were produced by the workers, it was only natural that the full revenues earned during production should go to them. It was Eugen von Böhm Bawerk who later discovered Marx's central error in thinking. In fact Thünen had already discerned it as well, as we saw earlier. Marx did not take account of the fact that producing machines required not only labour but also a

temporary sacrifice of consumption so as to allow for the accumulation of necessary capital and that this was the real reason why a saver or capitalist earned any interest. For if no interest were paid, nobody would ever save any money and there would be neither any capital nor would there be the ensuing enormous increase in the national product, without which it would be impossible to even consider any wage increases in the first place.

Problems of Socialism

Marx and Engels were very vague when it came to defining how a Communist economy should actually function in detail. It seems that, like the utopian Socialists, they had in mind that everybody should earn an equal wage, regardless of their performance. However, this immediately gives rise to the question of how, under such circumstances, it is possible to keep up people's work morale. And that is not the only problem: what would happen if relatively large numbers of people wanted to work as tailors but demand for clothing was not high enough? Conversely, one could easily imagine a situation where demand for bread was not satisfied because insufficient numbers of people wanted to work as bakers or as farmers.

Under conditions of capitalism, Adam Smith's "invisible hand" would ensure that such problems hardly arise, because if supply exceeded demand, the price of bread would simply go up whilst the price of textiles would go down. As a result it would become financially attractive again for people to work as bakers instead of as tailors until the markets were back in balance. Moreover, nobody could afford not to work under conditions of capitalism, because then they would not have any income.

Now, it was not as if the Socialist writers had not been aware of these problems at all. In most of their drafts of social systems they tried to overcome these problems by introducing central planning of production and labour. However, that also meant an end to the free choice of labour as well as to consumer sovereignty. In a planned economy it was no longer the needs of the individual that determined which commodities and how many of them were produced but a central planning authority that did so. Instead of the right to work, the Socialist systems suddenly imposed an obligation to work. But not only that, the state also decided how goods and income (inasmuch as it foresaw any monetary economy at all) should be distributed.

Needless to say, these systems gave rise to entirely new problems. How could such a system be kept immune from administrative arbitrariness, nepotism and constant errors in planning that were out of touch with people's real needs? How could capital be accumulated, if not through a system of state-imposed saving? How was the state supposed to ensure that this capital would be used for the most productive purposes if there were no real market prices to indicate any direction? Not least, the reason why Socialism in Eastern Europe collapsed was because of such problems in practical implementation.

The author owes a small but very clear example of this situation to an account from his academic teacher, Hans Besters. When the latter travelled to Poland in the 1980s there was a general shortage of toilet paper, even in the congress centre provided specially for the visitors from the West. Five women were employed at the doors to the toilets to hand out exactly two pieces of toilet paper to each guest. Outwardly, unemployment was being prevented in this way, but surely it would have made more sense to employ these women to produce more toilet paper than to ration it.

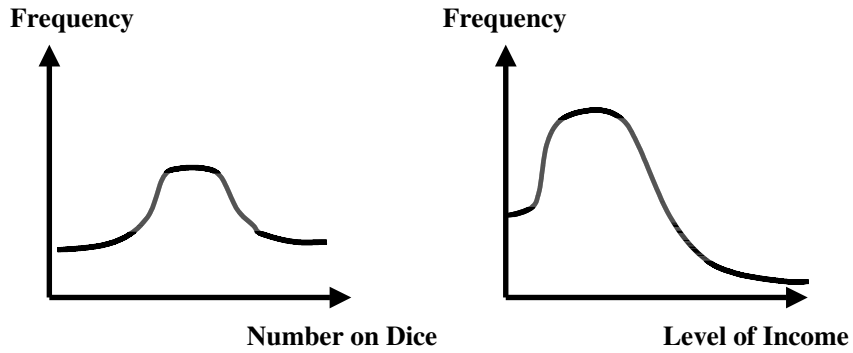
The utopian Socialist Charles Fourier (1772–1837) came up with a particularly ingenious solution to the co-ordination problems of planned economies. He started out from the assumption that people had differing inclinations and capabilities, some people being ambitious, some lazy, some having more artistic ambitions, others being more inclined to perform social tasks. All in all, Fourier believed that he was able distinguish between 810 different basic characters. In the utopian economy he designed he grouped these different characters in housing and production communities where each person could follow his particular inclinations. Ultimately, everybody's needs would be satisfied in this way. For example, according to Fourier, children could be employed in the collection of rubbish because they enjoyed playing in the dirt.

According to Fourier's calculations, these production communities – Fourier called them "phalanges" – would have to comprise about 1800 people so as to satisfy everybody's inclinations and needs. In this way work would become a pleasure and a free exchange of goods (including free love) would replace the capitalist system of directing production via prices and profits. A similar draft was later drawn up by the British textile manufacturer and social reformer Richard Owen (1771–1858). However, the attempt to implement his ideas in practice in a model community in America failed after only a very short time.

The mere description alone of these earlier Socialist models of society is enough to illustrate why even Friedrich Engels regarded the theories of the utopian Socialists as "amusing fantasies". Maybe it would have been possible to organise a community of ants in this way, but surely not a community of human beings with very different needs and inclinations. Nonetheless, even Marx and Engels were unable to deliver a convincing answer to the question of how production and labour should be planned with any success in a Communist society.

The Pareto Curve

In principle in a market economy, wages are determined by the laws of supply and demand. If relatively large numbers of women want to work as nurses, for instance, their wages will be lower than if there is a general shortage of nurses. The same applies to all other professions too. This of course benefits those who have particular skills or talents. How otherwise could it be that pop stars or tennis



When throwing two dies the sum of their scores will represent a normal distribution (left-hand illustration). However, according to Vilfredo Pareto (1848–1923) personal distribution of income in a market economy will slant to the right (right-hand illustration).

cracks earn millions whilst coal-miners or those taking care of the elderly earn comparatively little.

Going by statistics, it would not be unreasonable to assume that the various skills existing within a population correspond more or less to what we call a normal distribution. By this is meant a bell-shaped curve in a distribution graph, where the X-axis denotes the respective income and the Y-axis the number of people earning that particular income. This type of normal distribution also occurs, for example, if we throw two dies and add their score. If we repeat this often enough, we will find that the most frequent result is 7. The further a result deviates from 7, the less frequently it will come up. Most rare will be the two extremes 2 and 12. This is because there is only one combination for each of these (1 and 1 or 6 and 6), whilst a seven can be obtained from several combinations, such as 6 and 1, 2 and 5 or 3 and 4.

What does this have to do with distribution of income? We would assume that the income of a person depends on a number of factors, for instance on intelligence and diligence. Measure each one of these factors on a scale from 1 to 6 and assume that each value comes up with roughly the same frequency. By adding up the two factors we will obtain a normal distribution of income with a mean income of 7 as the most frequent value. Extreme poverty on the other hand will be just as rare as extreme wealth.

Nevertheless, even as early as 1896, the Lausanne economist Vilfredo Pareto discovered that, in reality, distribution of income did not follow the laws of normal distribution. On the contrary, he was able to prove that in a large number of countries the income bell almost always slanted to the right and was not symmetric around the mean value, as would have been the case with normal distribution. Economically speaking, this meant that even though the large majority of the population did earn fairly similar incomes, the relative difference in income between the wealthy and normal-income earners was much greater than the difference between normal-income earners and the poor.

Many people have attempted to explain this phenomenon. Some believed, for example, that government transfer payments to the poor would prevent their income from falling below a certain level, cutting off the income bell on the left-hand side as it were. However, there are also purely economic explanations for the fact that the income bell is straight on the left-hand side. Imagine, for example, that the influence of the two factors "intelligence" and "diligence" was not additive but multiplicative. In this case we would immediately obtain an income distribution that already comes very close to Pareto's law of income. This applies all the more if we take other factors into account such as education, readiness to take risks or thrift when trying to explain the distribution of income.

Minimum Wages and Maximum Income Limits?

We have ascertained that great disparities exist in a market economy between the rich and the poor even though there are relatively few rich people and relatively many average-income earners. Incidentally, this was hardly any different under conditions of Socialism.

It is true that special achievements should be rewarded, but deep down we feel that if disparities in income become too great this is unjust. Even the Greek philosopher Plato (428–348 b. Christ) already believed that there had to be a limit to this. According to Plato nobody, even the very best, should earn more than four times more than any other person did. In a market economy this kind of limit does not exist. What then are the alternatives and their consequences?

One could, for example, imagine limiting managers' salaries by legislation to, say, Plato's four times the average wage of a worker. What would be the result of such a measure? As long as businesses were competing with each other the best managers would be in very high demand – not least in the interests of the firm's employees – because a good manager would be able to bring even a firm that is on the brink of ruin back into profit and thus save jobs, whilst a less skilled manager might even precipitate bankruptcy. Thus, if they were any cause for doubt people would try to circumvent this legislation, for example by providing free accommodation to managers or other perks. However, then the market would have prevailed, even if by by-passing legislation a little.

Let us now examine the opposite case, where a legal minimum wage is imposed for socially valuable activities such as caring for the elderly. As long as the minimum wage was below the market wage for nurses it would clearly have no effect. However, as soon as it exceeded the market wage, demand for nurses would fall below supply, i.e. some nurses would not get a job. Like on the goods market, only the market wage can bring about an equilibrium of supply and demand on the labour market.

Those who are already in work would no doubt benefit from a legal minimum wage. However, many people who would also like to work as nurses and would be prepared to do so for a lower wage if necessary, would not find any employment

as a nurse. In other words, they would only find a job if hospitals were subsidised and did not need to pay the market wage.

Now, in the case of a hospital this may work because hospitals are often financed by the state, meaning that the principle of competition only applies within certain limits. Is it possible though to apply this law to the entire economy? For this would mean that it was the state again that ultimately determined what was to be produced. Heavily subsidised businesses could pay high wages and produce great volumes whilst less subsidised sectors would have to carry the costs for this. Arbitrary decisions by government officials would replace supply and demand and ultimately, nobody would know any longer how much goods and services really cost. Government-regulated wages would inevitably also mean government-regulated prices. However, this would immediately give rise to all the problems on which the Socialist economies foundered.

So, if we wish to retain the advantages of a market economy, we obviously have to contend with the fact that the resulting distribution of income will not always meet our concepts of fairness. Nevertheless, as a rule, absolute income levels, even those of "ordinary people", are much higher in a market economy than they would be in a more egalitarian society. This is because already the prospect of earning more money releases economic forces that will ultimately benefit everybody. Without such prospects somebody like Alfred Krupp or Bill Gates would never have existed. Even though like many other entrepreneurs they became very rich, they also created hundreds of thousands of jobs in their respective companies.

Nobody can dispute that in a society without financial incentives workers are not so motivated. Even in the Socialist economies it was not possible to do without such incentives altogether, as we know all too well from the special perks that were paid to top sportsmen or officials. These economies would have got into trouble far earlier, had it not been for the many black and grey markets there that operated according to purely capitalist principles.

There is in fact a far more effective way of dealing with unjustified gains in income than government restraints, and that is competition. Leaving aside inheritance payments, lottery winnings and suchlike for a moment, there is generally only one way of becoming rich and that is by one's own labour. In any case, the state can still correct too great a disparity in incomes by applying tax and social policy measures. Nevertheless, it is important that the state does not go too far with such measures either, as we shall see later.

Let us add a more philosophical question: Is it possible to measure human happiness purely by people's income? Some people may even not want to become rich, because for them other priorities are more important. Even Adam Smith had already claimed that a substantial part of the rewards earned by university professors did not consist in the money they earned but in the social recognition they received – a theory that universities still take into account today when determining a professor's salary.

We should therefore not make the mistake of reducing the issues of happiness and justice solely to questions of income. As soon as people have reached a certain standard of living, other priorities such as satisfaction at the work place, security

of income and not least, their remaining leisure time begin to become increasingly important. In most cases we cannot have everything at the same time regardless of the economic system in which we live. This is another economic law that we should not forget when discussing the issue of fair wages.

Productivity and Wage Rates

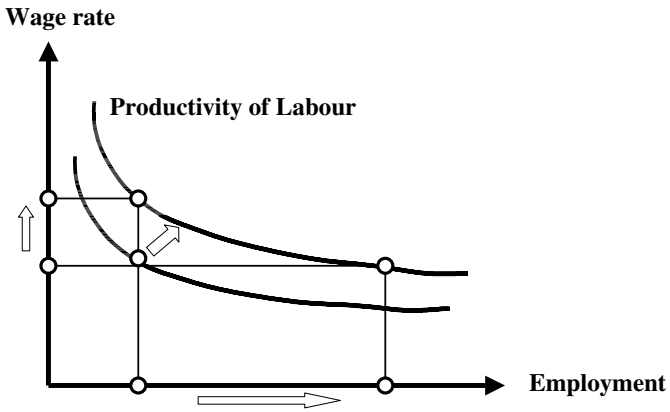
Economists have tried on many occasions to derive a formula for the correct level of wages. However, whereas in earlier times, they were concerned above all with the "equitable" distribution of the output from capital and labour, in the meantime the employment problem has become more urgent, i.e. at which wage rate can it be expected that every job seeker will actually find a job?

Only in theoretical model worlds is it possible to calculate an exact equilibrium wage in this sense. In the real world on the other hand, we do not have the necessary information at our disposal to do so. Production is technically too complex and conditions vary too much from one sector to another for us to be able to fall back on simple formulae. The only thing that is certain is that businesses will tend to employ more people the lower wage levels are. Restraint in wage policy may therefore be a necessary, albeit by no means a sufficient prerequisite for full employment.

But what does "restraint" mean exactly in this context? Already in its first annual report of 1964 the Council of Economic Experts advising the German government developed a rule of thumb based on the concept of so-called productivity-orientated wage policy. Assume for instance that output per worker increased by 3 % per year as a result of technological progress and improved capital equipment of jobs. Going by what the Council of Experts says, wage levels could also rise by 3 % per year without this having any negative effect on employment. This sounds just as simple as it sounds plausible. It is no wonder therefore that this wage guideline enjoys widespread popularity.

Unfortunately however, things are a little more complicated in reality than this simple productivity formula would suggest. Even the Council of Experts warned against applying this guideline too systematically, a warning, which has been forgotten all too quickly. Above all, nobody thought later that this guideline had only really held good in an economy with full employment. If, however, unemployment has already reached a certain level, then, strictly speaking, wages should not rise at all for some time, except maybe at the rate of the increase of prices. For any wage increase going beyond that rate would raise the cost of labour for businesses, reducing the chances for job seekers to find another job.

In such a case technological progress and the accumulation of capital would have to be spent first and foremost on the creation of new jobs instead of on constant wage increases for those already in employment. This means that in times of unemployment it is important to invest in expansion rather than in rationalisation. However, this will hardly happen if the costs of labour continue to rise and businesses are more or less forced to introduce further measures of rationalisation.



Technological progress or capital accumulation will increase the productivity of labour. This can be spent either on wage increases or on the creation of additional jobs at the same wage rate. Solutions between these two extremes are possible as well.

There is another specific problem when measuring productivity growth. The productivity of labour, on which the Council of Experts' wage guideline is based, is equivalent to output divided by the number of job holders. As long as the number of employees in the denominator does not change, any increase in labour productivity will clearly go back to a higher efficiency of the individual job. In this case it will seem justifiable to pay a higher wage per worker, at least in times of full employment.

Things are entirely different though when the number of employees in the denominator falls. From a purely mathematical point of view, labour productivity would increase as well. However, this would have nothing to do with an increase in the efficiency of the individual worker any longer. Therefore, these kinds of partial, so-called unreal productivity gains do not justify an increase in wages, on the contrary, rising unemployment is more a sign that wages are too high.

In view of these problems we have to return to the simple theory that the wage rate that is applicable in full employment is a market price that can ultimately only be determined by the market. The trade unions should therefore tread more carefully, the worse the employment situation becomes. If they continue to insist, even in times of high unemployment, that wages should rise in line with productivity growth, they are certainly not acting in the interests of the unemployed.

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The Mystery of Capital and Interest

Interest Rates and Bans on Interest

Most people have to work hard to earn an income and to be able to live on it and those, who have no wealth, have no choice but to offer their labour on the market. As we have already seen, even profits reflect the labour performance of a business to a large extent. At least this can be said of self-employed doctors, lawyers or pharmacists as well as of small businesses, where the owner runs the business himself.

Nonetheless, there are also people who live mainly on the money that they lend to others. These people own shares or fixed-interest securities or they simply place their money in a bank, which then lends this money to others on its own account. In either case income is being created without any visible labour going into it. Sometimes this is referred to as non-performance-related capital income, including also those profits a business makes that cannot be attributed solely to the labour performance of its owner but come from payment of interest on the capital that he has invested in his firm.

The charging of interest has always been a matter of great controversy and apart from money as such, interest is regarded as the most capitalist of all economic phenomena. It makes no difference either that payment of interest was almost as common in the Socialist societies, even though it was not practised quite so openly.

Even the Greek philosophers were suspicious of interest. Both Plato (428–348 b. Christ) and his pupil Aristotle (384–322 b. Christ) advocated a general ban on interest. As they saw it, lending money and usury were one and the same thing, regardless of how much or how little interest a creditor would charge. Aristotle even condemned the taking of interest as so-called chrematism, a term which he used to refer to morally objectionable economic activity that had no other aim but that of making money. Morally perfect behaviour on the other hand was what he called economics, which referred above all to people contributing to cover society's needs for goods.

As far as interest was concerned, Aristotle argued as follows. Just like crops were the product of seeds, interest appeared at first sight to be a product of money. From an individual's perspective it was hardly possible to tell the difference. However, as far as the national economy was concerned, Aristotle believed that interest was only an illusion. Whereas seeds really did produce a surplus owing to the natural

productivity of the ground, the supply of money was not actually being increased through interest. Only the lender would see it this way. However, at the level of the economy as a whole, a lender's earnings were offset by the costs of the debtor. Hence, to take interest ran counter to nature and should therefore be banned.

The Catholic Church also upheld what was called the canonical ban on interest for many years, a ban that went back above all to the scholastics of the early Middle Ages. One of their forerunners was Bishop Augustine (354–430), who had originally been a heathen and teacher of eloquence in Carthage. After his conversion to Christianity he tried to combine the teachings of Plato with those of the Bible.

In the literal sense of the word, a scholastic was a schoolman. The doctores scholastici, as they were called in those days, were mainly monks, professors and father confessors, exerting considerable influence on the moral beliefs of their fellowmen. The leading figures among the scholastics were the Dominican monk Albertus Magnus (1193–1280) and his pupil Thomas Aquinas (1225–1274) who were both later declared saints. Thomas especially was also a clever economist. He was an expert in his field and he extolled labour as the highest of virtues aside from prayer, believing that it served not only for people to support themselves and the poor, but also to prevent them from falling into idleness and vice. Even today the Catholic Church still extols this work ethos.

Earning income from interest without actually doing anything for it did not fit in with this philosophy at all. The scholastics, who were in any case strongly influenced by Aristotle, also took over the latter's ban on interest. However, their justification for this was slightly different, coming already a lot closer to the real nature of interest.

The scholastics realised quite rightly that interest was not a price that had to be paid for money itself, as one might have thought looking at it from a very superficial perspective. For the money was not actually being sold, but it was being lent to others for a certain period of time. In other words, interest was basically a payment for the time during which the creditor could not use his money. However, since time belonged to God, it was a breach of His will if people sold time to each other in exchange for interest.

This immensely astute argument was quite typical of the way the scholastics thought. Their ideology consisted in a combination of strict logic and purely metaphysical arguments, which were for the most part derived directly from the Bible. For centuries people had been arguing bitterly about matters like whether the human blood was the seat of the soul, how many angels would fit on a pinhead or whether it was possible to prove the existence of God. Anselm of Canterbury's so-called ontological argument to prove God's existence went as follows: As God was the greatest conceivable being he had to exist in reality as well. For if the idea of the perfect being, thus present in consciousness, lacked existence, God was not perfect and it would be possible to conceive something greater. Therefore, if God was the greatest of all beings, it was impossible that he did not exist.

This means that the existence of God was simply derived from the existence of the term, God. Immanuel Kant later derided this type of logic with his example of

100 thalers, which could also easily exist in the mind without necessarily existing in reality. However, to do the scholastics credit it must be said that there were also more reasonable thinkers among them, for example, Wilhelm von Ockham (1300–1350), who claimed that either one believed in God or one did not, but either way this had nothing to do with proof. Thereupon he was excommunicated and eventually died of the plague.

Undoubtedly, Thomas Aquinas was also one of those scholastics who was endowed with a little more common sense. For example, he did understand that letting a house also brought in revenues that were comparable to interest. It is not without reason, that the Germans still use the word "Mietzins" for the English word rent, which explicitly contains the word interest ("Zins"). According to Thomas it was reasonable to charge rent since this paid for the general wear and tear of a house. Money on the other hand could not wear out whilst it was being lent to others, so that the taking of interest on money itself remained objectionable.

Nevertheless, the more Thomas dealt with actual economic processes, the more he had to move away from his principle of forbidding interest. In the end he accepted so many exceptions from the rule that only pure consumer loans and truly exorbitant interest rates remained forbidden. For example, a creditor was permitted to charge interest in order to compensate for his risk that the borrower may default, as well as for the fact that he was sacrificing the profits that he could have made, had he used his money for other purposes. With this Thomas hardly differed from today's views on interest anymore, except that nowadays people no longer focus on the moral justification of interest but only on explaining what they observe on the market.

Even today the Catholic Church still has some reservations on the subject of interest despite the fact that Pope Pius VIII lifted the ban on interest in 1830 without any further explanation. The Code of Canon Law of 1917 included the canon to charge only low rates of interest and it was not until 1983 that any explicit reference to this issue was deleted entirely.

Other religions too have their problems recognising interest as a normal phenomenon of economic life. Martin Luther (1483–1546) called for a total ban on interest and in Islam things are no different. However there, people try to meet reality with more ingenious instruments. For instance it is not forbidden by Islamic law to charge interest if the creditor receives a share of the profits a business makes with his money. Needless to say, this boils down to nothing but hidden earnings on his capital.

Who do Capital Gains Belong to?

Let us now turn to a purely economical analysis of the phenomenon of interest. How can income be generated without the ground or labour actually physically producing anything? Put differently, what is the independent productive performance of capital?

Superficially speaking, one could say that the productivity of labour rises when workers are equipped with machines. The driver of an excavator will obviously excavate more earth per hour than he would if he had to do so with only a spade or, even worse, with only his bare hands. However, this explanation does not go far enough, for two reasons.

The first of these is that machines themselves also have to be produced at some point with the use of labour. Should their yield then not go to the labourers themselves? This was a view that especially the Marxists would have propagated. To Marx and his followers machines were nothing but consolidated labour, stocking human labour that would later be put back into production little by little. Looking at it this way, there was no independent production factor inherent in machines.

But even if we accepted that interest reflected something like a productive performance of capital, would it not inevitably fall to zero in the long term? Assume that it really was possible to earn non-performance-related income with the help of capital. Then surely everybody would be interested in accumulating as much capital as possible until there was far too much of it. But then, interest rates would decline continuously, falling away entirely eventually.

It was the Austrian economist Eugen von Böhm-Bawerk (1851–1914) who first tackled these questions systematically. Böhm-Bawerk was as much a theoretical economist as he was a practical politician, holding the position of Finance Minister in Austria several times. Even though he was a thoroughly bourgeois economist and is regarded as one of the founders of neo-classicism, he was held in high esteem by his opponents as well. His pupils included not only famous liberal economists such as Joseph Schumpeter and Ludwig von Mises, but also more Socialist-orientated economists like Rudolf Hilderling and Emil Lederer.

Böhm-Bawerk first dealt with the question why people should charge any interest at all for lending their money to others. Why were they not satisfied simply recuperating the sum they had lent to somebody, without any deduction or decrease in value? Böhm-Bawerk put forward two reasons for this.

The first reason was that as they progressed in their professional lives, people's incomes would generally rise. As a rule, a student or an apprentice has to get by with relatively little money, whereas later one would at least hope that he earns far more. Therefore, to people starting out on their first job, 100 $ will seem like a lot of money, whereas later, they will probably only laugh at such sums. However, if this is so, people will generally not be prepared to lend their 100 $ to somebody now, only to receive the same amount back later when they have far more money. Thus, in order to encourage them to save nonetheless, they will have to be promised some form of payment of interest.

The second reason Böhm-Bawerk put forward for the existence of interest was that he believed that most people systematically underestimated their future needs. Even though we all know that we will still need an income when we retire and should therefore make the relevant provisions whilst we are still young, the end of our professional lives still seems such a long time away, and who knows whether we will actually get as far as retirement age in the first place. According to Böhm-Bawerk it is because of such attitudes that people tend to underestimate their future

needs and that they will charge interest if they forego the opportunity to spend and consume now in order to do so later.

There has been much discussion in the past about the validity of these reasons. The most important question is whether they can be reconciled with rational behaviour and whether they will also hold good if the economy declines for instance. Because if general income levels declined, people would have a strong incentive – even if there were no prospect of earning any interest – to save some money for the future whilst times were good. On the other hand, it is a fact that in normal times, most people will demand interest if they are asked to save.

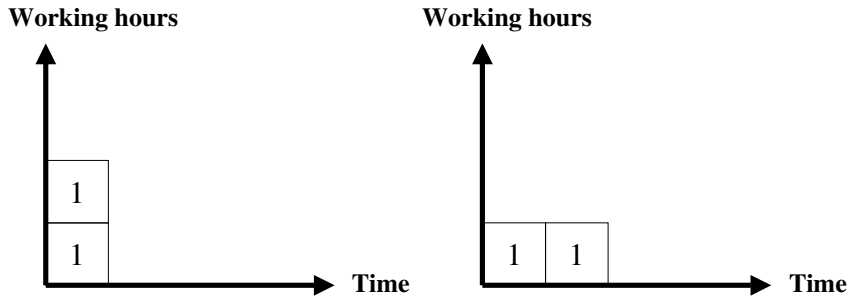
Even so, this is only one half of the story. For until then Böhm-Bawerk had only put forward reasons for saving. He still had to explain who actually wanted the capital earned from saving and why any interest should actually be paid for this.

Böhm-Bawerk's Third Reason

This brings us to Böhm-Bawerk's famous third reason, which was what really made him the founder of the so-called Austrian theory of capital. His first two reasons had already been anticipated in part by other authors, for example by Nassau William Senior (1790–1864) in his so-called abstinence theory of capital and interest. Even though Böhm-Bawerk tried to distance himself expressly from this theory, just as he tended to condemn any of the theories on interest developed before his, he did make an exception with Johann Heinrich von Thünen, whose work he greatly admired, and quite rightly so. Nonetheless, Böhm-Bawerk's really groundbreaking contribution to theory on interest consisted only of his third reason.

Böhm-Bawerk took up the argument of the Marxists that machines were nothing but advance labour. He described the labour that went into the production of machines as "roundabout". This roundaboutness was anything but futile, on the contrary it was highly useful. For if a business employed labour to construct, for instance, a loom, this loom could be used later to produce more cloth. The longer this roundaboutness was, the more productive labour would finally become. From the point of view of a business therefore, interest was a reflection of the greater value produced by this roundaboutness. This is what is referred to as Böhm-Bawerk's third reason.

The level of the rate of interest was simply the result of the combination of these three reasons. Round-about production obviously required capital. The wages of the labourers producing the loom had to be advanced, which meant that costs were incurred before any profits could be made. In order to get through this period, an economy had to fall back on savings. Even the classicists had already understood this correlation and therefore advocated the setting up of so-called wage funds in order to pre-finance wages. Böhm-Bawerk referred to this fund as the subsistence fund. In its simplest form, in agricultural production, this fund could consist in a



David Ricardo (1772–1823) had already understood that the labour of two men performed during one day (left-hand illustration) was worth less than the labour of one man performed during two days (right-hand illustration), because this took more time.

certain stock of food in order to feed the labourers in the fields whilst waiting for the new crops to mature.

In more developed economies this subsistence fund is made up of already finished consumer goods on the one hand and of buildings, machinery and tools that can be used to produce new capital and consumer goods on the other hand. Böhm-Bawerk spoke of products of differing degrees of maturity, which he compared with the yearly rings in trees. In order to build up and maintain the subsistence fund it was necessary to pay interest to the owners of primary materials and production plants. This resulted from the first two reasons, whilst the third reason assured that such interest was actually earned.

Had Böhm-Bawerk left it at these more general extrapolations there would have been hardly anything to criticise about his theories on interest. After all, he did prove beyond any doubt that interest was by no means a price that is paid for money. Nor was it simply a delayed return from consolidated labour. Rather, interest is a price that is paid for time. It is a reward for postponing consumption today in favour of higher gains in the future. This "Austrian" variant of theory of capital is therefore also referred to as temporal theory of capital. Without doubt, it is the soundest explanation of interest that anybody has come up with until now.

Paradoxes of Capital Theory

Unfortunately, problems arise as soon as we go into more detail, having to do mainly with the problem of the measurability of the subsistence fund, a problem that is already almost impossible to solve at a theoretical level, let alone at any other level. The subsistence fund consists of various capital goods that all take different lengths of time to mature. Some of these items may be ready for use already after one year, others on the other hand may require two, three or even more years, until they can be put into the production of consumer goods. David Ricardo already had postulated that it was not the same thing if two men worked for one year to

produce an item of capital goods than if one man had produced this item in two years. The capital input, which is needed to advance their wages, is higher in the second case than in the first!

It is easy to understand this if we take account of the effects of compound interest. For example, 200 $, left in the bank for one year at an interest rate of 10 %, will yield 20 $. On the other hand, if we invest 100 $ for two years at the same interest rate they will yield 21 $ including compound interest. This means that the effective tying of capital is obviously greater in the second case than it is in the first. In other words, it is not possible to estimate the subsistence fund by simply multiplying the invested sums by the number of years for which they were advanced. Rather, this depends very much on the individual time structure of the input of capital. And the worst is that in order to be able to compare or even add differently structured capital inputs, we need to know the interest rate! However, according to Böhm-Bawerk, this was to be derived only at that point, which meant that his argument obviously went round in circles.

Even though Böhm-Bawerk refused to acknowledge these problems with his theories right up to his death, his arguments and his means of proving these did not hold good. For example, he worked with so-called average production periods in order to circumvent the problem that capital was tied for varying lengths of time, depending on the capital goods in question. He also did not take account of compound interest most of the time. However, these were pure tricks, which did not solve the actual problem. The fact is that it is not possible to aggregate capital inputs that have different time structures. Even today this is the most difficult aspect of capital theory.

We cannot continue to discuss these problems here. The best economists of all times have dealt with them: Johann Heinrich von Thünen and Böhm-Bawerk during the 19th century, Knut Wicksell, Friedrich von Hayek and Irving Fisher during the first half of the 20th century and more recently, Paul A. Samuelson and Jack Hirshleifer, to name but a few of the most outstanding figures. Nevertheless, so far nobody has come up with a really satisfactory theory of capital and interest and the world is still waiting for the Nobel prize laureate who will disclose it one day.

In fact, the high point of this discussion on the theory of capital came in the 1930s with the so-called Cambridge controversy, when the British economist Joan Robinson, together with a few others, called a hitherto irrefutable theorem of economics into question, namely that the capital input per labourer would fall with increasing interest rates. On the one hand this already seemed self-evident to anybody with any common sense, because if capital became more expensive, less of it would be used. On the other hand, how could anybody claim such a thing if it was not even clear how capital should be defined in the first place!

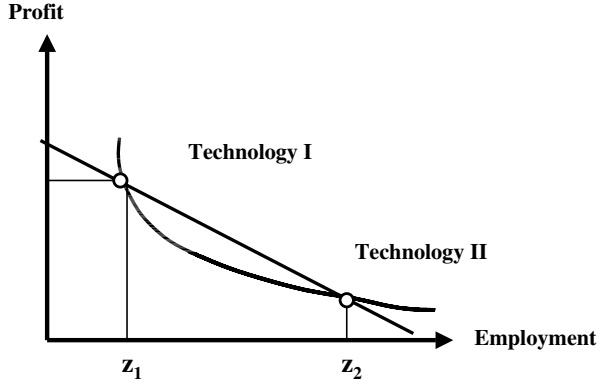
In actual fact, some people really did develop selected counter-examples, in which so-called re-switching occurred. For the most part, they came up with two different techniques that could be used alternatively for the production of a commodity. If the example was chosen cleverly it could be that the one technique appeared to be more profitable both at very low and at very high interest rates, whilst

the other applied more to medium-range rates. However, this could obviously not be reconciled with the popular hypothesis that the choice of techniques was a monotonous function of the interest rate, as the neo-classicists had always claimed it was.

During the course of further discussions surrounding this issue, other problems came up with capital theory that were just riddled with strange and paradoxical effects. Economists felt like Alice in Wonderland and many of them eventually turned in despair to more gratifying fields of work. In any case, it seemed that these problems were mostly of a purely theoretical nature because a phenomenon such as re-switching had never actually been observed in practice. At least the theories of Böhm-Bawerk and the neo-classicists described the economic processes associated with interest and capital well enough that it was possible to continue working with them.

Those who consider this as too feeble an argument would be well advised to note that things are often no different in other sciences. This even applies to physics. From Albert Einstein's theory of relativity, for example, it follows that speeds cannot simply be added up. The light of a star racing towards us at the speed of light is in fact not doing so at double the speed of light but only at the ordinary speed of light. However, this is of no importance whatsoever for the relatively low speed at which we normally move in our everyday lives. Therefore, in the case of a head-on collision between two cars we can still rest assured that the two cars will collide at the sum of their individual speeds.

What does this have to do with interest rates? Many economists do not believe the Cambridge controversy to be of any more relevance to economic practice than the relativity theory is to road traffic. We will exceptionally refrain from making any final comment on this.



According to the re-switching paradox, if there are two production techniques the more capital-intensive technique (II) is superior to the other technique both at very low and at very high interest rates.

Natural Interest Rates and Monetary Policy

Let us turn instead to one last question in this context that is of far greater importance to be able to understand the nature of interest. As we have already seen, money also has a certain role to play in interest. In fact, there is the widespread view that central banks can lower interest rates by simply increasing the money supply, a theory that is also supported by a number of well-known economists. However, it is not easy to reconcile this theory with the neo-classical hypothesis that capital can only be formed by foregoing consumption, i.e. by saving. Yet again we are dealing with the question, whether interest is a real phenomenon or whether it can be influenced by monetary policy.

In order to answer this question we first have to make an important distinction that we have deliberately ignored so far. It will not have escaped the attention of the careful reader that in this chapter we sometimes talk of capital and then again of money. Are these one and the same things? And if not, what does the one have to with the other?

From the perspective of an individual business this question is easy to answer. Here money is only one form of capital, namely capital in its most liquid form. It can easily be converted into other forms, for example by buying machinery or a factory. Such forms are referred to as real capital as opposed to expendable capital.

From the point of view of the national economy, however, money is not a form of capital, because one can neither eat it, nor can one use it to produce other goods. For a national economy, money is simply paper, which may well fulfil very useful purposes and be an indispensable means of payment, but that is about it. Nobody has actually to refrain from consumption in order to increase the money supply because the central bank can simply have more of it printed.

The worthlessness of money for a national economy was particularly obvious when the EMU-countries went over to the common European currency, the euro. With the final introduction of cash euros in 2002, a 1000-DM bill, which had been in high demand until then, suddenly had at most only a certain collector's value. Of course it was possible to exchange this bill for the equivalent amount in euros, but that did not mean anything else but that tons of old DM notes would accumulate at the European Central Bank. As they had practically no value anymore, they could only be destroyed or – as was foreseen in some cases – converted into bricks. Thus, money is a scarce commodity only from a private perspective. A national economy on the other hand can basically reproduce it in unlimited quantities and in this sense, it is almost worthless.

This obvious contradiction between the perspective of the individual and that of the national economy gives rise to a number of problems. Needless to say, central banks cannot really put as much money as they like into circulation, because by doing so money would only lose its function. We shall be dealing with this problem further on in this book, especially when treating the issues of inflation and business cycles.

One interesting theory, for example, is that interest rates would be lower in an economy where there was no money than in an economy where money was used! This is because the existing money supply gives the economic agents the false impression of there being an abundance of money that does not actually exist from the point of view of the economy as a whole. As a result people would be less interested in accumulating physical assets in form of property and production plants than if money did not exist. They would also not want to purchase as many stocks and bonds, for instance, which would mean, all other things remaining the same, that interest rates would be pushed up beyond the level they would be at in a non-money economy. This is because the less stocks and bonds are sought after on the market, the more expensive it will become for businesses to acquire capital.

Nevertheless, this is primarily an academic discussion, because a non-money economy is hardly conceivable in practice. Moreover, in a modern economy, money does not simply "exist" but has to be put into circulation by central banks. As we know, this happens by central banks purchasing securities or bills of exchange. As long as they do not put more money into circulation than expanding economies need at given price levels, neither the interest rates nor the price levels will change. This is referred to as a neutral money supply.

Things are different when central banks put too much money into circulation. In this case interest rates will fall even in the short term. This is because the additional money put into circulation will be invested at least in part on the capital markets, which will have the same effect initially as increased saving does. This is referred to as the so-called Keynes effect, named after John Maynard Keynes. It had of course already been described by the Swedish economist Knut Wicksell as well.

In the short run the Keynes effect will result in more money being invested and in the national income rising. In the long run, however, prices will generally tend to go up as well. As nobody is actually refraining from consumption, the additional money that has been put into circulation will have the same effect on the market as an increase in demand would. Provided that supplies of commodities do not increase to the same extent, the inevitable result will be inflation. Rising price levels, however, will devalue the money supply in circulation, destroying the initial effect of cutting the interest rates.

The issue is a little more complex than can be depicted here. The most important factor is how much the existing production capacities are already being utilised. However, at the end of the day, there is widespread agreement among economists that it is not possible to lower the so-called natural rate of interest lastingly with the help of monetary policy measures.

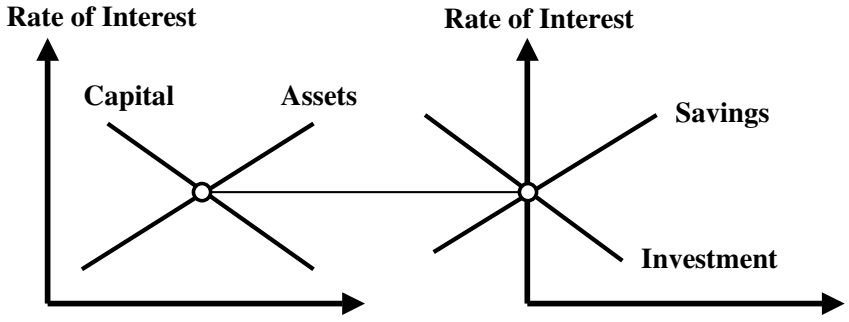
It was Knut Wicksell (1851–1926) who first introduced the term natural rate of interest into economic theory, deriving this term from the equilibrium between saving and demand for investment. In the short term this equilibrium can definitely be disturbed by the influx of new money. At first, the market rate of interest – Wicksell also called this the rate of interest on money – will fall below the natural rate of interest. However, in the long term and mostly after some cyclical fluctuation, the natural rate of interest should re-adjust owing to the circumstances just described.

In principle, these theories still hold good even today. Nevertheless, people no longer use the two flows, savings and investments, in their arguments, but have replaced them with the stocks, wealth and capital. It is easy to tell the difference between the two if we take the example of a full bathtub. The water running into the tub represents gross investments whereas the water running out of the tub represents depreciation. If only so much water is let into the tub as will run out of the drain at the same time, net investments will equal zero. Capital stocks, which in this example are equivalent to the level of water, will remain unchanged.

Why when explaining interest rates is it necessary to use stocks instead of flows? This can be best explained using the case of a stationary economy, i.e. one that is not expanding. In such an economy people will neither save nor invest, i.e. these two flows will be equivalent to zero. But would that mean that interest rates would also be zero, as we could maybe derive from Wicksell's theory? In fact, the famous Austrian economist Joseph Shumpeter really did hold this view at one point, even though it was undoubtedly wrong. This was probably his most embarrassing mistake.

Of course, a stationary economy will also have a certain stock of capital, only it will not grow any further. This stock of capital is mirrored by "paper assets", namely in the form of shares and other securities, in which the property rights of those owning the real capital are vested. The rate of interest is therefore nothing other than a product of this equilibrium between demand for such securities and their supply on the capital markets.

Ultimately, interest rates will have to adjust in such a way that on the one hand, they can actually be earned from the existing real capital and, on the other hand, that they meet the demands of those owning assets as regards payment of interest. For nobody will be prepared to hold on to their shares if these do not yield any returns. The reasons for this were already put forward by Böhm-Bawerk. Therefore, in contrast to what Schumpeter thought, interest rates will always be positive even in a stationary economy. Whether and how they will change when such an economy expands, we will see later in the context of economic growth.



In a non-expanding economy the interest rate is a result of the equilibrium of actual capital stocks and desired assets (left-hand illustration). Savings and investment will then equal zero (right-hand illustration), however, certainly not the interest rate!

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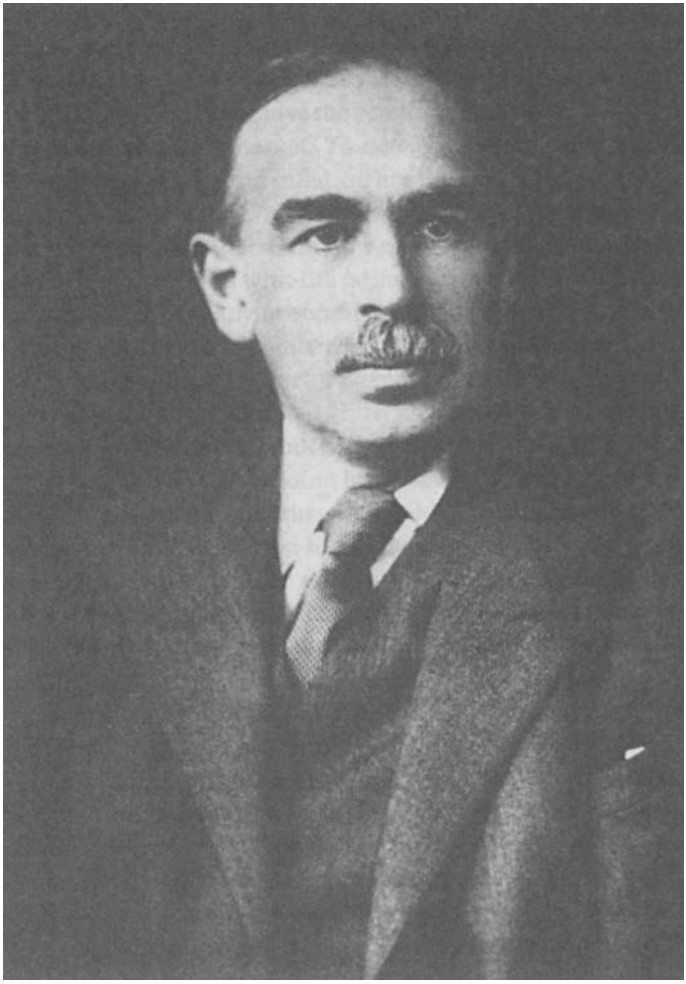
Chapter 2
Crises of Market Economies (Macroeconomics)



The Englishman John Maynard Keynes (1883–1946) revolutionized economic thought by showing how a market economy can fall into a deep recession as a result of mutually strengthening effects.

How Does Money Enter the Economy?

From Shell Money to the Peel Banking Act

So far we have dealt with the functioning of individual markets, for instance the housing market or the market for eco-certificates. These questions are issues of what we call microeconomics. However, in order to understand how a national economy works, we cannot just summarize the processes that occur in individual markets. As in other areas, the total in economics amounts to more than the sum of its individual parts. This is because the economy as a whole will often react very differently from an individual market. These contexts and especially the resulting crises such as unemployment and inflation are the subject of macroeconomics, to which we shall now turn.

Anybody who wishes to understand how macroeconomic processes work in an economy has to deal first of all with the issue of money. People have always been suspicious of money, even many economists. This is because money embodies a value even though it often has no intrinsic value. Obviously we can neither eat a bank note nor use it for any other useful purpose other than to light a fire perhaps. Even gold coins have only a very limited utility as such. Greek legend has it that King Midas wished that everything he touched would turn into gold. He was granted this wish, but it was almost his undoing because every time he put his glass to his mouth, the wine in the glass would turn into gold. The same happened with all the food that he wanted to eat too. Had he not been allowed to take back his foolish wish, he would have died of hunger and thirst. In Thomas More's novel "Utopia" gold was only used to manufacture such profane things as the chains of slaves. Like other Utopian Socialists, Thomas More held the view that gold and money were basically superfluous in human society, causing more harm than good.

Karl Marx as well was more on a war footing with money than anything else, feeling that it was a typical product of capitalism even though he realized that money considerably facilitated the exchange of goods. We only have to imagine what things would be like if there were no money. A baker, for instance, would have to exchange his bread rolls directly for shoes, meat and all the other goods he needs to live on. This means he would have to find a person who would not only want to buy his rolls but would also want to sell shoes or meat. Needless to say, this would be very difficult, which is why money was eventually adopted as a general means of payment. However, according to Marx, in a capitalist system the pursuit of wealth would rapidly become an end in itself, where the act of exchanging no longer worked according to the motto "goods-money-goods" but according to the motto "money-goods-money" instead. In fact, going by Marx' crisis theory, it was those sort of contradictions that would ultimately lead to the downfall of capitalism.

There have been repeated attempts to draw up Utopian societies that were supposed to work without money. The best-known were those by Robert Owen (1771–1858), Francois Babeuf (1760–1797) and Pierre Joseph Proudhon (1809–1865),

On the fantastic island of Utopia there was no money. This illustration depicts a map of Utopia, as described in Thomas More's novel (1478–1535).

who coined the famous phrase "property is theft". However, none of these Socialist models of society were ever successful in practice and they all went with a strict obligation to work as well as with government-regulated prices and wages. This alone is a sign that money is an important prerequisite to individual freedom.

In the real world there has always been some form of money, even in the most primitive of economies. Over time a variety of items have acted as money, including precious metals like gold and silver coins. The first coins were minted by Croesus, the legendary King of Lydia, in the 7th century b. Christ. Some civilisations also used shells, salt and other precious objects as money. The important thing was that these objects were scarce, standardized to some extent, durable and easy to handle. Only then were they recognized as money by everybody. Any reader of Karl May's books will remember how important the Maria Theresia Taler was in Europe. However, people also used guilder, livres, kreutzer and numerous other coins, although each was only recognized in certain areas. This is how currencies eventually emerged.

A medium can only function as money if it fulfils three fundamental monetary functions: it has to be recognized as a general unit of account, it has to be suitable as a store of value and it has to be commonly accepted as a means of payment. In the past people believed that in order to fulfil these functions it was essential that money had some intrinsic value as precious metals did. However, at the latest when paper money appeared, it became clear that this could not be true. The only thing that is important is that the supply of money is limited so that money does not lose its value. For this reason the right to issue paper money was governed by a state monopoly practically everywhere in the world. However, states abused this right time and again, causing serious inflation. Eventually this would lead to a currency reform, since the money used until then had become practically worthless and was no longer recognized.

In actual fact the state can only determine within certain limits what people should use as money. Even though governments can enact the necessary legislation, nothing will stop the economic agents from using other forms of money as well, apart from those foreseen by the state. Conversely, the state cannot force people to use the money that it has decreed as money and provided. In many states therefore, where the official local currency is not very stable, people quite commonly use parallel currencies, for instance dollars or euros, indeed, in some countries certain products cannot be bought unless they are paid for with such so-called "hard currencies". The hard-currency countries on the other hand have developed new methods of payment, for example credit cards or electronic payment systems. Thus, in practice, it is not at all easy to define exactly what money is and this also changes with time.

The course of history is very good evidence of this. During the 17th century people began to stop paying large sums of money in the form of gold transports because these had become too expensive and dangerous. Instead, gold was deposited in banks, which issued some form of written acknowledgement to the owner of the gold. These receipts could be in turn used as a means of payment and were convertible into gold on demand. This is how cheques and bank notes

came into existence and with these the so-called banks of deposit that emerged everywhere in Europe, one of the first being the Bank of Amsterdam in 1609.

Another alternative was to issue bills of exchange, i.e. an unconditional promise of payment that could also be converted at the bank into gold. Bills of exchange had a fixed maturity of, for instance, three months and only after this period was it possible to cash them in at the bank. In the meantime the owner could use these bills as a means of payment. Later these bills were often sold to the bank even before they were due (discounted), with the bank charging interest (the minimum-lending rate) for the period it had to wait until the bill was due. At the beginning of the 19th century, bills of exchange constituted roughly 70 % of the money in circulation. Only 30 % consisted of bank notes and precious metals.

Of course, the mere issuing of bank notes or bills of exchange did not mean that new money was being created. This was because every bill of exchange and each bank note had to be backed by the corresponding amount in gold, which was deposited at a bank and had thereby been withdrawn from circulation.

However, it did not take long for the banks to discover that most of their gold reserves were in fact never being reclaimed but were used to back bills of exchange made out by the new owners. It therefore made sense for the banks to lend the gold that was lying around in their vaults to other borrowers and to retain only a certain minimum reserve for possible withdrawals. Only then was new money really being created because now the loaned gold deposits were in circulation together with the bills of exchange and the bank notes. Yet, this did not mean that the banks could create unlimited amounts of money because this depended, on the one hand, on how much "base money" was still available in the form of gold and, on the other hand, on how much of this the banks still had to retain as a minimum reserve in their vaults.

This gave rise in the 19th century to the famous controversy between the Banking and the Currency Schools that was fought out in particular in England. The proponents of the Banking School, lead by Thomas Tooke (1744–1858) and John Fullarton (1780–1849), argued that the amount of money an economy needed would regulate itself automatically. This was because each bill of exchange issued represented a real transaction in goods, e.g. an additional investment for which the investor needed to borrow money. If people saw to it that only the "good" commercial bills were discounted, the money supply would obviously always be in line with the volume of trade.

However, the Banking School made a fatal error. For one thing, it was hardly possible in practice to tell the difference between a "good" commercial bill and a dubious "finance bill" that maybe only served the purpose of speculation and fraud. Most importantly though, the money needed by an economy did not only depend on how many goods were being traded but also on the price of these items. Thus, the discounting of unlimited numbers of "good" commercial bills was also associated with the risk that too much money would be injected into circulation and that inflation would develop, resulting in turn in the issuing of new bills of exchange, etc.

In the end it was the Currency School that won the day. Among the spokesmen for this school were Robert Torrens (1780–1864) and David Ricardo (1771– 1823), advocating the theory, that is still valid even today, that the base money supply in the form of gold or other state-controlled means of payment has to be limited. Because this means that as the banks have to maintain reserves, they cannot create new money ad infinitum. The historical consequence of this triumph by the Currency School was the adoption of Peel's second Banking Act of 1844, named after the English Prime Minister of those days, Sir Robert Peel (1788–1850). As early as 1819 the Bank of England had been obliged by Peel's first Banking Act to re-introduce convertibility of bank notes into gold on demand, something that had been suspended during the War against France. Now the Bank of England was also obliged to provide an (almost) total backing in gold, i.e. it was no longer allowed to issue any notes at all if these were not backed by the corresponding amount in gold. In return it was given the sole right to issue bank notes. The other banks of deposit in England lost this right and had to make sure from then on that they always had enough gold or notes from the Bank of England as reserves. This also limited their ability to create money, laying down the basic traits of what is still known today as the two-tier banking system.

Today most payment transactions no longer take place in cash but via current accounts. In fact one common definition of the money supply (the so-called money supply M1) encompasses only these two forms of money. Money deposited in current accounts provides the banks with some scope to create money as well, because on the one hand the holder of the account can use his money on demand, however, in practice, most of his money will remain in the bank and can therefore be lent to other clients.

Other forms of bank money are time deposits and savings accounts. Even though these kinds of assets are less liquid because they are subject to a notice of withdrawal, they also give the banks some scope to create money and are therefore included in the broader definition of the money supply M2. The definition M3, which is the one used by the European Central Bank for instance, goes even further. Aside from the forms of money mentioned so far it includes certain securities that are traded principally among banks. Even though such securities like debt certificates and money-market securities are not money in the actual sense of the word, at least in the framework of the banking trade they can be converted into 'true money' relatively easily.

Which definition one prefers to use in practice cannot be determined finally at a theoretical level. This depends on an economy's payment habits and on which theoretical or practical problems are at stake at a particular moment. The European Central Bank, for example, has decided in the first place on the money supply M3, keeping its eye, however, also on other supplies like M1 and M2.

Money Supply and Price Levels

Even though all central banks are national institutions nowadays, many of them are not subject to directives from the government, their primary task being to maintain monetary stability. This means that they should only provide as much money as is necessary to finance real economic growth on the one hand and to make sure that general price levels do not rise on the other hand. The central banks' autonomy from the government goes back to the fact that in earlier times, the state had been all too easily tempted to improve its finances by printing new bank notes, thus destroying the value of the currency. One of the earliest examples of this was the "paper-money mercantilist" John Law (1671-1729). Despite his Scottish origins he allowed bank notes to be printed without restraint whilst he was director of the French note-issuing bank, plunging the bank into ruin because nobody would eventually accept what had become entirely worthless money. Similar attempts by the state to rid itself of its debts through inflation at the expense of its creditors have been noted time and again until only recently. For this reason, in many industrial nations the central banks are now prohibited by law from lending the state any money.

The main way a central bank puts money into circulation is by lending money to private retail banks. For this it buys bills of exchange and other securities from the banks who will in turn use the money they receive to lend it to businesses and private individuals. The central bank will take interest from the retail banks for purchasing their securities, justifying this with the fact that the retail banks immediately receive cash, even though the securities they sold will only be due or yield interest at a later date. The central bank will also charge different rates of interest, depending on what kind of security it has bought. The minimum lending rate for instance applies to the purchase of bills of exchange, whilst the rate for loans on security applies to loans on fixed-interest bonds and securities.

The European Central Bank has a whole range of finely-tuned instruments and interest rates to influence the liquidity of the commercial bank system. Its most important instrument is the rate of interest for what it calls refinancing operations, with the Bank acting more or less like a pawnbroker, "taking in" the securities of the commercial banks for a temporary period. The banks receive funds for this and in most cases have to pay two weeks' interest for the period of this transaction. By varying what it calls the base rate, the European Central Bank can influence the volume of the money that is injected into circulation. In other words, higher base rates will reduce the money supply, whilst lower base rates will increase it.

Yet, in spite of these ingenious instruments a central bank is often unable to keep the expansion of the money supply within the limits it would like. One reason for this is that it can only influence the supply of money and not the demand for it. Even if it lowers the rate of interest it is possible that demand from the commercial banks will hardly increase. This may be because businesses are not investing much and are therefore hardly asking for loans. A central bank will therefore be more successful if it wants to curb an excessive money supply, by raising interest rates.

Some people therefore liken monetary policy to a rope, which one be pulled but not pushed.

Another reason why it can be so difficult to control the money supply is because of the commercial banks' scope to create money. Even so, this more or less private creation of money is only possible to a limited degree, because every bank has to keep an adequate proportion of cash and some liquid assets on hand in order to meet its customers' demand for cash.

If these reserves are too low, a bank's liquidity may easily dry up, resulting in a run on its accounts by customers who want to withdraw their deposits as rapidly as possible. It is this that will lead to the bank's final collapse, which can easily spread throughout the entire banking system. In such a case the economy's money supply may drop very suddenly, without the central bank being able to do anything about it. This fragility of the money and credit system was one of the decisive causes of the Great Depression in the 1930s. As a consequence, many central banks now require the banks to hold minimum reserves on accounts with the central banks. This is another monetary policy instrument a central bank can use to determine the money supply, because the commercial banks' scope to create money is dependent on how high these reserves have to be.

Some economists have even suggested obliging the banks to keep a minimum reserve of 100 per cent so that they no longer have any scope at all to create money. This suggestion had already put forward during the 1930s by a group of Chicago economists led by Henry Simons (1899–1946) and was taken up again later by the so-called monetarists around Milton Friedman (born 1912) who was also teaching in Chicago. Nevertheless, this idea was never carried through, among other things, because the flexibility of the supply of money would have suffered too much. Instead, such minimum reserves have even lost their importance for monetary policy over time and have been abolished again in many countries. One of the reasons for this is that there are far more refined mechanisms to influence the money supply nowadays. Moreover, people no longer feel so strongly that they have to insure themselves against a run on the banks, because in the meantime other instruments have been developed for these purposes such as insurance policies.

In summary, it has to be said that even from a purely technical point of view, it is difficult to supply an economy with the correct amount of money. It is neither entirely clear which definition of the money supply we should base this on, nor is it possible for a central bank to influence the money supply down to the last dot and comma. In this sense, practical monetary policy is at least as much an art as it is a science.

Nonetheless, this does not mean that people do not widely agree on the principles of how an economy should be supplied with money. The central aim is to prevent inflation, i.e. to keep average price levels as stable as possible. In principle this means that the money supply should increase to the same extent as the quantity of goods traded. In other words, the rate of increase of the money supply should be equal to the rate of growth of the real gross domestic product.

However, there are some subtleties that we should take into account in this context. For instance, the real gross domestic product by no means always corresponds

to the quantity of products that could be produced if production capacities were fully utilised. For cyclical reasons, with which we shall be dealing at a later stage, the real gross domestic product is often lower than this production potential. Practical monetary policy is therefore often based on the development of this production potential rather than on the actual gross domestic product, so as not to further exacerbate phases of economic downturn.

Furthermore, we have to take into account that a national economy's need for money does not normally increase in proportion to the gross domestic product, but over-proportionately. In other words, the velocity of the circulation of money, measured in terms of the ratio between the gross domestic product and the money supply, will tend to fall. Among other things this is because the holding of liquid reserves is a luxury that is only affordable when incomes are very high. Milton Friedman referred to this as the "luxury-goods" hypothesis of money. Moreover, as the social product increases, over-proportionate amounts of money are needed for purely financial transactions, for instance for trading with shares. Monetary policy has to take this phenomenon into account by increasing the supply of money accordingly.

Finally, we also have to bear in mind that in practice, it will never be possible to keep price levels completely stable, but that they will more or less inevitably rise at a certain rate. Most people assume that an inflation rate of 2 % per year is unavoidable and that this has to be taken into account when expanding the money supply. There are two reasons for this unavoidable inflation rate, one of which is of a more technical nature and the other of a more economic nature.

The technical reason has something to do with the calculation of the inflation rate. Who knows, after all, whether a car really has become more expensive or whether this is not because there has been a real improvement in quality that cannot be interpreted as a devaluation of money? Moreover, it is especially those products that have become particularly expensive that consumers increasingly replace with other products over time. As official statistics can only record such developments to a limited degree they interpret a certain share of price increases observed simply as improvements in quality.

The economic reason is as follows. The relative prices of individual goods constantly change for technical and demand-based reasons; this is a fundamental aspect of competition. If we want to maintain the stability of the average price levels of all products, at least some individual prices will have to fall in absolute terms whilst others will rise. However, it is not easy to lower the prices of individual goods in absolute terms, because costs – especially nominal wages – have generally been contractually fixed and can therefore hardly be reduced. It is much easier therefore to let the prices of goods that are in heavy demand rise a little and to keep the prices of the other products at least stable. However, this means that price levels will rise slightly on average, which has to taken into account in monetary policy.

In practice, the European Central Bank bases its monetary policy on the following principles. In order to calculate its annual target for the expansion of money supply it first takes the expected increase in the real production potential of, say 3 %. To

this it adds a supplement of normally 0.5 % to compensate for the falling velocity of the circulation of money as well as a further supplement of normally 2 % to compensate for the unavoidable inflation rate. It is true that the European Central Bank, just like the German Bundesbank on which the ECB was modelled, does not achieve its monetary targets every year. This is hardly surprising considering the practical difficulties mentioned above. Nevertheless, one has to say that owing to the strict monetary policy conducted by the Deutsche Bundesbank, the D-Mark became one of the most stable currencies of the world. In turn, during the first years of its existence, the euro has been every bit as stable.

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Business Cycles and Shortages in Demand

François Quesnay's Tableau Economique

Adam Smith did not describe only the advantages of the division of labour in his book "The Wealth of Nations". He was already aware that the economy would have to pay a price for this division, namely the possible estrangement of the labourer from the goods he was producing. Whereas an artisan manufacturing a fine wardrobe, for instance, would surely also feel a certain degree of professional satisfaction from this, regardless of the income he would earn, somebody assembling pinheads

from morning till night would hardly see any deeper purpose in life in such an activity.

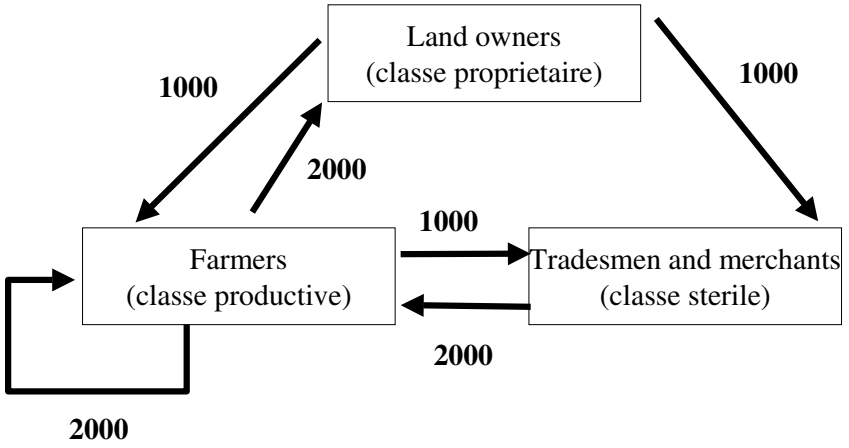
However, most importantly, the division of labour means that people will become strongly dependent on each another. Whereas Robinson Crusoe's welfare depended to a large extent on his own diligence and skills, in an economy based on the division of labour it is quite possible for people to get into serious financial difficulties through no fault of their own. For instance, if demand for cars falls for some reason, this can result in bankruptcies and redundancies in the automobile industry no matter how hard the workers employed in that industry labour to save their jobs.

But this is not enough. In the 19th century economic processes became so complex and at the same time so precarious that they led to repeated economic crises and general unemployment. Going by the theories of the then predominant classical school of thought this should not have happened at all. Since the classicists interpreted a fall in demand for one product as a shift in demand to another product, they thought that nothing could go wrong from a macroeconomic point of view. However, the facts were otherwise and only very gradually did people begin to realize that in economics, like in other sciences, the total was more than the sum of its parts, i.e. that macroeconomics were governed by different laws than microeconomics.

Every macroeconomic analysis is based on the concept of the business cycle, going back to the simple theory that what the buyer spends on a product always represents an income for the seller. Even in nature, matter never actually comes to an end but is only ever converted into something else, if only into energy. Similarly, in the economic world money is not actually lost when somebody buys a product but only changes hands. Nonetheless, at the macroeconomic level, expenditure will always have completely different consequences than it seems to have for an individual.

The first person to illustrate this theory in form of an economic cycle was Richard Cantillon (1680–1734), an English banker, who suffered the unfortunate fate of being murdered by his butler. As it happened, luck passed him by at the academic level as well, because the Tableau Economique of François Quesnay (1694–1774), the founder of the so-called physiocratic school of thought, gained far more fame than Cantillon's illustration ever did. Quesnay was actually the physician of Madame de Pompadour, one of Louis XV's mistresses. Many people argued therefore that he had developed his idea of the economic cycle because, as a physician, he had drawn an analogy with the circulation of blood. What is more likely though, because of his famous zig-zag depiction of income flows between economic sectors, is that he drew an analogy from physics.

Quesnay's Tableau set out three classes of society in accordance with the then prevalent conditions. Firstly there were the proprietors ("classe propriétaire") who owned the land but did not actually till it themselves, leasing it to others instead. The landowners would spend their income from renting out their land on agricultural and commercial goods. Secondly, there were the farmers ("classe productive") who were the ones actually tilling the soil and producing agricultural goods, for which they needed the tools they bought from the class of tradesmen



The French physician and copper engraver François Quesnay (1694–1774) was the first to examine the economic cycle in his Tableau Economique (above is a simplified illustration) in a systematic way. It has been argued that he developed this idea because, as a physician, he drew an analogy with the circulation of the blood.

and merchants ("classe stérile") who in turn would buy agricultural goods from the farmers. Only the farmers produced any surplus value ("produit net") that they would pay at the end of the year as rent to the landowners. In this way the money cycle came full circle and the whole process could begin anew.

From a modern perspective, much in this table seems outdated if not downright peculiar. For instance it is untenable that input should produce a surplus only in agriculture. The physiocrats believed this was so because land was naturally productive, i.e. it was naturally able to yield more than the seeds that had gone into it. Manufacturing on the other hand only converted agricultural products into other products, in other words it was "sterile". However, these are metaphysical arguments, taking only purely quantitative terms into account. What really matters is the creation of value. In this sense the "conversion" of a tree trunk into a wooden board represents a productive performance in the same way as the manufacturing of a table from this board does. Indeed, each processing stage yields a "produit net", amounting to the difference between the work performed in the previous stage of the production chain and the turnover achieved in the next stage. Today, this difference is referred to as the added value. The sum of the added value of all economic sectors makes up the national income, to which the agricultural sector contributes only about 5 % nowadays.

For this reason, the economic argument of the physiocrats that the valid policy was to encourage agriculture was mistaken. Going by the way the physiocrats interpreted the Tableau, the economic cycle would repeat itself constantly at the same level, for if each class always spent half its expenditure on agricultural products, the "produit net" would ultimately always end up at the original amount. If, on the other hand, consumption of agricultural products increased, the "pro-

duit net" would rise each period and the economy would continuously expand. Conversely, if too few agricultural products were consumed, the economy would contract further and further. However, these conclusions immediately fall apart if the manufacturing sector is also regarded as being able to produce a surplus.

Even so, for the development of macroeconomics the Tableau Economique has been of inestimable value. Firstly, it shows how an increase in demand in one sector can lead to an increase in demand in other sectors as well. Rising incomes in agriculture will boost expenditure by farmers on manufactured goods, which in turn will result in increased expenditure by artisans and merchants on agricultural products etc. Secondly, the Tableau showed that this process of mutual reinforcement of demand impulses would obviously not "explode", but followed the laws of a geometric progression, heading towards a finite marginal value, i.e. equilibrium. By analogy, a slump in demand in one sector would lead to a decline in demand in all other sectors as well. This theory was taken up later by John Maynard Keynes (1883–1946) in his famous multiplier theory and remains valid up till this day.

It can be mentioned but only in passing that there have been attempts to infer from the similarity of their names that Quesnay and Keynes were actually related to one another apart from having an affinity in ideas.

Most importantly, however, the Tableau Economique illustrated how important money was to the economic cycle, even though this was not entirely clear to the physiocrats themselves at that time. The real danger did not consist in there being too little demand for the products of the one or the other sector, but in the overall circulation of money contracting. Only then could there be a general drop in demand that was not restricted to individual groups of commodities.

On the other hand, a general shortage in demand as a result of saturated needs is highly unlikely. Even today there are plenty of unfulfilled consumer wishes just as there is still a lot of poverty, and certainly this was the case in the 18th and 19th centuries. At macroeconomic level, a shortage in demand can only go back to a lack of purchasing power, at least of the kind of purchasing power that manifests itself on the market.

The Say Theorem

The economic classicists did not take the business cycle theories of their predecessors, the physiocrats, very seriously. They could hardly imagine that there could ever be something like a general shortage in demand. Moreover they regarded as unfounded the dangers posed by a "false" demand structure which Quesnay had inferred in his Tableau. On the contrary, the classicists believed that the expenditure of one economic agent always represented the revenue of another economic agent and from this they derived a theorem, named after its founder Jean Baptiste Say (1767–1832), that was intended to dissipate any remaining concerns about possible shortages in purchasing power and demand.

Say's Theorem is based on the principle that anybody selling a product on the market is doing so for no other reason than to achieve income and to buy other products himself. This becomes particularly clear if we leave money aside for a moment and imagine an economy based only on barter. Obviously, nobody would offer a product on a barter market if they did not want to exchange it for a different product of equal value. A shoemaker would perhaps barter his shoes for food, a farmer would barter his cows for a horse-drawn cart etc. According to the classicists this fundamental principle never changed even when people used money to facilitate these transactions.

According to Say's Theorem, an increase in supply will ultimately always lead to an increase in demand. Even though the demand structure may not always correspond to the supply structure this is a purely microeconomic problem that can easily be solved by the mechanisms of relative prices. The bottom line is that from a macroeconomic point of view persistent overproduction is impossible because supply will create its own demand.

According to the classicists this was the case even when people saved. If somebody deposited their savings in a bank instead of using them to purchase goods, this would not actually reduce aggregate demand, because the bank would have an interest in lending the money deposited to others, in the first place to businesses. Hence these savings would manifest themselves in new demand because businesses would buy capital goods with the money they borrowed.

The mechanism of interest would always bring supply and demand for borrowed capital back to equilibrium. If people saved more than businesses wished to invest, the rate of interest would fall. According to the classicists, this would reduce people's incentive to save and encourage them to invest. Conversely, if businesses wanted to invest more than the banks had to lend, the rate of interest would rise until the capital market was back in balance.

So far so good. However, there is another possibility, namely that the money saved is not left in a bank. After all, it is easy to imagine that in times of economic uncertainty, people might want to hold on to their savings in cash, in the simplest case they might stash their money away under their pillows. It is equally conceivable that banks do not lend the money to others straight away, for example because they are waiting for interest rates to rise. In either case stocks in cash are accumulating that will not be translated into demand. In economic terms this is referred to as hoarding.

Of course the classicists had an answer to this problem as well. Using what is called the quantity theory of money that had already been propagated by the English philosopher and economist David Hume (1711–1776), they put forward the simple argument that if money was really being withdrawn from circulation by hoarding, prices would inevitably decline. In this case it would still be possible to trade the same quantities of products even despite the lower money supply and relative prices would not change either. Only the absolute price level, i.e. the average price of all products, would be lower than before.

Thus, going by the classicists, money was nothing other than a kind of veil lying over the real economic processes without actually influencing them. Any changes

in the money supply therefore amounted to nothing more than an adjustment in prices, i.e. if the money supply doubled, prices expressed in money would double as well and if the money supply was halved, prices would decline accordingly. The same applied to wages expressed in money that are also referred to as nominal wages. Relative prices and real wages on the other hand, i.e. those that really matter in economics, will not be affected by all this. This is also what people refer to as the classical dichotomy whereby the sphere of money and the sphere of commodities have no influence on each other at all.

Marx's Theory of Crises and the Theory of the Purchasing Power of Wages

When it came to the issue of full employment the classicists were exceedingly optimistic, at least as far as the demand side was concerned. They must have considered it quite preposterous that anybody should believe that people could actually save too much. After all, the main problem in those days was that there was not enough real capital available in the form of machinery and production plants to provide the growing population with sufficient jobs and incomes. In fact, capital was so short that the English clergyman and economist Robert Malthus (1766–1834) suggested in all earnest to close the poor houses and to stop all social support for unemployed people so as to curb population growth. However, most classicists believed that the solution to this problem lay in encouraging saving and the formation of capital as well as in curbing consumption by the aristocracy and by the state, especially that of luxury items.

The Tableau Economique and the concept of macro-economic business cycles were taken up again by Karl Marx who developed them into his crisis theory of capitalism. Marx agreed with the classicists' argument that savings on the capital market would ultimately be translated back into demand, namely into demand for capital goods. He even developed an ingenious two-sector model, in which he depicted the interconnection between the industries for capital goods and consumer goods both in a stationary and in an expanding economy. These schematic presentations of "simple" and "extended reproduction" were well ahead of their time. It was only much later that they were rediscovered by modern economists and are now regarded as the forerunners of today's multi-sectoral growth models.

Marx did not believe that higher savings would result in a general shortage in demand. To him, the problem was rather that there would be an ever increasing predominance of the production of capital goods as opposed to the production of consumer goods. The driving force for this was technological progress, which resulted in the development of ever more capital-intensive production methods and ever fewer labourers being needed. This would lead to the emergence of an army of largely impoverished job seekers, which Marx referred to as the "reserve army of the unemployed". The ensuing shortages in demand would ultimately result in sales crises on the consumer goods markets as well as in merciless competition among the capitalists themselves, during which profits would melt away ("The

Law of the Tendency of the Rate of Profit to Fall"). Even though the attempt by individual capitalists to remain competitive by investing ever more would create new demand for capital goods on the one hand, it would also lead to the emergence of new production capacities on the other hand, so that, according to Marx, the next crisis was inevitable.

His prediction that capitalism would ultimately destroy itself due to such "inner contradictions" has not so far come true. This is not to be expected in the future either, because in actual fact it is Marx's crisis theory that is full of such contradictions. Why, for instance, should capitalists continue to invest even if their profits were falling all the time? Furthermore, it is by no means certain that technological progress should be labour-saving only for the one side, as Marx pre-supposed it would be. Here Marx let himself be influenced too much by the conditions of his times and from today's perspective, his theory of crisis is of no more value than a historical dogma.

Nevertheless, even today there are economists, especially those who are close to the trade unions, who advocate this so-called theory of the purchasing power of wages, claiming that an increase in wages will boost demand and therefore the creation of new jobs. This is supposed to be the case especially in times of economic recession when production capacities are not fully utilized and investment is sluggish. People like to refer to Brüning's deflation policy in 1930s-Germany as a warning example, when the wage reductions imposed during the crisis of those days did nothing but actually exacerbate the general shortage in demand and were therefore totally counter-productive.

We shall be coming back to the real causes of the economic crisis of those days in a moment. What is clear is that this crisis could certainly not have been averted if wages had simply been raised instead of lowered. However attractive this may seem to the workers, this kind of "land-of-milk-and-honey" economics is really too good to be true. Apart from some of the early Marxists like Emil Lederer (1882–1939), the theory of the purchasing power of wages has never actually been propagated by any economic school of thought, not even by John Maynard Keynes. On the contrary, it is a typical product of common economics, catchy and of course very attractive to the workers, but nonetheless entirely mistaken.

The error in this theory is that higher wages will not only boost consumer demand, but will also result in higher costs, with the cost-effect ultimately outweighing the demand-effect. This is easy to understand in fact. Imagine a merchant who would like to boost demand for his products. Should he really stand at the door of his shop and hand out 100-dollar-notes to his employees from the till so that they buy at his shop? At best, he would receive back all the money he had handed out, but he would also have lost the goods his employees purchased and thus quickly head towards bankruptcy. So obviously, things are not this simple after all.

However, it would be just as wrong to conclude that wage cuts are always the right means to return to full employment. Because one thing is also true: in certain situations measures to dampen down demand may exacerbate a crisis even further. In such cases it would be advisable to stabilize wages and prices, at least initially, with demand-boosting measures. Let us describe such a situation right now.

The Keynesian Revolution

If there is any kernel of truth at all in the theory of the purchasing power of wages, it will have something to do with the circulation of money. For if the circulation of money suddenly contracted for some reason, this might indeed result in dangerous deflation accompanied by unemployment as well as declining wages and prices, without the economy being able to find its way back to full employment by itself. Even though the classicists, referring to Say's Theorem, had always believed that this type of situation could never occur, at the beginning of the 1930s economists were taught otherwise. In 1929 the world was hit by an economic crisis that eclipsed any crisis that had ever occurred before. Demand and production broke down within short intervals of each other, resulting in a depression that lasted several years with falling prices and mass unemployment in all the major industrial nations.

In the academic world, the Great Depression caused a revolution. In 1936 the English economist John Maynard Keynes published his "General Theory of Employment, Interest and Money", in which he dismissed the entire classical school of thought as wrong and replaced it with an explanation of the crisis based on the business cycle instead. This laid the foundations for what is now macroeconomics, in fact we could go so far as to say that this represented the actual birth of macroeconomics. The "General Theory" had a phenomenal influence, not only on economic theory but also on the economic policy of the next thirty years.

Keynes became a celebrity even before the appearance of his "General Theory", having caused a stir as early as 1919 with his treatise on the "Economic Consequences of the Peace", in which he denounced the Treaty of Versailles and the punitive reparations imposed on Germany after World War I as economic nonsense. He was also one of the few economists who acquired some considerable private wealth. The son of an economist and a logician, he was once described by Bertrand Russel as the most intelligent person the latter had ever come across. Nonetheless as a person he was still somewhat controversial, no doubt owing to his unconventional life style. As a member of the so-called Bloomsbury Group he was surrounded by intellectuals like Virginia Woolf, Bertrand Russel and Ludwig Wittgenstein, enjoying many liberties (including homosexual interludes) until his life took a more conventional turn with his marriage to a famous Russian ballet dancer. In 1942 he was made a lord for his academic and political contributions.

In order to understand Keynes' "General Theory" we have to bear in mind the economic depression of those days. On 29th October 1929, on "Black Friday" the New York Stock Exchange crashed following a period of wild speculation, after which share prices plunged and loans for purchases of securities could no longer be reimbursed, resulting in banks collapsing and in a general shortage of liquidity. The crisis inevitably spread to the markets for manufactured goods, spilling over into Europe at the same time because the mostly short-term loans granted by American creditors were withdrawn practically overnight.

This resulted in a banking and economic crisis in Europe as well, beginning in Germany with the collapse of the DANAT-Bank, as the first major bank in July

1931. Between 1929 and 1932 German national income dropped from 75 billion marks to 45 billion marks, prices and investments declined and the number of unemployed people soared from just under 2 million in 1928 to 6 million in 1932/33 at the peak of the crisis. Finally, the global currency system and international trade were practically in ruins and the world experienced an economic depression that nobody would have previously ever thought possible.

Even though similar crises had occurred in earlier times as well, they never took on the dimensions of this one by far. Even the first global economic depression that occurred between 1857 and 1859 was overcome relatively quickly, reinforcing the classicists' belief in the self-healing powers of the market. But now everything was different and it was obvious that the classical mechanisms to prevent a general shortage in demand had failed.

In a nutshell, Keynes explained these developments as follows. If the credit system suddenly breaks down and liquidity disappears from one day to another from the business cycle – as it did in those days – prices will not decline as the classicists had claimed they would. Instead, it is mainly the quantities demanded that will decline, both on the labour market and on the markets for manufactured goods. The one is linked with the other for if businesses face falling demand, they will have to dismiss workers and these in turn will buy fewer consumer products. Today, people refer to this as the spill-over effects between the various markets.

But why will prices not fall as well, at least not quickly enough? In order to understand this, we have to put oneself in the position of a business for a moment. Even if sales decline, a business will hardly be able to reduce its costs very rapidly, because wages and interest rates on long-term loans are generally fixed by contract. This leaves the business with no other alternative but to fire workers, even though from a macroeconomic perspective this will only lead to more loss of income and demand and thus exacerbate the crisis.

The result will be a cumulative spiral downward, as the Swedish economist Knut Wicksell (1821–1926) also once tried to describe. However, even Wicksell shared the classicist belief that such a process could always only be a short-term cyclical problem that would sort itself out within the foreseeable future. Keynes, however, demonstrated that the automatic reversal of this cumulative process (he referred to this as the multiplier process) was by no means always guaranteed. On the contrary it was quite possible that both the suppliers of goods (the businesses) and those offering their labour (the employees) may face long-term shortages in the demand for their output. Today it is said that in terms of their marketing, both sides are subject to a lasting reciprocal process of rationing, to which they ultimately adapt. The consequence is Keynes' famous equilibrium below full employment.

Keynes explained this equilibrium with two phenomena aside from the fact that wages cannot decline beyond a certain point. He described these as economic "traps". The first is that businesses are unlikely to invest in times of economic slumps even if interest rates are low. Why should they, after all, if even their existing production capacities are not being fully utilised? Keynes called this the investment trap.

Secondly, from a certain point onwards even a central bank will find it difficult to lower interest rates further, no matter how much additional money it pumps into circulation. This is because from experience the economic agents have a certain idea of what a normal level of interest should be and if the current rate of interest is already well below what they consider normal, they will hardly be prepared to lend their savings to others for a longer period at such a low rate. On the contrary, they will hoard the money put into circulation by the central bank, hoping that interest rates will rise again at some later time and that conditions for long-term capital investments will improve. Thus, the money saved will not be returned to circulation in the form of demand for capital goods. Keynes, who was, after all, an experienced speculator, described this situation as the so-called liquidity trap.

This means that the classical mechanisms to prevent shortages in demand do not work when they are most needed, notably when there is a sudden drop in purchasing power. Prices cannot fall quickly enough owing to the fact that costs are not so flexible that they could be lowered quickly enough. Moreover, if the central bank expands the money supply this will primarily result in increased hoarding, but hardly in increased investment. As if that were not enough already, the ensuing unemployment will reduce consumer demand, meaning that there is no prospect of reviving demand from this source either.

So what is there left that people can do? Keynes suggested bringing fiscal policy into play instead of monetary policy, i.e. to increase government outlays. Somebody had to see to it, after all, that demand would revive again and in times like this, this could only be the state. It did not matter to Keynes what kind of demand the state generated – if necessary the government could employ workers to dig holes in the ground and have them filled up again by other workers. The main thing was that new incomes were being generated, which would then be translated into new demand as well as employment opportunities in the private sector.

In order to finance these additional government outlays Keynes had no qualms about falling back on government debt. After all, during a depression interest rates were low and with rising national income the state would earn the additional tax revenues with which it would later be able to pay off its debts. This meant that in times of economic depression, government debt was not at all detrimental to investment, as the classicists had always feared it was. On the contrary, by increasing national income and aggregate demand government debt would even boost investment in the private sector.

This idea of an anti-cyclical fiscal policy was truly revolutionary because how could anybody possibly react to declining government revenues by increasing expenditure! From a microeconomic point of view, i.e. from the perspective of an economical paterfamilias, it would indeed seem far more logical to raise taxes and to reduce government outlays. However, at macroeconomic level, i.e. taking account of the trade cycle, such a deflationary policy would have disastrous consequences, as Keynes was able to demonstrate convincingly.

It is true that under the pressure of events, other politicians as well had come to the conclusion, already before the appearance of Keynes' "General Theory", that it may be a good idea to implement government-financed employment schemes. In

Germany it was above all the President of the Reichsbank and subsequent minister for economic affairs, Hjalmar Schacht (1877–1970), who initiated such a reversal in policy. In the USA similar measures were introduced by President Franklin D. Roosevelt (1882–1945), in the framework of what was called the "New Deal". All the same, it was Keynes who provided the theoretical basis that allowed this policy to spread and gain academic recognition in the first place.

Even today, there is hardly anything to criticize about Keynes' brilliant analysis of the worldwide depression of those days. After all, it does show in all clarity that what might be right from a microeconomic point of view, might be completely wrong at a macroeconomic level. It is because of this conclusion based on the business cycle that the state has had a special role in guiding the economic process ever since.

All the same, we have to take great care when applying Keynes' solutions in practice, as later economic history has shown. Even though with the title of his work alone, Keynes had pretended to put forward a "general theory", his ideas were nonetheless aimed at the specific situation of the Great Depression. Under no circumstances should we make the mistake of trying to combat all forms of unemployment with Keynes' solutions. Unemployment can have very different causes and only if it goes back to a general shortage in demand, do Keynes' solutions really help. If, on the other hand, the causes of unemployment are supply-driven, for example if excessive wages and taxes restrain private investment, an expansion of government demand, as Keynes had suggested, would only make things worse.

The simple rule that any therapy should be preceded by a precise diagnosis of the causes has been forgotten all too often since the War in the wake of the general enthusiasm for Keynes' theories. The consequences have been inflation, escalating government deficits and an ever-increasing share of government outlays in the national product in many industrial nations, with unemployment rising steadily since the beginning of the 1970s. No doubt these developments were exacerbated by the fact that many economic textbooks have presented Keynes' theories in an all too simple form, not to mention the problems of their political implementation. It is of course always very tempting for politicians to constantly expand government outlays, pretending even to help improve the employment situation. We will come to the long-term consequences of such policies at a later stage in this book.

Business cycle analysis has become an element of economic theory that we can no longer imagine being without. All the same, this does not make it the only universal economic theory there is.

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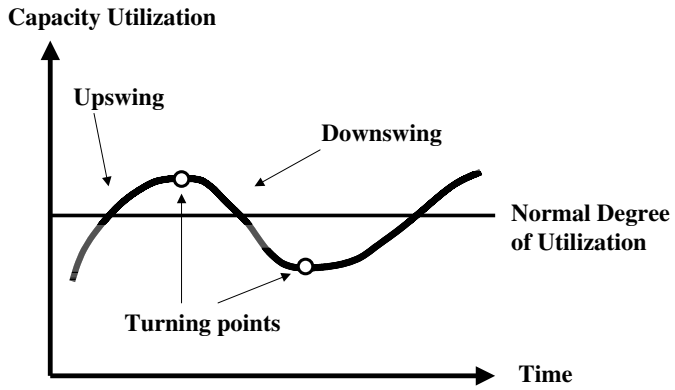
Why Do Business Cycles Fluctuate?

Knife-Edge Growth

Each year on November 15th the German Council of Economic Experts (the so-called "five wise men") present to the German public a report on the current economic situation and its likely future development. Even though this report is well over 400 pages long, the press generally focuses solely on the Council's forecast for economic growth during the coming year. In actual fact, a lot depends on this because among other things, overall economic developments determine how much scope businesses will have to increase wages and to achieve profits. The same goes for the inland revenue as well as the contribution to the state social security systems. Most importantly, however, economic growth also determines how high unemployment will be, at least in the short term. Whereas an upswing is generally



Cyclical fluctuations are measured by how much production capacities are being utilized. The typical pattern consists of more or less regular cycles around the normal degree of utilization.

associated with higher employment, during a slump there will be more redundancies, leading to increases in unemployment. It will come as no surprise therefore that most people look forward to economic forecasts with great anticipation.

But how does this constant fluctuation between economic upturn and downturn actually come about? In general, the business cycle refers to fluctuations in aggregate demand that occur at more or less regular intervals and are measured in the first place by how fully the productive capacities of businesses are being utilized. Whereas during a boom, capacities will be almost fully employed, during a recession production plants will often only be utilized up to about 70 %. Therefore, during a boom demand for labour will be high, whereas during a recession there will be redundancies and unemployment.

In a more simplified form one can visualize the business cycle like a sine curve, similar to a radio wavelength. Of course in reality, fluctuations in demand do not correspond exactly to this idealized picture. The length of business cycles can also vary, but in general the interval between two troughs is between five and seven years.

In earlier times people even believed that several cycles of different lengths overlapped. In his book "Business Cycles" that appeared in 1939, the Austrian economist Josef Schumpeter distinguished between three such cycles, which he each named after their discoverers: the three-to-four-year "Kitchins", mostly associated with changes in stock levels, the seven-year "Juglars", relating to changes in net investment over time, and the fifty-year "Kondratieffs", caused by fluctuations in activity in the construction and allied industries. This classification is hardly used anymore nowadays and it was only the medium-length cycles observed by the French business cycle researcher Clement Juglar (1819–1905) that were demonstrable with any certainty.

Fluctuations in economic activity were already observed in pre-industrial times, but in those days no consistent statistics about economic output existed despite at-

tempts to produce them by some early economists like William Pettyb (1623–1687). Other variables were therefore used in order to monitor the business cycle, including even the number of people attending Mass on Sundays, who, as Schumpeter once wrote, would do so much more in times of crisis, but whose piety would decline again when they were doing better. Despite the fact that Schumpeter was a contemporary of Keynes, when it came to explaining how business cycles worked, their opinions differed widely. In fact even today, it is still a matter of debate why such cyclical fluctuations actually occur.

In the pre-industrial age up till the mid-19th century, when economic output consisted largely of agricultural products, people believed that fluctuations in the harvest accounted for cyclical variations. Crop failures would push up prices, making production more expensive in all down-stream sectors owing to increases in costs for agricultural primary products. This meant lower sales, unemployment and general hardship. Good harvests on the other hand drove down prices for agricultural products as well as wages because people now needed less money to secure their livelihood. Consequently, demand for labour would rise not only in the agricultural sector but in all other economic sectors as well.

The British economist William Stanley Jevons (1835–1882) and his so-called sun-spot theory gained some fame in this context, postulating that business cycles fluctuated because variations in sun-spots affected the power of the sun's rays, thus influencing the weather as well as the harvest. There is another more recent version of this approach, which is also referred to as a sun-spot theory even though it has nothing to do with the weather but with other more or less coincidental occurrences, such as the oil crisis, that cause the economy to fluctuate through a series of self-strengthening processes.

In actual fact such self-strengthening processes are ultimately at the centre of any explanation of the business cycle. We have already come across them in Keynes' theories, namely in the form of the so-called multiplier theory. Increases in income will push up demand, meaning that suppliers' earnings will go up as well and so on. Knut Wicksell expounded his "cumulative effects" in a similar way, except that his theory centred on investment rather than on expenditure on consumer products.

All the same, two decisive questions in business cycle theory have not yet been clarified. Firstly, how is this cumulative process launched in the first place? Secondly and most importantly, why does this process not lead to new equilibrium, why does it reach an upper turning point from which it continues in the opposite direction until it reaches a lower turning point, from which it reverses its course again and so on?

Keynes did not provide an answer to these questions either, especially not to the second one. On the contrary, his theories stopped with the explanation of a deep economic depression. This is why he did not provide a proper business cycle theory, but merely an explanation of the exceptional case of the Great Depression of the 1930s. In fact, that was not the only shortcoming in Keynes' theory as the economist Evsey D. Domar (1914–1997), who was born in Russia and later emigrated to the USA, was the first to point out.

In his epoch-making essay of 1946 Domar drew attention to the contradiction that in Keynes' so-called "equilibrium below full employment", businesses will continue to invest, even if only to a limited extent, despite the fact that demand is not changing. This means that the under-utilization of productive capacities will become ever greater, because net investments represent nothing other than an increase in economic productive capacities. Thus, at least in the long term there will be no real equilibrium.

So what happens if companies scale down their investments or even stop them altogether owing to increasing surplus capacities? From the business point of view this would make sense, but according to Domar this would have fatal consequences at the macroeconomic level. Because of the multiplier process a decrease in investment would cause the national income and therefore also aggregate demand to decline. This means that the under-utilization of capacities would not be remedied but would instead be exacerbated. For even if investments came to a complete standstill, the existing production plants would still remain in place, whilst incomes and demand would drop dramatically.

The answer to this problem is quite obvious. If capacities are under-utilized, businesses should basically expand their investments. Owing to the positive multiplier effects, businesses could create the necessary demand more or less by themselves so as to return to full capacity. Like the famous "fibber", baron Münchhausen, businesses could get their head out the morass themselves. This is what is referred to as the "Domar paradox". It is based on the so-called dual nature of investments that always increases supply and demand at the same time.

However, Domar's arguments went even further. Suppose businesses followed people's advice and expanded their investments even though their existing capacities were not being fully utilized. Would they really be able to achieve a new balance between supply and demand? Domar was able to show that it was not enough if investments only rose once. Rather, they would have to be expanded continuously, albeit at an exact rate. Since the national product would then also grow each year at the same rate, aggregate supply would always expand in line with aggregate demand.

According to the fundamental equilibrium condition of growth theory discovered by Domar the equilibrium growth rate corresponds to the product of the rate of aggregate saving and the "marginal productivity of capital". The savings rate indicates how many percent of the national income are being saved. In the industrial nations this share is generally around 10 to 20 per cent. It is by this amount that production is not used for consumer purposes but held back for investment. The marginal productivity of capital indicates how many goods can be produced with one additional unit of investment. Multiply the savings rate by the productivity of capital and the result will indicate how many more goods will be supplied in the following year. According to Domar, aggregate demand would have to rise to exactly the same degree for production capacities to remain fully utilized. However, this can only be guaranteed if investment also increases exactly at Domar's equilibrium rate.

According to Domar there were no mechanisms that would incite companies to increase their investments at exactly this rate. Even worse, as soon as they exceeded this rate, even if only slightly, the entire process would "explode". For then aggregate demand would exceed productive capacity with the consequence that companies would invest even more. However, this in turn would keep on driving demand even further above capacity.

For this reason Domar's theory was quite fittingly referred to as the "knife-edge growth theory". This was because any deviation, no matter how slight, from the equilibrium growth rate would have either caused the economy in his model to "explode" or fall into a deep recession, from which it would not be able to extract itself by its own efforts. The Oxford economist, Roy F. Harrod (1900–1978), came to a similar conclusion at about the same time, which is why people nowadays speak of the Harrod-Domar growth theory.

Aftalion's Use of Fire as an Example: The Accelerator Principle

In the real world, such extreme developments have never actually been observed, in particular not a lasting "explosive" process, which one can hardly imagine occurring in practice. In this sense Domar's theory was not very realistic and at the very least his conclusions were somewhat exaggerated. The main reason for this was that he did not really explain how businesses invested, claiming only that if capacity utilization increased, businesses would invest more and more whereas the opposite would happen if capacity utilization contracted. Surely, this is too simplistic an assumption, for we should never consider entrepreneurs as ignorant people who would not take into account how demand will develop in future aside from how it is in the present. However, then we come to an entirely different conclusion.

All the same, at least Domar had put his finger on the sore spot of the economic growth process. Investments can be very sensitive to changes in capacity utilization, to the extent that they may actually increase them. In fact this fundamental problem was discovered already long before Keynes had developed his theories; it became known as the so-called accelerator principle. Based on the principle that an accelerator makes things go faster, it has been noticed that investments will in fact fluctuate far more strongly than the national income as a whole. Even the pre-Keynesian business cycle theorists, namely the Bulgarian Albert Aftalion (1874–1956) and the German economist Arthur Spiethoff (1873–1957), were aware of this and derived their theories of over-investment from them.

Aftalion compared the interaction between investments and aggregate demand with a fire. As a fire dies down, one has to add a few more logs to it. It will nevertheless take some time until the fire begins to burn more brightly again and this is where the danger lies. For if the fire becomes too bright, it is not possible to just take off some wood again. On the other hand, if more wood is added too late, the fire might go out. This means that in order to get an even development of warmth, the fire has to be fed in the right doses.

The same goes for investments. Let us assume that aggregate demand rose for some reason. If this resulted in an increase in investment, demand would rise even further initially, notably in those industries that produce the relevant machines and production plants. However, by the time these new plants have been built and are ready for the production of goods, the demand impulses may have exhausted themselves again. The need to invest has been satisfied for the moment, which means that sales in the capital goods industries will fall again. This in turn will result in a decline in incomes and in aggregate demand, so that investments may turn out to be unprofitable, i.e. businesses may have over-invested. As a result, some will go bankrupt and a general downturn may set in.

It is therefore vital, just as in Aftalion's example with fire, that aggregate investment remains as stable as possible. Ideally, it should increase at exactly Domar's equilibrium rate. However, this is clearly unrealistic and it is therefore hardly surprising that repeated cyclical fluctuations occur.

On the other hand, the accelerator principle does not mean that these economic imbalances necessarily constantly strengthen each other, let alone have the explosive effects that Harrod or Domar had predicted. Other Keynesian authors, especially Paul A. Samuelson (born in 1915) and John R. Hicks (1904–1989), were able to prove that this depends to a great extent on how strongly and on what time-scale businesses react to increases in demand with investments. Depending on what we presume to be the case, we may also obtain smaller fluctuations that will become ever weaker with time until eventually a balance between supply and demand is restored.

The reason for this is easy to understand if we use a little mathematics. For even if the level of aggregate demand depends on the level of investments, the level of investment in turn is not determined by the absolute level of aggregate demand, but instead by how this demand changes. However, this means that even if demand remains unchanged, investment may come to a complete standstill. Time-wise, the turning point of investment comes before the turning point of the total economy and it is this time gap between investments and their effects on demand that will lead to the fluctuations we know of the business cycle as a whole. Expressed in formal terms, this is referred to as a system of difference equations. Depending on the underlying patterns of the reaction of businesses and consumers, this system can lead to both weaker or to ever-increasing fluctuations.

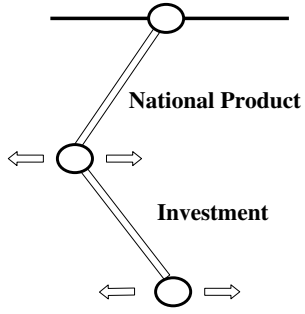
Nevertheless, in the real world all we have ever observed over time are weak or at best more or less even cyclical fluctuations. Hicks explained this with the fact there are certain technical constraints to fluctuations in demand and especially in investment. The upper constraint, the so-called "ceiling", stems from the fact that productive capacities are limited. If they are fully utilized, demand and production can no longer rise. But there are also constraints in the other direction, the so-called "floor". This is linked to the fact that at the worst, gross investment may fall to zero, but it can never actually take on a negative value. For obviously, nobody would actually destroy a functioning production plant with a sledgehammer, only because it was not being fully utilised. Therefore, even if the national income did continue to decline at first, investments would remain at a constant level from a

certain point onwards, namely at a level of zero. Due to the dynamic quality of the system as whole, the economy will eventually arrive at the lower turning point, from where it will begin to recover again.

Business Cycle Policy: Is it Possible to Master the Chaos?

The works of Hicks and Samuelson represent the first attempts to develop a business cycle theory based on Keynes and were kept deliberately simple, showing thereby that dynamic systems like economies can be thrown off balance by the slightest of causes. In the natural sciences this has long been known to be the case, resulting in the development of what is called the theory of chaos. In mathematical terms, chaos refers to a dynamic system showing reactions that may follow certain basic patterns but are nonetheless entirely unpredictable in detail.

A simple example of a chaotic system taken from physics is the double pendulum. A double pendulum is a pendulum with another pendulum hanging from it. The upper pendulum influences the movements of the lower pendulum and vice versa, similarly to how investments and aggregate demand influence each other. If we give the pendulum a push, it is impossible to predict in which position it will be, say, after twenty seconds. Even the slightest of differences in the strength of the push will result in a completely different reaction from the pendulum. Further examples from physics are how a ball rolls on a billiard table or the weather forecast. In either case, it is only possible to predict for a very short time span with any degree of accuracy how future developments will be. This is the reason why the game of billiards is considered such a fine art and why, even in spite of the finest computer technology, weather forecasts can only be made for at the most a few days, but never for a month or even less a whole year. One of the most famous statements of the chaos theory in this context is that even the flap of the wings of a butterfly in China can completely change the weather in Europe.



The national product and investments influence each other similarly to the two parts of a double pendulum. This can lead to "chaotic" fluctuations both in physics and in economics.

Since Samuelson and Hicks published their fundamental works, there have been many very much more ambitious theories to explain the business cycle that include among other things the role of monetary policy and wage policy in the cycle. There have also been attempts to describe the business cycle using the theory of chaos among these. Even so, in spite of all these differences, economists largely agree that it will never be possible to avoid cyclical fluctuations entirely. This was also what Clement Juglar believed. The primary task of business cycle policy therefore is to keep these fluctuations within certain limits and above all not to let them reinforce each other.

Business Cycle Theory at a Political Level

People still disagree on the actual causes of cyclical fluctuations, i.e. who or what sets the pendulum in motion? Two fundamentally different views exist on this issue.

The Keynesian economists mostly propagated the theory that even the slightest, possibly coincidental impulses could suffice to make the economy fluctuate. Since such impulses could never be avoided entirely, a market economy was inherently unstable. The most frequent conclusion drawn at political level was that it was up to the state to carry out the necessary counter-measures. This is the modern justification for an anti-cyclical economic policy such as had already been advocated by Keynes.

The monetarists on the other hand, the followers of Milton Friedman, believed that a market economy was far more stable and that, as a rule, it was perfectly able to handle minor imbalances. If there was a shortage in demand in one market, this would generally be offset by a surplus in demand in another market. We can see Say's Theorem becoming evident again here. Nevertheless, the monetarists also made an important exception from this rule, namely with regard to the state, believing that only the state was in a position to instigate economic imbalances, in particular through its monetary policy.

Let us assume for instance, that the money supply was expanded further than the increase in productive capacities. This would indeed give rise to an increase in demand without there being any decline in demand in another market. In the view of the monetarists this was the actual cause of cyclical fluctuations. They therefore recommended that if possible, the money supply should always expand in line with productive capacity growth. Under no circumstances should the money supply be used to pursue an active counter-cyclical economic policy as the Keynesians suggested. Because this would strengthen rather than weaken cyclical fluctuations.

In order to illustrate these contradictory views let us return to Aftalion's example of fire. The Keynesians would always want to add more wood only when the fire threatened to go out. The monetarists on the other hand believed that due to the delay in effect, it would not be possible to achieve an even distribution of warmth

in this way and that it was preferable to ignore minor fluctuations in warmth and to add more wood at regular intervals regardless of such fluctuations.

It is probably not possible to solve this debate at a purely theoretical level. On the contrary, it has to be decided on the basis of practical experience. The treacherous thing is that, unlike a physical system, the economy does not always react in the same way. In an economy after all, we are dealing with people who learn from experience, unlike billiard balls and pendulums, which means that over time their reactions will change. Business cycle policy shows this very clearly. Whereas in the 1950s and 1960s the Keynesian solutions still worked very well, this was increasingly less the case later. We shall come back to the exact reasons for this in the context of inflation. What is certain though is that practical business cycle policy cannot be based on a theory that is valid for all eternity.

The Influence of Politicians on the Business Cycle

There is another important political aspect speaking more in favour of the monetarist position and that has something to do with the fact that initially, an expansive monetary policy will always have a positive effect on employment. It is only after a delay of two to three years that prices and wages will begin to rise and cancel out the initial effects on employment. Jobs will be cut because increases in prices and wages always signify to businesses that, contrary to their initial impression, it is not real demand for their products that has expanded but only the money supply. This means that their initial expansion of production will turn out to be mistaken and can only be corrected by cutting down on production again. The stronger this initial expansion of the money supply and the resulting over-investments are, the deeper the ensuing recession is likely to be.

For this reason, attempts by governments to boost economic growth lastingly with reflationary measures have failed time and again. Especially in the 1970s and 1980s many countries went through a bitter experience in this respect when policy makers tried to offset the negative consequences of the two oil crises by printing liberal amounts of money. Even though in the short run, economic growth was actually boosted and the workers suffered under the illusion that rising oil prices could be offset by higher wages, eventually the prices of all other products rose as well and inflation soared to two-digit figure in many countries.

It did not take long for this to have a negative effect on the labour market as well. Since prices were rising the trade unions saw themselves cheated out of the fruits of their wage policy and demanded ever higher wages in compensation. At the same time the issuing banks tried to get inflation under control by raising interest rates and imposing a restrictive monetary policy. This meant businesses had to face cost problems from two sides: on the one hand they had to pay ever-increasing wages and interest and on the other hand, the issuing banks were restricting their scope to raise their prices. Bankruptcies were inevitable and unemployment rose to hitherto unknown levels.

This type of Keynesian demand management was also later quite correctly referred to as stop-and-go politics. Having initially tried to stimulate growth with the help of reflationary measures, the government was forced sooner or later to reverse its course in order to curb inflation. However, at the end of the day, this did nothing but destabilize the economy and increase inflation at the same time. Moreover, unemployment did not decline as a result of this constant to-ing and fro-ing but began to establish itself at an ever higher level. This was because on the one hand, businesses became increasingly unsure in their decisions about investments, eventually waiting even after the economy had begun to pick up again to see how things would develop. On the other hand, those people who had been unemployed for a long time were already beginning to lose their motivation and in many cases also their skills. Economists call this tendency hysteresis, referring to conditions of rigidity that will keep unemployment high even when the economy has recovered again. What was initially a problem of demand had all of a sudden become a persistent structural problem.

The problem is that in spite of all these negative experiences stop-and-go policies can be in the interests of the government in the short term. For if the government boosts the economy just before a general election, its chances of being re-elected are far better owing to the positive effects of its policies on employment. As we know, the negative effects, i.e. inflation and recession, will only come later. In this context people also refer to political cycles. Things become especially precarious if the government also has free access to the money-printing presses, because then the economy can be boosted particularly easily and seemingly without cost. For this reason it is obviously highly advisable to take at least this dangerous instrument away from governments and to leave monetary policy in the hands of an independent central bank instead.

Some monetarists would go even further and recommend tying government spending to certain legal constraints. However, this idea has never been implemented successfully yet, because so far politicians have never been prepared to do entirely without the Keynesian tool of counter-cyclical policy. After all, there could always be another crisis like the Great Depression of the 1930s, where they would have to make use of this instrument despite all its dangers.

We can conclude from these deliberations that we have to handle Keynesian solutions with great care. How far this is respected in practice is more a problem of the political system than a question of pure economics. Economists can only act as advisers in this context. In particular they should try to determine in each concrete case whether it is only a minor disturbance that is taking place or whether there is a real threat to the balance of the economy that can only be deflected by government counter-measures.

Seen in this way, the differences between the Keynesian and the monetarist positions are not as great as they appeared to be at the height of the controversy between these two streams of thought in the 1960s and 1970s. For instance, when shares collapsed all over the world again in 1987 people largely agreed that monetary policy makers should immediately lower interest rates, and this is what actually happened. Indeed, the danger of a renewed global depression was even averted by

these means. By taking counter-measures early enough again, it was also possible afterwards to keep inflation at bay. This was an enormous success for economics because, among other things, it showed that even politicians can learn from their mistakes in the past.

Let us recapitulate briefly at this point: It will probably never be possible to prevent cyclical fluctuations entirely, just as medicine is unlikely ever to be able to eradicate the common cold entirely. For this the economic organism is too complex, just as the human body is. Nevertheless, one can and should try to keep these fluctuations as small as possible so that the cold does not turn into an acute bronchitis. From past experience we know that preventive measures are always better than remedies. In order to illustrate this theory let us take one last example from every-day life. Anybody who has ever tried to drive a car with a trailer will know how carefully they have to be with the steering wheel. Needless to say, minor corrective movements are necessary and permissible. However, if the steering wheel is turned too far, the car will go into a dangerous swerving movement which can hardly be controlled anymore.

Similarly, in business-cycle policy it is important to steer a careful and even keel and not to react too hectically even when things become tricky. In general a more restrictive monetary and fiscal policy is advisable during an upswing so as to prevent the economy from overheating in the first place. In recent years the governments and the issuing banks of most countries have adopted such prudent policies, but these have not always been very well received by the public. Needless to say, the temptation is great to continuously raise wages and government outlays when the economic outlook is optimistic. The danger of the economy overheating is often overlooked or at least recognised too late. This means that a prudent economic policy does not only require the necessary expertise but also a great deal of steadfastness from politicians who may be faced with excessive demands. If they do not remain firm enough, even the best economic theories are most likely to fail.

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Does Technical Progress Destroy Jobs?

The Release Theory versus the Compensation Theory

It was David Ricardo who in the third edition of his "Principles of Political Economy and Taxation" of 1821 first raised the question whether technical progress actually improved people's prosperity or whether it did not just increase unemployment in the long run instead. He came to the somewhat pessimistic conclusion that technical progress would encourage the industries in question to employ increasing amounts of capital in the form of new and better machinery, which meant that, demand remaining unchanged at first, workers would be fired, at least temporarily.

This theory has become known as the release theory and owing to its obvious plausibility has constantly found new supporters. After all, how can the workers stand up to competition from increasingly sophisticated machines? Even if they were prepared to work for lower wages this would not be of much help in the long term. As one of the leading articles in the reputable German newspaper "Das Handelsblatt" of 19.7.1996 stated: "The telephone and the telefax would have displaced the yellow postal vans even if the postman had blown his horn for half his wages. Likewise, hot-metal setting in the newspaper typesetting trade has not become something of the past because type-setters earned too much money, but because the computer was invented."

Karl Marx would no doubt have agreed with this for he, too, was convinced that technical progress would inevitably lead to an increasing input of capital into production. More and more workers would lose their jobs even though their wages were already so low that they hardly had enough money to live on. This argument was one of the cornerstones of Marx's theory of crisis, according to which capitalism would ultimately destroy itself due to an over-accumulation of capital.

Interestingly, this question had never been discussed in earnest before the industrial revolution, even though Antiquity and the Middle Ages had also experienced a certain degree of technical progress. The invention of the plough, for instance, boosted the productivity of agriculture quite decisively, whilst in the manufacturing sector improved tools and simple apparatuses consistently increased the productivity of human labour.

Nevertheless, there were two important differences between this and later industrial mass production. For one thing, during the Middle Ages technical progress

only advanced extremely slowly, leaving enough time for people to adapt to it. Secondly, many of the goods produced were used by the same people who had manufactured them. Those running an agricultural estate could only welcome new technical advancements which eased their long working day a little. Moreover, in view of the general shortage of food and other essential goods it was no problem as a rule to sell on the market the products that people produced over and above their own needs. Thus, it was taken for granted that technical progress could be nothing but a Godsend for mankind, since it made it possible for people to satisfy their most pressing needs and have a little more leisure and a little less toil.

The question is therefore what it was that changed so much as a result of industrial mass production. Were people's needs really satisfied? Hardly so – on the contrary, there was great poverty everywhere. Friedrich Engels (1820–1895) described the conditions in those days very accurately in his deeply upsetting report of 1845 called "The Conditions of the Working Class in England". Were there perhaps no possibilities anymore to cut down the working week? That can hardly have been what had changed either for in those days, a working day was still over 16 hours long and people worked six days a week.

Yet again, we come back to the phenomenon of the division of labour. On the one hand, labour productivity rose to a hitherto unknown degree as people were specializing in the production of goods they did not actually need themselves. On the other hand, the individual worker became increasingly dependent on whether the commodities he was producing were actually in demand on the market. Above all, however, the invention of labour-saving machinery suddenly jeopardized his chances of earning a living. For if a machine to produce pins could replace ten workers, but demand for pins did not rise accordingly, then obviously, workers in the pin-producing factories would have to be fired. This simple hypothesis is the basis of the release theory, albeit a somewhat naïve form of it.

All the same, we must not forget that the invention of a machine did not only increase the number of pins that could be produced but also lowered the price of a pin – otherwise, under conditions of competition, nobody would have even considered using a machine in the first place. However, declining prices for pins meant that the real income of all those not employed in the pin-manufacturing industry increased, as they now had more money to spend on other goods. It follows therefore that if prices decline as a result of technical progress, demand will rise which in turn will lead to the creation of new jobs. This is the kernel of the compensation theory that was advanced as a counter-argument to the release theory already quite early on.

There is nevertheless an obvious objection to be held against the compensation theory. We have just been speaking of falling prices, but do prices in fact not go up all the time? Does this mean then that the compensation theory is nothing other than pure theory that will not stand up to any comparison with the real world?

This argument has nevertheless turned out to be too superficial. It is true that for the past 50 years prices have risen each year; this is the result of creeping inflation that we have already dealt with. At the same time though, wages have also increased

and looking at developments long-term, they have in fact gone up far more than prices. However, this means nothing other than that the real incomes of workers have increased.

So, when we speak of the prices of individual products falling as a result of technological progress, we do not mean that they are declining in absolute terms but that they are rising less than wages are. And that is all that matters in the end when comparing the effects of technological progress on real incomes, because prices falling in relative terms imply growing purchasing power.

Even so, it is not necessarily the industry where this progress has taken place that will actually benefit from growing demand. After all, who could possibly need more than 100 pins per year? Therefore, the money put aside in order to buy pins will be spent in part or even in total on other products. In principle, this does not matter because this will also result in the creation of new jobs. Nevertheless, this structural change does mean that workers who may have been made redundant have to be flexible enough to be able to take on these new jobs. They may have to take part in vocational training schemes, they may have to change their place of residence and in some cases they may even have to be prepared to work for lower wages than before.

This brings us to the real problem of technological progress. As long as we examine it in isolation in one individual sector, there will obviously be winners and losers. Among the winners will certainly be those wanting to buy products from the industries that have benefited from progress because these products will now be sold at a lower price. On the other hand, those employed in these industries may well suffer disadvantages and be forced to look for a new job. Whether they will find one and what real wage they will then earn will be at the very least uncertain.

During the industrial revolution this could become a very serious existential problem for people. As workers earned a mere pittance in those days, they were hardly able to accumulate any private savings, and unemployment insurance was only introduced far later, in Germany as late as 1927. It was quite understandable therefore that people dreaded being displaced by new modern machines. One of the most famous uprisings occurred in the Silesian textile industry in 1844 and was described by Gerhart Hauptmann in his drama "Die Weber".

Originally, the spinning frame had been invented by the English engineer Richard Arkwright (1732–1792). However, in 1764 a simple weaver named James Hargreaves improved the frame to such an extent that its output was increased by over a hundredfold. This aroused the envy and suspicion of his competitors who were poor artisans like him. At first they believed that Hargreaves' daughter was a witch and called her "Spinning Jenny". When they discovered that it was in fact a machine that was behind this increase in output, they all went to Hargreaves' house and destroyed it. All the same, they were unable to halt the triumphant advance of the "Spinning Jenny", as the machine was called from then on.

Later, the weavers were equally unable to prevent the spread of the mechanical loom through their violent actions. The mechanical loom was invented by the English clergyman Edmund Cartwright (1743–1823) in 1785 and the weavers' initial reaction to it was that it was nothing other than a job-destroying machine. In

the long term, however, things turned out very differently, because as production became cheaper and prices fell, the British textile industry increased its sales by a hundredfold between 1760 and 1827!

Today the age of Luddism is long past. Nevertheless, even in our times industrial action and political disputes can never be ruled out if a company proposes to rationalize away too many jobs. Even though social security has improved to an incomparable degree for those made redundant and the chances of finding another job have also become far better than in the 19th century, the basic economic problem has remained the same. It is the consumers who benefit from technological progress whilst the workers from the industries where such progress takes place are initially often among the losers.

Irksome Structural Changes

We cannot leave it at this, because technological progress is not only restricted to the production of one item in particular but takes place here and there, which means that structural changes will result in workers being dismissed in some industries and new jobs being created in other sectors. Whatever the case though, technological progress will always be associated with gains in income in real terms for consumers, because with each step of progress the prices of the goods produced by the industries that have benefited from progress will fall in relation to general wage levels. This means that in the long term most people's real wages will undoubtedly go up, because each worker is also a consumer and the temporary disadvantages of structural changes will eventually be offset by an increasingly favourable relationship between wages and prices.

But we can go even further and say that if there were no technical progress, it would be unthinkable that the real incomes of workers would rise at all! After all, this progress is only another expression for the rising productivity of labour. If per capita output did not constantly increase, per capita distribution could not expand either in the long term. It is a fact that workers enjoy a far higher standard of living in all industrialized countries than they do in less developed countries, let alone than they did in the 19th century. In Germany, for example, real hourly wages quadrupled between 1950 and 1985 alone. This means that a West German industrial worker was able to buy four times as many goods in 1985 for every hour of labour he worked than he would have been able to do in 1950. At the same time almost 10 million more workers were in employment in West Germany in 1985 than 35 years before. On balance therefore, technical progress has neither destroyed jobs nor has it reduced real wages; on the contrary, the opposite has been the case.

In other industrialized countries as well, employment has steadily increased in the long term and has not declined, as many people believed it would. This also applies to more recent times. For instance, on balance, the number of job holders in Western Europe rose by 60 million between 1980 and 1996. The fact that unemployment rose as well during this period is because 75 million more

people of working age joined the labour market. It would however not have been possible to solve this problem by slowing down technological progress because this would only have reduced real incomes. Many new products, for example in the telecommunications sector, from the mobile phone to the Internet, would have spread more slowly or not at all. At the end of the day, this would have resulted in the creation of fewer jobs and less purchasing power, not more, as the simplistic release theory would have us believe.

But where does the high unemployment that we have observed in most industrialized countries (not in all of them!) in the past 30 years come from then? As it happens this is linked only very indirectly to technical progress; this is already clear if we bear in mind that unemployment only became a problem from the beginning of the 1970s onwards. As we know, technical progress has always existed, even in the 1960s when there was full employment. So, something else must have happened.

One of the main problems is that economic policy has concentrated increasingly on preserving existing jobs rather than on the creation of new jobs. In Germany, for instance, the coal mining industry has been subsidized for decades, even though it lost its competitiveness on the world market years ago. Over 100 billion euros have been spent on this industry alone. The bill for this has had to be footed by the more competitive sectors, who have had to pay over-proportionately higher taxes and have thus been hindered in their own development.

The result was that the market dynamics that are so important for a market economy were weakened. As we know, Schumpeter described competition as a process of creative destruction in which the old had to give way to the new so as to make room for new products and processes. Job losses in individual businesses and economic sectors are a natural part of this process – they are, as it were, the price that has to be paid so that real incomes and employment overall can continue to expand. Those who do not want to pay this price but want to try, on superficial grounds, to "save" jobs that are no longer competitive, will realize that in the long term there will be more and not less unemployment.

The fact that this has been forgotten over time is linked among other things with a fundamental change in people's attitudes. As standards of living have risen in the industrial nations the general desire among people to hold on to what they have achieved has not declined but become stronger than ever. In the 1950s the Germans did not yet have a lot of wealth to defend because of their defeat in the war and the destruction it had caused. Everybody grabbed whatever opportunity presented itself, and of those there were many in Ludwig Erhard's market-orientated economy. This is how the German "economic miracle" came about, with employment and standards of living rising at a breath-taking speed. Full employment was already achieved by 1960 with an unemployment rate of only 1.3 %, whereas only a decade before over a tenth of the population had still been unemployed. All this took place despite the fact that millions of refugees and war veterans were returning to the country, all looking for work and eventually finding it. The real national product rose even faster within the same time span, to well over twice of what it had been before.

Eventually though, the economic boom began to slow down again and the real national product began to grow less strongly. In Europe especially, from the 1970s onwards, an increasing level of chronic unemployment began to spread; it did not fall significantly even after the economy had begun to recover again. This was linked only very superficially to the fact that the boom in demand immediately following the war declined again for there were still more than enough unsatisfied needs and there always will be. What has changed with rising standards of living is the way people and businesses behave in terms of their mobility and ability to adapt.

For instance, those coal-miners who had worked hard and managed to build up a modest degree of wealth did not want to have to sell their houses again in order to start afresh in some other place. Moreover, in most industrial nations each economic sector had its own trade union. Needless to say, these individual trade unions were interested in preserving as many jobs as possible in their respective sector, regardless of whether their sector was still competitive or not.

Thus, economic policy makers started to focus increasingly on preserving existing jobs because this is where they faced the most pressure from those directly concerned – and this not only from the workers themselves but also from the businesses suffering under the structural changes. Gradually, the private sector began to expect that the state should come to its help in economically difficult times by paying subsidies. At the same time, social security systems were expanded continuously from the 1970s onwards – eligibility to receive benefits was extended, unemployment benefits were raised, firing laws were made stricter and in some countries wages were paid in full in case of sickness from the first day onwards. All these measures were intended in the first place to create a higher level of social security for the individual. However, for the labour market as a whole they turned out to be a shot in the foot.

This was because these measures were accompanied directly by a sharp increase in taxes and levies as well as in government indebtedness. Whereas at the beginning of the 1960s a skilled worker in Germany would have had to pay less than 20 % of his gross income in taxes and contributions, by the end of the 1990s this amount had risen to 40 %. Wages as well increased strongly during this period, frequently regardless of how the actual productivity of labour was developing. As labour became increasingly expensive for businesses, they would often opt for labour-saving rationalisation measures rather than job-creating investments.

Eventually, the market was no longer dynamic enough to create sufficient numbers of jobs for the increasing working population. Moreover, especially in Europe production structures began to become more rigid. For instance, as late as the beginning of the 1990s, a third of the European working population was still employed in industry, whereas in North America only a quarter. In the USA, meanwhile, millions of new jobs had been created in the service sector, whilst in Europe the expansion of this sector was hampered by high wages and a multitude of rules and regulations. The main reason why this became such a problem eventually was because new competitors had entered the world markets that were often able to produce industrial goods at far lower cost. Eventually it became clear that the

future of the old industrial nations could not lie in this area. In the 1980s, people even spoke of "Euro-sclerosis" to describe the inability of the European economies to adapt to new technologies and changes in demand and competition.

By now, however, the Europeans have begun to change in this respect, with many countries easing their regulations and increasing flexibility on the goods and labour markets. Some are even trying, albeit tentatively, to cut back the subsidies paid to less competitive sectors so as to reduce government outlays and to inject more dynamics into the economy. In economic terms this concept is referred to as supply-side policy.

The supply-side approach clearly runs counter to the Keynesian approach during the 1960s and 1970s, when people still believed that unemployment resulted largely from a lack of aggregate demand. The debate about which of these two approaches is correct has since filled volumes of economic literature. However, it is almost impossible to arrive at a decision at a purely theoretical level because the solution always depends on the problems of a particular economy. In some cases, both approaches may even have to be applied simultaneously because the economic patient can be suffering from lice and fleas at the same time as it were.

However, one thing should nonetheless have become clear by now. Even though technical progress can cause job losses in individual sectors and companies, because these are offset by falling prices, progress will not increase unemployment as a whole. In the best of circumstances unemployment can be regarded as an indirect consequence of technological progress, particularly if the necessary structural changes are not introduced. Therefore what we call technological unemployment is not really a cause as such of today's employment problems but only a symptom of the economy's inability to adapt to changes in competition.

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Inflation and Unemployment

The Quantity Theory

Most people believe that life becomes ever more expensive. Whereas twenty years ago it was possible to buy a cup of coffee in Germany for the equivalent of 0.50 euro-cents it will often cost over twice that amount nowadays. The same applies to most other products. In the 1950s a sports car in the category of a BMW Z3 cost as little as 10,000 euros, whereas by the end of the 1990s the price of a car like that was around 25,000 euros.

On the other hand people also used to earn far less money in the past than they do now. 10,000 euros would have represented a small fortune in the past, and only a few people could have afforded to spend this amount on a car. Today by contrast, even many young people possess a stylish sports convertible. Thus, it is not only prices that have risen but also incomes. On average, people have to work far fewer hours today in order to purchase a fridge, a car or a bread roll than they would have had to in the past.

In real terms therefore, the cost of living has not become more expensive but has in fact become cheaper. It is only in nominal terms, i.e. calculated in monetary units, that prices have risen. But this means nothing other than that the value of the money with which we buy goods and labour has fallen. Constantly rising prices reflect not a loss in wealth, but rather inflation.

If we want to measure how much value money has lost, it is not enough to look at how the prices for individual products have developed. On the contrary, we have to take a representative basket of goods that contains all the products that a middle-income earning household would normally need. From time to time in Germany, this basket is reviewed by the Federal Statistical Office. For example, at the end of the 1980s men's pyjamas were taken out of this basket and tennis rackets put in instead so as to take account of current consumer habits.

Measured in relation to this basket, prices tripled in Germany during the period between 1950 and 1985. Even though this only corresponded to an average inflation rate of just under 4 % per year, this so-called creeping inflation was nonetheless high enough to bring down the value of one D-Mark to a third of its original value. In most other industrialized countries depreciation has been much higher than in Germany, meaning that other currencies even gone down in value in comparison to the D-Mark. Whereas after the Second World War, one dollar still cost 4.20 DM, by the end of the 1990s the value of the dollar had fallen to roughly 1.60 DM.

This is not to say that inflation is only a recent phenomenon. We know that even in ancient Athens, money often depreciated despite the fact that paper money did not exist at that time and that only precious metals such as copper and silver were used as a means of payment. The reason for this was that the supply of precious metals increased as a result of new discoveries of precious metals or the spoils of war, which meant that all of a sudden the current trade volume was faced with a

greater supply of money. As a result the relative value of precious metals fell and prices, calculated in silver, rose.

Similar inflationary developments also occurred during the Middle Ages, for instance in the context of the gold raids carried out by the Spanish in South America. These were compounded by the general deterioration of coins. As every prince minted his own coins he would try to reduce the precious metal content of these coins in order to be able to spend more money. One of the more notorious examples of this was the "red heller", a silver coin that was filled with brass. With increasing use, the red centre of this coin would appear. For this reason, even today people still use the expression that something "is not worth a brass farthing".

The consequence of such "Kipper and Wipper" fraud was that product prices rose. Most people believed this was because the intrinsic value of coins had fallen. However, this was too superficial an explanation, because the real reason why the coins had lost their value was that there were too many of them on the market. No matter how low the intrinsic value of a coin was, its value as a means of payment would have remained stable, had it been kept sufficiently scarce. Otherwise, it would hardly have been possible to introduce paper money, which is not to say that this was not put to a lot of wrongful use as well.

One of the worst examples of the misuse of paper money was the way the Deutsche Reichsbank acted after the First World War. Since the German state was in great financial difficulties owing to reparation payments and domestic debt, the government ordered the Deutsche Reichsbank to print increasing amounts of money without taking into account how the economy was performing in order to cover government expenditure. This resulted in the highest inflation ever, with prices rising virtually every hour. Those waiting with a bundle of paper money in one of the endless queues outside the shops could by no means be sure that they would still be able to buy anything with their money when it was finally their turn. At the peak of this inflation one dollar cost 1.2 billion marks! Eventually, the local authorities and banks resorted to handing out their own emergency reserves and the official currency was displaced to a large extent by foreign currencies such as dollars or Swiss francs or simply by primitive barter trade.

Eventually, the currency was reformed and the by now worthless mark was replaced by the Rentenmark. In order to boost people's confidence in the new currency, policy makers pretended that the Rentenmark was "backed" by real estate and land; in reality, however, this was not true at all. The real reason why the new money was such a success was that it was kept scarce. Later the Rentenmark was replaced with the Reichsmark, which was also largely stable at first. All the same, millions of savers as well as the social security systems had lost their entire savings as a result of inflation.

After World War II, Germany experienced another serious depreciation of its currency until a further currency reform led to the replacement of the Reichsmark by the D-Mark in 1948. These historical events explain why the Germans are so very wary of inflation. The newly created Deutsche Bundesbank was the first central bank to be given complete independence from the government. One has to say that it knew how to make use of this advantage because by conducting a very

disciplined monetary policy, it succeeded in making the D-Mark one of the most stable currencies in the world.

Hyperinflation has occurred in other parts of the world as well, for example in South America during the early 1980s and in the former Eastern-bloc countries after the breakdown of Socialism at the beginning of the 1990s. In the Western industrial nations on the other hand, inflation has remained between 5 and 15 % per year ever since World War II.

According to the quantity theory of money this so-called creeping inflation is also linked to there being too much money in circulation. This theory was already propagated by the classicists in the 18th century, in particular by David Hume (1711–1776), albeit in a more simple version. In fact, the basic notion that an increase in gold and silver must drive up the price of commodities had already been put forward as early as the 16th century, for example by the French theoretician Jean Bodin (1530–1596). The quantity theory was revived and reformulated in a simpler form by the American economist Irving Fisher (1867–1947), one of the main proponents of neo-classicism. It was Fisher who brought in particular the velocity of the circulation of money into play as a new element to explain the quantity theory. According to this theory, the trade volume that can be financed depends not only on how much money is circulating but also on the rate at which money changes hands.

For example if 100 banknotes are in circulation and each banknote is used as a means of payment twice a year, they will obviously finance a volume of transactions worth 200 monetary units. If a total of 50 products are traded, the average price per product will be equivalent to 4 units of money. In national economics this relationship is referred to as Fisher's equation of exchange. In slightly different terms, it is also referred to as the Cambridge equation or simply as the quantity equation.

Using the quantity equation it is clear what will happen if the money supply exceeds the real volume of transactions. Provided that the velocity of the circulation of money remains unchanged, prices will inevitably rise, i.e. there will be inflation. On the other hand if the money supply rises less strongly than the volume of transactions or if it even declines, prices will fall. This is referred to as deflation and occurred to a great extent during the world depression of the 1930s.

Applying the quantity theory it is easy to explain what happened in those days. Owing to the crash on the stock exchange and the subsequent collapse of the banks the money supply dropped abruptly. Prices declined, resulting in a general deflation. However, prices could not fall anywhere near as much as the money supply did, because wages and the interest rates on borrowed capital of businesses were contractually fixed. At the given velocity of the circulation of money, the real volume in transactions and therefore also the national product could not but decline. This also made sense from the perspective of an individual business because if the aggregate purchasing power declined, but costs could not be reduced accordingly, losses of sales and unemployment were inevitable. That is exactly what happened in those days.

The Controversy about the Philips Curve

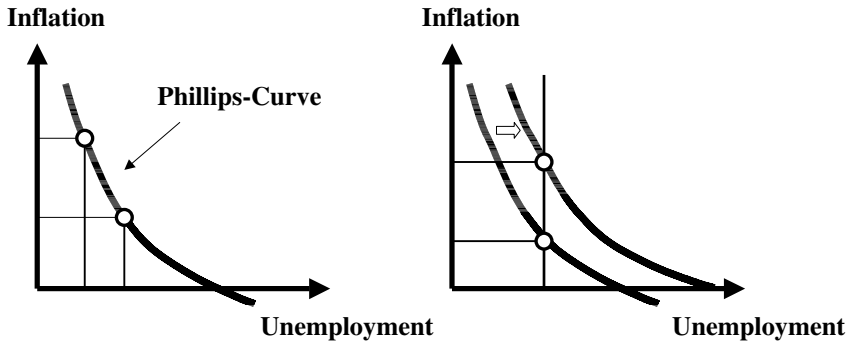
It was above all Milton Friedman, the Nobel laureate of 1976, who used the quantity theory to explain the Great Depression. Friedman was the founder of what is called the monetarist school of national economics, which is also referred to as the neo-quantity theory. Even though the monetarists clearly considered themselves a counter-movement to the Keynesians, Friedman's explanation of the Great Depression of 1929 did not differ that fundamentally from Keynes' explanation. Their differences lay more in the economic policy recommendations they made to prevent such crises happening in future. It is here that the danger of inflation, which Keynes hardly touched upon at all in his "General Theory", plays a decisive role.

The theoretical controversy between the monetarists and the Keynesians centred above all on the so-called Philips curve. In 1958 Alban W. Phillips (1914–1975) published a text in which he compared unemployment and the development of money wages in the United Kingdom during each year between 1862 and 1957 and observed that wages tended to rise relatively strongly when unemployment was low. In times of high unemployment on the other hand wages did not increase much or even declined. Phillips illustrated this in a diagram, indicating the unemployment rate on the X-axis and the rate of wage increase on the Y-axis. The result was a curve falling from the left to the right – the famous Philips curve.

In its original version this curve was not as controversial as it was later, because it was relatively simple to explain. In times of low unemployment workers were scarce and were therefore in a strong position to press for wage increases, whereas when unemployment was high people could count themselves lucky to keep their jobs in the first place.

The Phillips curve only became a matter of controversy after Paul Samuelson and Robert Solow modified it slightly in 1960. Replacing the wage increase rate with the price increase rate they obtained a very similar curve, illustrating that when unemployment was low, inflation was high and when unemployment was high, inflation was low. In this form the Phillips curve seemed to suggest a fundamental trade-off relationship between unemployment and inflation, i.e. it was only possible to chose between these two ills, but never to prevent both at the same time!

A whole generation of economists was trained in this spirit from then on and soon people were talking of the magic quadrangle of the targets, full employment, price level stability, economic growth and equilibrium in the balance of payments that were impossible to achieve at the same time. It was up to the politicians therefore to decide which of these would receive the higher priority and up to the economists, of whom almost all were convinced Keynesians in those days, to suggest the appropriate policy instruments. The university auditoriums were filled with people shifting curves in all sorts of diagrams in order to find the right "policy mix". Depending on what problems were currently prevailing, either the one or the other target would be given priority. People's belief in the ability of the government to steer the economy had thereby reached its peak.



Going by the Phillips curve it is possible to lower unemployment in the short term by allowing for a little more inflation (left-hand illustration). In the long term, however, this curve will shift to the right, ultimately leaving only higher inflation (right-hand illustration).

It is hardly surprising that policy makers often placed the highest priority on the target of full employment. We will never forget the former German Federal Chancellor Helmut Schmidt claiming during the 1970s that he preferred 5 % inflation to 5 % unemployment, an unforgettable statement because only a short time later he had both. As it turned out it was a fatal error to interpret the Phillips curve as a trade-off between two ills.

It was the monetarists Milton Friedman and Edmund S. Phelps who discovered this error in thinking. As early as the end of the 1960s they pointed out that Samuelson's and Solow's version of the Phillips curve pre-supposed that workers and their trade unions were a little simplistic. Because why would unemployment fall if prices rose? Obviously this was because rising prices would boost business profits, making additional output profitable. However, this only worked if wages did not change. In other words the real purchasing power of an individual worker had to remain below the nominal increase in his wages or even fall. Indeed, this is the typical pattern of an economic upswing.

Friedman and Phelps argued that this situation could not last forever because as soon as the workers noticed that inflation was reducing the purchasing power of their wages, they would start demanding higher wages. As the workers were no longer suffering from what was called the "money illusion", they would at least want inflation to be taken account of in the next wage round. However, if wages rose, business profits would begin to decline and the initial increases in employment would be lost again. From the monetarist point of view, the Phillips curve only described a short-term effect during an economic upswing. In the long term, however, i.e. seen over a whole cycle of upswings and downswings, the monetarists did not believe it was possible to lower unemployment by allowing for more inflation.

But that does not suffice. Suppose the central bank continued to expand the money supply so much that prices rose every year by, say, 5 %. After a certain time, wages would begin to increase more strongly each year, meaning that in the long

term, it would be impossible to achieve any positive employment effects. However, then there would be inflation without unemployment having been lowered! Therefore, as soon as anybody tried to benefit from the choice that the Phillips curve allegedly offered by conducting an expansive monetary policy, the curve would shift upwards. In reality therefore, it did not offer any choice at all between inflation and unemployment, aside from a few relatively short-term effects.

The neo-classicists refined the monetarists' line of argument, in fact they even strengthened it. The main proponent of the neo-classical theory was Robert E. Lucas (born 1937), who developed it at the end of the 1970s. According to Lucas the reason why the counter-cyclical policy of the 1960s was successful at first was because initially the increase in the money supply boosted demand in all markets, encouraging producers to increase their investments and to employ more workers. Obviously if demand increased it made sense for them to make investments that would previously not have been worthwhile.

However, as a result of the producers' increased investment activity workers and capital goods would become scarce. Wages and prices would rise. Eventually, the producers would realise that it was not in fact demand in real terms that had risen but only the money supply. This meant that even though demand had risen by, say, 5 %, prices and wages had as well and it had not been worthwhile to raise output. Under such conditions profits could not rise – the producers would therefore have been fooled by monetary policy. As a result they would lower their output back to its original level.

Thus, even though this expansive monetary policy would temporarily revive economic activity, its effects would soon fizzle out again and all that would be left would be a higher level of prices and wages, i.e. a devaluation of money. In this respect the monetarists' arguments were confirmed.

However, according to Lucas, the producers would learn as time went by. They knew that if the state tried to revive demand through disproportionate increases in the money supply, this would only result in inflation. Likewise, they knew that rising government outlays would ultimately lead to higher taxes. Therefore they did not even contemplate increasing their output, but preferred to raise their prices instead. The trade unions in turn already incorporated expected price increases in their wage demands. Going by Lucas therefore, Keynesian cyclical policy would have no short-term effects at all. At best it would lead to inflation, without boosting economic growth in real terms. It was on this basis that the neo-classicists tried to explain above all the phenomenon of so-called stagflation, i.e. the simultaneous existence of inflation and zero-growth.

Lucas used the theory of so-called rational expectations to explain stagflation as had already been advocated by his American colleague, John F. Muth (born 1930) in 1961. According to this theory all the economic actors are basically able to foresee what effects an economic measure will have and act accordingly. It is somewhat ironic that in his private life, Lucas became the victim of such rational expectations himself, namely of those of his wife. In their divorce agreement she had it laid down that half of the prize-money that Lucas would earn if he were ever awarded a Nobel Prize would go to her. No sooner was the divorce through Lucas was actually

awarded this prize. Nevertheless, being the gentleman he was, he was said to have made no comment other than that an agreement was an agreement.

Still, the theory that all the economic actors have rational expectations seems somewhat exaggerated. Nor can it really be brought into line with the finding that even today it is possible to achieve a certain positive effect on employment, at least in the short run, by conducting an expansive monetary policy or by increasing government expenditure.

The neo-classical model does however show very clearly how the reactions of a national economy can change when people learn from experience. Economic policy measures that had a positive effect only yesterday may fail tomorrow. In fact, this is exactly what happened to the Keynesians with their demand-reviving policy instruments. As with a drug, the dose had to be increased continuously throughout the 1970s, until it hardly had any effect anymore. Instead the share of government outlays in the national product rose steadily, resulting in a dramatic increase in government indebtedness in almost every industrial nation. Not least this was because during a recession, politicians liked to increase expenditure, but hesitated to reduce it again after the economy had recovered, as such measures were far less popular with the public. In West Germany for instance, the share of government outlays in the domestic product soared from just under 39 % to 47 % between 1970 and 1985, with government indebtedness climbing from 25 % to just under 43 %. However, this does not mean that the unemployment rate declined, on the contrary, it rather increased from 0.6 % to over 7 %.

In the meantime, it seems that people have learned from this experience as well. During the 1980s most countries began to refrain from using monetary policy to stimulate employment in the short term, and by the mid-1990s, many had even managed to drive down inflation to a level that had never been as low before. Nevertheless, what have remained as legacies of the past are today's high government debts as well as high unemployment in most industrial nations.

The Bullionist Controversy

Let us return one last time to the issue of inflation. Some economists believe that it is possible to explain how prices rise even if not preceded by an expansion of the money supply. Even though they admit that the money supply increases in line with the quantity equation, these economists see the cause and effect exactly the other way round from the monetarists. In other words, to them the increase in the money supply is not at the beginning of the chain of effects, but it as a consequence of inflation with entirely different causes.

Two alternatives have been put forward as the actual causes of inflation. The so-called cost-push theory is based on the assumption that rises in the general price level result from increases in the costs of production, for example due to wage increases. Since businesses will try to pass their higher costs on to the consumers, they will drive prices up, thereby causing what is called cost-push inflation.

The other alternative, the demand-pull theory, states that prices rise because aggregate demand has risen too far, for instance as a result of an expansion in government spending. If aggregate demand persistently exceeds aggregate supply, prices will inevitably be "pulled up". This is commonly referred to as demand-pull inflation.

In either case the money supply will obviously automatically expand in some way, because otherwise nobody could pay the higher prices. Technically speaking, people have tried to explain this with the argument that the central bank cannot steer the money supply precisely enough and that the increase in the money supply goes back above all to business demand for loans. The more loans businesses want, the more bills of exchange and other securities will be submitted to the central bank to be discounted and the more money will be created. Moreover, the retail banks also have a certain margin of action to create money, as we have already seen. If demand for loans rises, the banks will make more use of this possibility than before, by cutting back their surplus reserves and by creating additional money.

Here the old banking theory clearly comes to the fore again, whereby the economy's need for money more or less regulates itself. Indeed, exactly the same discussion about the actual causes of inflation took place even in David Ricardo's days, in the form of the so-called Bullionist controversy. In those days, ingots were called bullion and were still the mainstay of the money supply. However, paper money was also circulating and the Bank of England was obliged to exchange these banknotes at any time for gold at a rate of 3.894 pounds sterling per ounce of gold. This rate had been fixed in 1717 by the great mathematician Isaac Newton (1643–1727), who was warden of the Royal Mint at the time.

After England entered into war with France in 1793, food prices began to go up. The price of gold, measured in units of paper money, increased strongly as well. In other words, there was suddenly inflation. Many economists argued that prices had increased because commodities were so scarce at the time, as a result of several bad harvests and the war's using up so many resources. Even in those days, the so-called "anti-bullionists" argued that the increase in the money supply was merely a consequence and not the cause of rising prices. This was because in order to finance the war the Bank of England had provided the state with large amounts of bank notes in exchange for securities and these were now being injected into circulation.

The so-called Bullionists on the other hand, among them David Ricardo, believed that this inflation went back solely to the fact that there were too many banknotes in circulation. Had the supply of paper money not been increased, prices would not have risen either. Whatever the cause and whatever the effect may have been, one thing was certain and that was that without an expansion of the money supply, inflation could not have occurred.

Developments in England following this controversy illustrated this very clearly. After prices had begun to rise and banknotes were obviously losing more and more of their value, there was a run on the banks, with everybody trying to exchange their banknotes for gold. In the end, the Bank of England's obligation to cash in paper money had to be lifted in 1797 because it no longer had enough gold reserves.

Thereafter inflation really took off, with the value of the pound sterling falling by roughly 30 %.

After Napoleon had been conquered at Waterloo in 1815, the situation quietened down again. In 1823 the obligation to cash in money was reintroduced officially with the Peel Bank Act. However, that did not stop inflation from developing repeatedly, and after some further controversies in the course of what was called the Banking-Currency-Debate, the second Peel Act was passed in 1844. This obliged the Bank of England to back almost 100 % of the bank notes it issued with gold. The issuing of notes in exchange for government securities was restricted to 14 million pounds. With this the Bullionists, who were largely the same as the proponents of the Currency Theory, had won a political victory.

Even today economists tend to explain inflation in terms of the quantity theory, according to which the increase in the money supply is the actual cause of inflation. At most in the short term and only to a very limited extent can prices also rise without the central bank increasing the money supply, for instance because the commercial banks have not yet fully exploited their margin of action to create money.

Moreover it has to be expected that the velocity of the circulation of money will increase once prices have started to take off. For if money loses more and more of its value, most people will try to spend it quickly. This interesting effect plays an important role above all in monetarist business cycle theory and is said to exacerbate inflation temporarily. However in the long term, none of this will make so much difference that it is possible to explain more serious inflationary developments without there being a perpetual creation of new money. This means that cost-push inflation and demand-pull inflation are at best side-issues of the real problem which is a too liberal a use of the money-printing presses.

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Growth and Wealth

In Praise of Saving

To the classicist national economists of the 18th and 19th centuries it was clear that the "wealth of nations" could only be increased through economic growth. However, they did not regard technical progress as the main motor of this growth but rather the accumulation of capital. For unless technology advanced, the only way for an economy to create news jobs and to increase the productivity of existing jobs was by increasing capital resources.

One has to bear in mind that in those days the population was already growing far faster than it had done for instance during the Middle Ages. This was because the mortality rate among children was declining as a result of medical progress and improved hygiene conditions and because fewer people were dying from epidemics and war. As there were not enough jobs available for everybody in rural areas, people moved to the cities in order to earn their livelihoods in the manufacturing plants and factories.

However, setting up a factory required capital, firstly to buy raw materials and machinery and secondly to pre-finance the wages of labourers before anything could actually be produced and sold. According to the classicists it was because this capital, i.e. the wage fund, was limited, that the most serious bottlenecks arose. The wage fund divided by the current wage rate determined the number of workers that could be employed.

It is true that during the 19th century unemployment was caused above all by a lack of capital. The problem was not so much that there was not enough demand, but that productive capacities were insufficient. The classicists therefore regarded saving as a positive thing, indeed, they even considered it vital for an economy to survive. Because only through increased saving was it possible to expand the wage fund.

Against this background it is hardly surprising that the classicists were very critical of government indebtedness, in fact they often rejected it outright. They preferred the state to finance its expenditure from taxes on consumption, believing that this would incite the wealthy in particular to reduce their spending on luxury items and save more instead. Increasing government debt on the other hand would only drive up interest rates and make it more expensive for private businesses to carry out urgently needed investments.

At most the classicists accepted that the state needed to borrow money for investments such as into transport infrastructure. This was because they believed that such expenditure also boosted the output of private businesses and in view of the longevity of for instance canals and roads, it only seemed right and proper to distribute the costs for such investments over several generations of taxpayers. Even today, there is still the rule in Germany's Constitutional Law that government indebtedness should if possible not exceed government investment.

The aggregate savings rate, i.e. the share of savings in the national income was also at the centre of the neo-classical growth model. This model was pioneered by Robert M. Solow (born 1924) who was awarded the 1987 Nobel Prize for this and other contributions to economic growth theory. In contrast to the business cycle theory, the growth theory does not deal with fluctuations in the degree of utilization of productive capacities, but with the long-term growth of the productive capacities themselves. Thus, as with the classicist school of thought, it is not aggregate demand that is the most important factor in this approach but aggregate supply and the creation of jobs that goes with it.

The view held by some Keynesians that shortages in demand could also persist because people's needs were satisfied, was rejected outright by the neo-classicists. As long as there was still so much poverty in the world and as long as even relatively high-income-earning workers in the industrialized countries were demanding higher wages each year, there could be no such thing as saturated needs.

Thus, the neo-classicist growth theorists believed as well that it was an advantage if many people in an economy saved. For this would raise the capital base of labour, resulting in a higher level of per capita output. On the other hand, the increases in output that could be achieved with one additional unit of capital per labourer would steadily decline over time because businesses would naturally try to put their capital into the most worthwhile investment projects first. As capital stocks increased they would start using their capital for progressively less useful purposes, i.e. the profitability of capital input would decline.

On the other hand, investors would demand a minimum level of interest on their savings. As soon as they were no longer able to earn this, the accumulation of capital would cease. In conditions of equilibrium the productivity of the unit of capital invested last, i.e. the so-called marginal productivity of capital, would be equivalent to the current market interest rate and economic growth would halt at this point. It was only when technical progress increased the marginal productivity of capital that there would be new opportunities to invest and generate new economic growth.

Joseph Schumpeter assumed that technical progress only occurred in waves. This is how he explained the existence of the 50-year Kondratieff cycles that reflected supply cycles rather than fluctuations in demand. Going by Schumpeter's experience, this was a plausible explanation. The industrial revolution, for instance, was linked inseparably to the steam engine that James Watt (1736–1819), an English engineer and friend of Adam Smith's, had invented in 1765. As this engine was only patented in 1781 Adam Smith no longer witnessed its triumph. The invention of the railways at the beginning of the 19th century represented another technical leap forward, reducing the costs of goods transport by land by up to 90 % and permitting a far greater degree of trade and division of labour.

However, more recently as well, technology has never ceased to progress; we only need to think of the invention of the computer by Konrad Zuse. Meanwhile, however, technology has become so intricate and the number of commodities and production processes so complex that technological progress has evolved more into a continuous process, with a new product being developed or a production process being improved somewhere in the world practically every day. Progress

therefore no longer causes such significant leaps in growth as it used to but rather a steady and continuous process of growth.

Shortages of Capital and Underdevelopment

There is another important factor influencing wealth and economic growth, and that is population growth. It could be assumed that those economies with higher population growth also experience more economic growth because they dispose of a rapidly expanding reservoir of labourers. In reality, however, this is by no means the case. Often it is precisely those countries with rapid population growth that are relatively poor and that experience only weak economic growth. Yet again, this is a problem of capital accumulation.

Because, if potential labourers are to be equally as productive as those already in work, they have to be provided with correspondingly capital-intensive jobs. But this means that at a given savings rate, economies with high population growth can only achieve a relatively low per-capita income. This is because some of the aggregate savings have to be used on equipping new jobs with capital and cannot therefore be spent on increases in the productivity of already existing jobs.

This will inevitably give rise to a vicious circle of poverty in such economies because if per-capita income is low, it is not possible to save a lot. If people hardly have enough to eat, they will not be able to accumulate any great savings from their incomes. Moreover, poor economies do not have very much money to spend on educating their workers nor on the necessary infrastructure to do so. But there is another problem. Since the people in these economies can save only very little, they feel that the best way to provide for their old age is by producing as many children as possible. From the individual's point of view this may well make sense, however for the economy as a whole, the problem of insufficient capital accumulation is exacerbated even further by this.

In this way it is possible to explain the immense poverty in the developing countries already in relatively simple terms of growth theory. In a nutshell, unemployment in these countries goes back to the same lack of capital as it did in Europe in the 19th century.

It is true that these countries have also made some serious economic policy mistakes; for instance, it is a proven fact that those developing countries that have introduced a market-orientated economy have done far better than those that have tried to solve their problems through government planning. On the other hand, the theory of growth shows that tremendous efforts may be required for a country to extract itself from such a poverty trap. If a country wants to break this vicious circle of low per-capita income and low rate of saving, it needs a strong boost in the way of capital formation, at least initially.

Even though it is possible to justify the payment of aid to underdeveloped countries on the basis of the growth theory without having to fall back on any arguments of fairness or exploitation, it would have to be guaranteed that the capital con-

tributed really was invested productively and not just spent. Otherwise economic aid turns into a bottomless pit without really helping the recipient countries.

The same goes for the unemployment in the Eastern European countries that developed after the collapse of Socialism. Even though these countries had high stocks of capital, most businesses could not compete once the market-based economic system had been introduced and borders opened. Some of the countries concerned – namely the previous members of the Soviet Union – tried to solve their economic problems with what they called shock-therapy measures. However, this got them into even more serious difficulties, with existing markets breaking away on the one hand and the establishment of new competitive companies beginning only very sluggishly on the other hand. The main reason for this was that the institutions and framework conditions necessary to a market economy, for instance a functioning banking system and an effective tax system, had not yet been established. In the planned economy the state had been able to finance itself from the coffers of state-owned enterprises and if need be by printing more money, but under the new market-based conditions this was of course no longer possible.

Other countries such as China have tried to make a compromise and to open up their markets to competition only gradually. Even though they have thereby managed to prevent such severe shocks of adaptation for the economy, the danger is that conversion to a market economy will take decades or even peter out in the long term. Which way is ultimately the best has yet to be seen. It probably also depends on the initial situation in the respective country and on whether the country is politically stable enough to be able to withstand a severe crisis of adaptation without any "counter-revolutionary" setbacks.

The Golden Rule of Accumulation

In Robert Solow's neo-classical growth model, technological progress was still deemed a phenomenon that was difficult to influence. Rather, it seemed to depend on the inventiveness of individual geniuses and therefore seemed to fall like manna from heaven, as the Keynesian economist and Hungarian-born Nicholas Kaldor (1908–1986) once said. In the meantime, however, people have realized that technological progress itself is dependent on the economy's formation of capital. This applies in particular to investment into research and development and also to expenditure on schools and universities that can be regarded as the formation of human capital. Because the better people are educated, the more demanding tasks they will be able to perform and the more productive they will be.

Some people believe that for this reason the state should subsidize private investment into research and development. As it is virtually impossible to withhold acquired knowledge from others, it will also benefit those companies that have not actually conducted any research at all. This means that the benefits to society as a whole will exceed the profits that the research companies themselves will make.

Some people therefore believe innovative companies should be given additional rewards so that they do not set their research targets too low.

The problem with this recommendation of the so-called "new growth theory" is that the state would have to know in advance which research activities were likely to promise success. There is also a great danger of the secondary effect that if the research companies use government subsidies just to line their own coffers but do not actually conduct any additional research, the taxpayers' money will have been wasted. It would therefore be preferable to improve patent coverage and to concentrate government subsidies above all on vocational training. This is important because as workers can leave the company where they have been trained any time after their training has been completed, the purely economic incentives for a business to offer vocational training are lower than the training is actually worth.

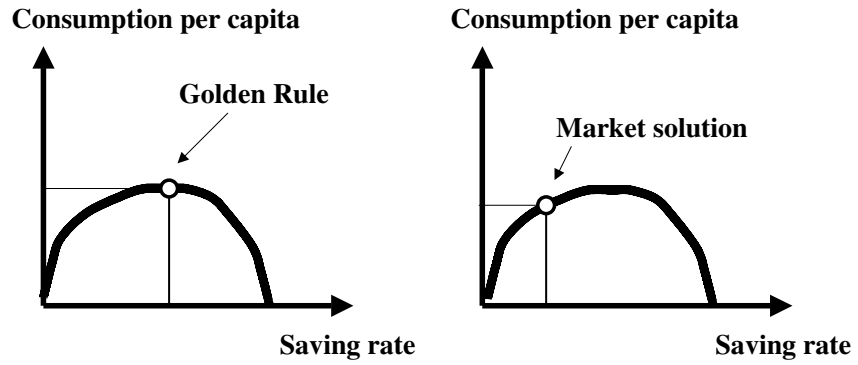
Whatever way this problem is solved, it is clear that even taking account of technological progress, the accumulation of capital is necessary. We could conclude, as the classicists did, that the economic agents should save as much as possible, thereby increasing the economy's stock of capital. However, this is not really the way things work. Although even the new growth theory claims that increased saving will result in higher per-capita output there is a limit as to how much an economy should sensibly save. The classicists were not yet aware of this.

This limit was first pointed out by Edmund S. Phelps (born 1933), in his famous essay of 1961, in which he argued that the most important thing was not to maximize per-capita output but per-capita consumption. Imagine an economy saves at a rate of one, i.e. it constantly re-invests the whole of its national product. Even though the national product would then attain the highest level possible people would starve, because if they always re-invested their entire income they would obviously not be able to consume anymore. On the other hand if they never saved, they would have nothing to consume in the long run either, because there would be no stocks of capital and production would not be possible. As is so often the case, the truth must lie somewhere in the middle.

Phelps demonstrated that in the long run, per-capita consumption would reach its highest level if the returns from interest were always re-invested but wages were used only for consumption purposes. Of course this would not mean that those earning interest would have to starve, because a part of these aggregate savings would also be produced by the wage earners. What is important is the average aggregate savings rate. According to Phelps' so-called "golden rule of accumulation" the optimal savings rate is achieved when the current rate of interest is exactly equivalent to an economy's growth rate.

At a purely intuitive level, this is difficult to understand, because what does the rate of interest have to do with the growth rate? And yet Phelps' theory is unassailable in its mathematical stringency. Indeed, people mainly directed their criticism at the idea of maximizing long-term per-capita consumption.

Let us put ourselves into the position of Robinson Crusoe who lived on his island all alone. Suppose he followed this golden rule and spent exactly the time on the manufacturing of his nets and other fishing tools as was necessary to maximize his



The golden rule of accumulation states which savings rate is necessary to achieve maximum per-capita consumption in the long term (left-hand illustration). As present consumption is valued higher than future consumption, the real savings rate will generally be lower (right hand illustration).

daily consumption of fish for all eternity. In order to illustrate this example let us assume that he spent four hours a day repairing his nets and the other four hours catching fish. At this rate he would have been able to catch and eat 20 fish per day.

Assume that one day Crusoe was particularly hungry. He could decide to spend only three hours on his nets and go fishing for five hours instead. He could then expect to catch 24 fish instead of 20. However, on all subsequent days he would have to content himself with less than 20 fish because he would have fewer intact nets to fish with. For instance, his future fish catch could drop to 19 fish per day.

This means that Robinson Crusoe would have to choose. Eating four fish more on one occasion would mean having to eat one fish less per day long-term. Would this be worth it? If we simply add up the total number of fish that Robinson Crusoe could eat throughout his life, it would obviously not be worth it. However, as we already know from Eugen Böhm Bawerk's theories, consumption tomorrow is generally less important to people than consumption today. It is quite possible therefore that Robinson Crusoe, too, would decide to consume more on one occasion. Nothing gives us the authority to reject such a decision as irrational, even though it would clearly not lead to the maximization of per-capita consumption over Robinson Crusoe's entire life-span.

Let us apply this theory to our own world. Many people borrow money to buy a house, even though, if they add up what they have pay on interest, they will end up paying far more for the house than its actual purchasing price. The advantage of being able to live in the house immediately is obviously more important to them than the additional costs they have to pay. In this case though, they are not maximizing their possible overall consumption during their lives but are consciously opting for less consumption equivalent to the interest they have to pay in order to be able to live in their house earlier.

Other people lend their money to others and may get it back only ten years later. If it does not matter to them when they can dispose of their money, they will not

ask for any interest. In reality, however, most people will charge interest, i.e. they will expect to receive back more money after the ten years have lapsed than they loaned. However, this means nothing other than that they are charging a premium for having postponed their own consumption. This example also confirms Böhm-Bawerk's hypothesis that maximizing consumption is not the only thing that is important to people. On the contrary, the timing of consumption is also very important to people. The earlier it takes place the more utility it generally has for people.

It is for this reason that Phelps' golden rule is unacceptable. It only works in a marginal situation, i.e. if it does not matter to people when they are able to consume. It is also said in this context that their rate of time preference is then equivalent to zero. As a rule, however, people will prefer to satisfy their desires as early as possible. In 1928 the British mathematician and economist Frank P. Ramsey (1903–1930) derived a formal optimal condition from this that became known as the Ramsey rule. Even though this rule is not particularly helpful in practice because it is based on the so-called marginal utility of income, which is impossible to observe directly, it can be used to explain at least at a theoretical level why the rate of savings will never be as high in reality as that which Phelps considered optimal and why in a real economy the savings rate must always be above the growth rate. In the long-term this is in fact exactly what happens.

The Connection Between Interest Rates and Growth Rates

In spite of all the criticism of Phelps, his golden rule is very instructive in the sense that if nothing else, it determines an absolute maximum limit to any sensible saving. This can easily be made clear with our example of Robinson Crusoe. Assume for example that the latter decided one day to spend five hours instead of four on his nets and therefore only three hours on fishing. Obviously, this would not make sense because in this case his fishing yield would decline not only on the first day he changed his schedule but also on all subsequent days! For if the way he had previously divided up his tasks had served to maximize his daily catch, repairing his nets for longer than four hours would correspond to an over-accumulation of capital, resulting in not more but less consumption. At least this would be the case if Robinson Crusoe continued to repair his nets for five hours a day and was therefore only able to fish for three hours. In the long term therefore this cannot be the best way to go about things.

Applied to a real economy this means that the rate of interest should never fall below the rate of growth. Otherwise, going by Phelps' arguments, people would be saving too much. Indeed, there are good reasons why the interest rate will always exceed the growth rate. Assume for a moment it were otherwise. Say, the interest rate was 4 % but overall incomes increased at a rate of 5 %. In this case demand for loans would rise indefinitely because it would no longer be a problem for people to pay interest and compound interest. Everybody could borrow as much as they

wanted because their incomes would always grow more rapidly than the interest they had to pay including even compound interest.

Such paradise-like conditions would give everybody an infinite scope to consume and that is exactly why this would not work in the long run. As demand for loans would inevitably continue to expand, it would sooner or later drive up the rate of interest. Once the rate of interest had exceeded the growth rate the possibility of taking on debts at practically no cost would fade away again.

Admittedly, these growth theory considerations are a little complex and difficult to understand without the help of financial mathematics. However, they are of great importance for practical economic policy. They show, for instance, that if the government perpetually incurred new debts of, say, 3 % of its annual expenditure, this would only work in the long term if the rate of interest were lower than the rate of growth of government revenues. Otherwise the government's yearly interest bill would increase so much that it would ultimately exceed 3 % of its outlays. This means that at some point, the government's borrowing policy would narrow its scope for other outlays instead of increasing them. We can therefore assume that in the long run, government revenues will increase to the same extent as the national product. Under these circumstances it would not make sense in the long term if the government constantly took on new debts because in the long run, the interest rate would always exceed the growth rate.

Another example is the way the pension system is financed. There are two procedures for this. When the Germans introduced the state pension scheme for blue-collar workers in 1889 under Chancellor Bismarck, the scheme was still based on what was called the capital-funded system. Pension contributions were invested on the capital market and the interest on this capital was used to finance the pensions that were paid later. When the pension scheme was extended to white-collar workers in 1911 it retained this principle.

However, as a result of the serious inflation following the two world wars the pension system lost the majority of its accumulated capital, whilst the claims to a pension still remained. For this reason after World War II the Germans converted their scheme to what is called the pay-as-you-go system. In this system, the pension scheme members' contributions are used immediately to finance the pensions of the current year and no capital stocks are built up at all. We could say therefore that the pension scheme has begun to live from hand to mouth.

The question arises as to which procedure will ultimately result in higher pensions for people retiring. This depends on several factors – apart from inflation, above all on population growth. If the value of money remains stable and the population neither grows nor shrinks, the capital-funded system will bring greater benefits once the rate of interest exceeds the growth of per-capita income. But as we have seen, this will always be the case in the long term.

Even so, we have to be careful if we want to draw immediate economic policy conclusions from these simple growth theory considerations. There is a whole range of aspects that also have to be taken into account, which we cannot deal with in detail in this book. The capital-funded system, for instance, is far more dependent on monetary stability than the pay-as-you go system. On the other hand,

the pay-as-you-go system is more sensitive to demographic changes because if the population shrinks, there will be fewer people paying into the system. Moreover, it is more liable to manipulation at the political level because in the capital-funded system the members' contributions are regarded far more as actually belonging to these members.

It should however have become clear that it is impossible to solve very long-term problems such as government indebtedness or pension schemes without understanding the fundamental workings of an economy in terms of the growth theory. We will have to leave it at this somewhat general conclusion because everything else would take us very far into the highly complicated area of economic mathematics. Regrettably, such matters are decided all too often by politicians who do not take account of even the most important of these economic factors.

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Limits of Economic Growth

The Oil Price Shocks of the 1970s

As a result of the world-wide economic upswing during the 1950s and 1960s many people believed that it would be possible from then on to achieve everlasting economic growth with ever-increasing prosperity. All the Western industrial nations had more or less attained full employment, in fact the Germans even had to hire an increasing number of workers from other countries in order to cover their labour demands. And even though cyclical fluctuations still occurred, it seemed that by applying Keynesian anti-cyclical economic policy even this problem could be brought well under control.

In 1972 Denis H. Meadows and his colleagues published a study about "The Limits to Growth" that sparked off a general change in thinking. Using a complicated computer model this study examined various scenarios for the future growth of the world economy and concluded that economic growth would soon reach at least one of three limits.

One of these was that it would eventually hardly be possible to feed the growing world population with even the most basic of foodstuffs, even if all production

possibilities in the agricultural sector were fully utilized. Secondly, as output expanded, there would be increasing environmental pollution, for instance in the form of the emission of carbon dioxides. Most importantly though, the Meadows study predicted that important raw materials such as crude oil or aluminium would be depleted after only a few decades.

It was the Club of Rome that had commissioned this study, a private association composed of personalities from public life that was founded in 1968 and only ever includes a maximum of 100 persons at a time. The Club of Rome has published numerous reports mainly about issues of environmental protection and the Third World. The Meadows-study was by far the most influential of these reports. It was published in 37 languages and reached a total circulation of over 10 million copies.

Even during the days of the economic classicists there were prominent critics of the general optimism about economic growth that existed at that time. The best-known among these was the English economist and minister of the Church of England, Robert Malthus (1733–1834), who was also a friend and economic mentor of David Ricardo's despite the fact that they found themselves on opposites sides of the fence on practically every economic issue. Even at a private level they frequently went opposite ways, the most famous case being when Ricardo, ever the successful stockbroker, urged Malthus to invest in the bond market in anticipation of a British victory at Waterloo and Malthus declined, believing in the victory of Napoleon. After Malthus' unpatriotic attitude had been vindicated by Napoleon's defeat, he was said to have lamented that it was only because the French had been badly prepared.

Nevertheless, both economists agreed on Malthus' so-called population law. Even though Malthus first published this law anonymously in 1798 in his "Essay on Population" it soon transformed him into an intellectual celebrity. As is so often the case, his basic hypothesis was very simple. Malthus argued that as a rule the world population grew by a geometric progression, i.e. it tended to double at regular intervals. A geometric progression like this is formed, for instance, by the sequence of numbers 2, 4, 8, 16, 32 etc. Food production on the other hand grew by an arithmetic progression, such as the sequence 2, 4, 6, 8, 10 etc. Obviously, under such conditions food production would not be able to keep up with the growth of the world's population in the long run. The inevitable consequences according to Malthus would be famine and fighting for the limited supplies of food, the fact of the matter being that nature's table could not be laid for everybody forever.

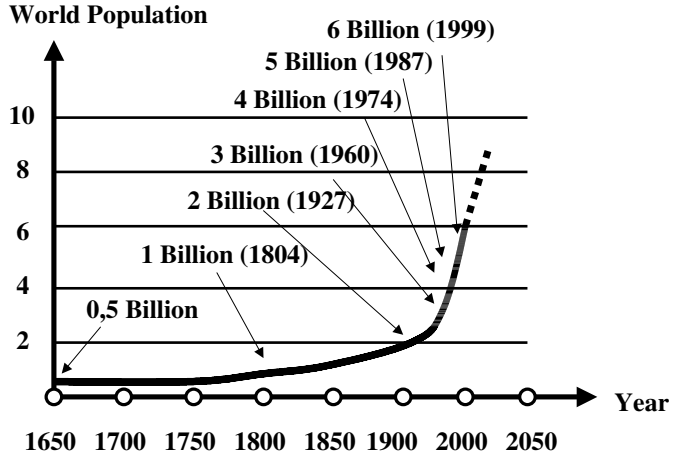
Malthus discussed various ways of circumventing this population law. Amongst other things he pleaded for the closure of the poor houses, so as not to induce a boost in population growth through alleged charitable acts. Most importantly, however, he advocated sexual abstinence. His theories probably made him one of the most despised men in England, especially considering that as a father of three children, he was by no means setting a good example. One has to say though that as regards birth control Malthus was mainly focussing on non-marital relations, which he also opposed for theological reasons.

It is true that high population growth can result in shortages in capital and poverty as we have already seen when treating the neo-classical growth theory.

Empirical evidence, particularly from the developing countries, confirms this as well. In this sense, Malthus' theories are relevant even today. However, the productivity of the agricultural sector has increased far more strongly than Malthus could ever have assumed and for this reason his successors, the so-called Neo-Malthusians, focus more on environmental problems nowadays as well as on the problem of limited industrial raw materials.

As a result of the two oil crises during the 1970s Meadows' study of 1972 became topical far more quickly than expected. From 1973 onwards the international price of crude oil began to soar upwards. Whereas in 1970 a barrel of oil had still cost just under 2 dollars, in 1974 this price had jumped up to 11 dollars per barrel. This resulted in panic-like reactions in the industrialized countries and a deep recession at global level. After the first crisis, prices initially developed relatively smoothly until about 1978. However, then the second oil crisis occurred, pushing up prices to almost 35 dollars per barrel at the beginning of the 1980s. This led to another world-wide recession although this time the industrialized countries were a little better prepared, having meanwhile developed new sources of energy, in particular natural gas and nuclear energy. Moreover, the general increase in the oil price prompted people to employ energy-saving techniques that would not have been profitable before. Henceforth, the oil-producing countries were no longer as powerful as they had been at the beginning of the 1970s, in particular as they were in disagreement among themselves as well. Soon the oil price began to fall again, albeit nowhere near the low levels of the 1960s.

Even so, the two oil price shocks seemed to confirm the prophecies of the Meadows study. Moreover, the environmental pollution that went with economic growth could no longer be ignored. This sparked off a general change in thinking. Whilst



According to Robert Malthus (1766–1834), the population grows exponentially, i.e. by a geometric progression. As it happens historical developments since the 19th century have confirmed this theory.

at an academic level, environmental and resources economics thrived, at a political level the so-called "green" parties moved into the parliaments, demanding an end to economic growth in purely quantitative terms. Even the developing countries began to voice their concerns more strongly. In particular, those with important raw material resources called for an end to the unlimited exploitation of their resources by multinationals in the industrial nations and tried to push through higher prices for these materials.

By now the initial excitement about these new problems has died down a little again. Prices for raw materials are no longer rising so steeply and politicians and economists are focussing more on the problem of unemployment that has remained as one of the legacies of the turbulent 1970s. However, this does not mean that the fundamental question of the limits to economic growth has been solved, especially not that of environmental pollution which has become more relevant than ever.

Are the World's Raw Materials Running Out?

If we want to deal with this issue systematically, we must distinguish first of all between the individual problem areas. Let us deal with the problem of our blue planet's limited raw material resources first. It stands to reason, after all, that in particular the non-renewable resources like oil or aluminium will be depleted one day. Going by the Meadows study if the world economy continued to grow at the same pace as it is now, it would break down as early as 2050 due to dwindling resources of raw materials.

However, economic experience has taught us otherwise. Take the example of how the consumption of coal has developed, a raw material that is without any doubt limited in absolute terms. Even as late as the outset of the 19th century, coal was by far the most important source of energy. Not only the railways but also the steam engines of early industrial production were run on coal. If Dennis Meadows had carried out his study 100 years earlier, he would most likely have come to the conclusion that economic growth would come to a standstill one day due to the world's limited resources in coal.

But things have evolved entirely differently. As the price of coal rose, other energy sources became increasingly profitable, especially crude oil and later also natural gas and nuclear energy. In economic theory these sources are referred to as backstop technologies. Under market economy conditions, a limited raw material that becomes increasingly scarce and therefore ever more expensive will ultimately catapult itself out of the market. It is precisely because of this increasing scarcity that other materials will take its place and allow economic growth to continue. Interestingly, this has always been the case so far, long before a raw material has run out entirely. Even today the world still has important coal reserves; however, most of these can no longer be extracted profitably. In the long term therefore they would never run out completely if the state did not subsidize them for – misconceived – employment-policy reasons.

Even though the world's resources of natural gas and crude oil are also limited in absolute terms, other sources of energy, such as solar energy, will have become profitable long before the last drop of oil has been pumped up from the ground. As far as we can tell, solar energy is available to an unlimited extent. Seen from this perspective, the world's supply of energy is the least of mankind's long-term problems. However, solar energy will only become profitable once oil has become very much more expensive. The backstop energies therefore come at a price and that is that is that at least for a temporary period, average standards of living may not continue to rise because energy generation will become more difficult.

There is, however, another solution to the problem of limited resources and that is technological progress. Suppose that each year the world used up half of the oil resources available at the beginning of the year. The remaining resources would be used up in conformity with a numerical sequence such as 100, 50, 25, 12.5 and so on. Obviously, even though the oil resources would decline continuously, they would also never be used up entirely. Suppose that as a result of technological progress, the theoretical output per unit of oil rose continuously, in conformity with a numerical sequence of 1, 2, 4, 8, 16 etc for instance. In this case, even though stocks of crude oil would decline continuously, possible output would remain at the same level for all eternity, namely at a level of 100! If technology even progressed at a higher rate than the rate at which the oil resources fell, it would be possible, for all eternity, to increase output every year despite constantly decreasing stocks.

If we consider that it is the rising oil price of all things that will drive forward resource-saving technological progress, such a scenario is by no means entirely irrational. However, it would require a huge amount of capital and we should therefore not place our hopes in technological progress to solve all the problems linked to the limited availability of raw materials. At best, this progress will only be able to alleviate these problems in the long term.

Even if the world's population remained at a constant level, the limited resources would be depleted eventually, at least if per-capita use of resources remained unchanged. It may be possible to solve this problem through technological advancement and by falling back on new backstop technologies. All the same, if the population continued to grow, our planet would probably collapse one day. It is this that is the actual problem for it is already difficult enough to imagine that the 6 billion people living on our planet today can all attain the standard of living that people enjoy in the industrial nations without overstraining the world's environmental and raw material resources.

The "Robber-Booty" Problem and the Hotelling Rule

These arguments also apply if we take what we call the renewable raw materials into account. One frequently used example of such a raw material is that of the world's fish stocks. In this case, economic theory states the following: depending on how many fish are caught each year, stocks will adjust themselves to a certain

level in the long run. The more fish are caught the lower these permanent stocks will be. The maximum permanent catch possible will be achieved at an average stock.

This makes immediate sense, for if no fish were caught, stocks would obviously reach the greatest possible level that nature allowed for. On the other hand, if people fished very intensively for a certain period, stocks would fall and eventually there would no longer be many fish to catch. Thus, there is obviously a fishing quota somewhere at medium level where the annual yield of fish can be maximized in the long term. Under no circumstances should people try continuously to increase their fish catch every year because then stocks will decline until they eventually die out.

This so-called "robber-booty-problem" is very similar to that of choosing the optimal savings rate for an economy that we have already dealt with in the context of the "golden rule of capital accumulation". And just as with the savings rate, people will generally not maximize their annual consumption of fish. Instead, going by the Ramsey rule, they will chose to consume a relatively high quantity of fish now, even though this will mean that they will not be able to consume as much fish later. At least this will be the case if they have a positive rate of time preference, which should always be assumed due to the existence of interest.

At first sight there is nothing to criticize about this behaviour, as we have already seen. Even Robinson Crusoe, who lived on his island all by himself and was therefore the only one who had to bear the consequences of his actions, might have acted in the same way. Nevertheless, in the case of natural resources there is the special problem that many of them, like fish or clean air even, do not belong to just one Robinson Crusoe but are used by everybody at the same time. The danger is then very great that these resources are exploited excessively and in the extreme case even destroyed.

Imagine a large pond full of fish, from which various hermits living nearby cover their need for fish. If one of them were the sole proprietor of this pond, it would be in his interest that the optimal fishing quota was not exceeded. He would therefore only catch a certain quantity of fish from the pond and sell them to the other hermits. No matter how high the demand for his fish was, he would not be tempted to empty the pond of fish completely, because this would rob him of his means of subsistence. Instead, he would rather raise the price of his fish.

On the other hand, if every hermit had unlimited access to the pond, the danger of over-fishing would be very great. Even though it would be possible in principle to agree on an optimal fishing quota so as not to deplete stocks, every individual fisher would still be tempted to catch more fish secretly, trusting that the others would adhere to the quota. It is a fact that in spite of international agreements such problems arise time and again in the context of the fishing of the world's seas. It is already difficult enough to agree on a fair distribution of fishing quotas.

Interestingly, it is not the laws of the market that are placing excessive demands on the world's natural resources, but the fact that there is no market mechanism. This is because there is no clear allocation of ownership rights, as the economists would say. If the fish do not really belong to anybody specifically, consumption

cannot be regulated by the price mechanism. The same applies to clean air. As long as everybody can pollute the air at practically no cost, for example through the emission of carbon dioxide, there is the danger of excessive pollution. Thus, in such cases there is not too much but too little market economy.

Let us assume now that these deficits were corrected by the allocation of ownership rights. For example it would be possible to agree on certain fishing quotas at the international level and to allocate them in some way to each of the countries concerned. Similarly, one could fix maximum limits for the world-wide emission of carbon dioxide and allocate limited emission rights to individual countries. This would be even easier in the case of oil and other mineral resources, because the majority of these are already owned by individual countries or industrial firms. That would leave only those resources that are outside the territory of individual countries, in particular those on the bed of the sea, for which ownership rights would have to be allocated.

Under these circumstances every owner of resources, whether a country or a business, would have an interest in stocks not being depleted. Economists have defined certain rules that a private owner of resources would follow. The best-known of these is the optimal rate of exhaustion of a non-renewable resource such as oil or gas, which was defined in 1931 by Harold Hotelling (1895–1973).

In its simplest form, the Hotelling rule states the following: every owner of resources, for instance of oil, has a certain stock of capital, the value of which is determined by the market price of that resource. He could sell his stocks of oil at any time and invest his revenues on the capital market at the current rate of interest. The only condition under which he would not do this is if the oil in the ground yielded at least as much revenue. However, as the oil itself would not increase in quantity this would only be possible if its price went up. According to Hotelling there would be equilibrium between supply and demand for oil if the oil price increased at the same rate in the long term as the rate of interest. For example if the current market rate of interest were 5 %, the price of oil should rise by 5 % per year in the long run as well.

It is evident, strictly speaking, that this rule can only be valid in the very long term and under ideal market conditions. In particular, the owner of the oil well would have to be able to predict correctly how the price of oil will develop, something which he could only do approximately at most. Moreover, the Hotelling rule has to be modified if demand changes or if new resources are discovered. In practice this has of course happened time and again.

Nevertheless, Hotelling's rule is of great interest, because it shows that private owners of natural resources will at least try and handle their resources with care. In particular these resources will only be exhausted completely when they are no longer needed, for example because backstop technologies have been introduced in the meantime. Until then, rising raw material prices will prevent complete exhaustion of these materials because demand will be constrained. At the same time rising prices will result in ever more capital being used instead of raw materials, which, in turn, will boost resource-saving technological progress.

Is there any Justice for Future Generations?

That all this is not just theory has been proven by the history of the crude oil market. Up till the 1950s this market was dominated by a few large oil companies that had even formed cartels among themselves. They were therefore referred to as the "Seven Sisters". Under normal circumstances, the countries where the oil was being extracted, should have been the rightful owners of these oil resources. But the Middle-Eastern countries in particular, which were still very poor in those days, did not have the necessary capital or know-how to extract their oil reserves themselves. Therefore, for a long time they were at the mercy of the price dictates of the "Seven Sisters". These in turn were more interested in exploiting existing oil reserves as quickly as possible than in conserving them, because they feared being expropriated sooner or later by the producing countries as the rightful owners of their oil.

In fact, at the outset of the 1970s the legal position concerning the ownership of oil gradually began to change. As a result of the Arab-Israeli war of 1967 and other military conflicts in other oil-producing countries, the supply of oil dropped whilst demand continued to rise. As a result, the organisation of the petroleum exporting countries, OPEC, which had been founded as early as 1960 at the initiative of Venezuela and Saudi Arabia to lend more weight to the interests of the oil-producing countries, suddenly acquired economic power, having been more like a toothless tiger before. When the Yom Kippur War broke out between Israel and Egypt in 1973, the Arab oil-producing countries enforced a cut in oil production and a boycott of the USA in their oil deliveries. This resulted in the sudden increases in the price of oil that we know from the first oil crisis. Most importantly, however, the oil-producing countries now started to assert their ownership rights to their oil vis-à-vis the oil companies.

The second oil crisis at the end of the 1970s was also triggered off by political events. Domestic conflict in Iran had reduced supplies once again and the OPEC cartel took advantage of this to raise its prices again. Even though the price of oil fell a little again later, in 1985 it was still 16 times as high, calculated in dollars, as it had been at the beginning of the 1970s.

Even if it is true that both crises were triggered off by political events, the lasting rise in oil prices goes back above all to the changes in the ownership rights. Even though the oil companies were obviously not very happy about these, as far as the more economical use of scarce oil resources is concerned, this development could only be welcomed. Moreover, since then other sources of energy have increasingly begun to replace oil and economic growth has become far less energy-intensive than it was 25 years before. For instance in 1994, the West Germans used only three-quarters of the primary energy per unit of national output than they did in 1970. This means that the price mechanism works not only in theory but also in economic practice.

The question is though whether this mechanism works well enough. As a result of economic growth, overall consumption of energy in the industrial nations has

continued to rise. Moreover, even when the raw materials markets work perfectly, there is still the problem of how these resources should be distributed in an equitable manner for future generations. Obviously, these generations are not present when policy makers negotiate production quota and grant ownership rights. Certainly, they cannot make themselves heard on the market – at least that is the way it seems. Does that not mean then that the state should intervene in the raw materials markets for the sake of future generations?

For obvious reasons, we expect that all future generations should have the same possibilities of consumption as we have. This expectation goes back to John Rawls, whose book "A Theory of Justice", published in 1971, received much acclaim. However, equitable distribution among all generations of a natural resource such as oil that is limited in absolute terms is only possible if none of this oil is ever consumed! This is because no matter how little oil a particular generation consumes, eventually the reserves will be depleted. It is evident though that zero-consumption would not make any sense because then no generation would benefit from the oil. This line of thinking does not bring us any further then.

We must also take into account that each generation not only consumes raw materials but also generates capital that will be of benefit to later generations as well. For instance our children will start their professional lives with a far higher per-capita base of capital than we did. They will inherit houses, roads and factories that they would otherwise have had to build themselves. Most importantly, they will inherit the technical know-how that was developed by previous generations.

We have already seen that a higher per-capita base of capital can replace the need for raw materials. It should therefore also be in the interests of Rawls' criterion of justice, that each generation saves so much that the next generation is able to consume as much as the generation before, despite dwindling stocks of raw materials. This is at the core of the so-called Hartwick rule that was formulated in 1986 by J.M. Hartwick and N.D. Olewiler. Economic history has shown that so far, the Hartwick rule has always been more than fulfilled. Not only have following generations not had to suffer from a lower standard of living than their parents, but they have even benefited from a much higher one.

Moreover, the danger that a single generation will use up all the available raw materials is a "non-starter", if we look at the matter more closely. In reality, generations do not follow on each other like dominoes but they overlap like playing cards. Every year some managers and entrepreneurs are replaced by younger employees, pushing forward mankind's planning horizon continuously. Furthermore, the desire of many people to pass on their wealth to their children will also prompt them to take the interests of their children into account when accumulating their capital. Under these circumstances, even in a market economy, people need hardly fear that some generation will suddenly find itself without capital and raw materials.

It is the fact the economic decisions are politicized that poses the greatest threat. This is because politicians are only elected for a short time, as a rule for only four to five years. Their planning horizon is short because they would like to be re-elected. They will therefore be all too easily tempted, for the sake of short-term gains, to make concessions to their voters that may be at the expense of future

generations. One proof of this is the way government indebtedness is increasing, as well as how carelessly the problem of the financing of the future pension system is frequently dealt with. Anybody who is really concerned about the wellbeing of future generations, would do better to trust in the powers of the market than in the mechanisms of the development of opinion in the democratic system.

However, we do not want to play down this problem so heartlessly. If the world's population really grew by Malthus' geometric progression, a global catastrophe would be inevitable sooner or later. Just think what an exponentially growing population would mean. There is a famous mathematical equation for this, namely the story of the chessboard. Legend has it that a wise man once saved the life of the daughter of the Emperor of China and was therefore granted a wish. His wish was that the emperor lay a kernel of rice on the first field of a chessboard and then double the number of kernels on each of the following 63 squares. The initial reaction of the emperor was that this was far too modest a wish. However, it did not take long until he realized that all the rice in his enormous empire would not suffice to fulfil this wish. For on the last of the 64 squares he would have had to lay no less than 9 times 10 raised to the power of 18 kernels of rice, that is a figure with 18 zeros in front of the decimal point!

Thus, if population growth really did follow Malthus' law, it would reach similar proportions. No matter how advanced the state of technology was and no matter how much capital had been accumulated, such population growth could not be compensated for. It would already be impossible to solve the problem of finding enough living space for so many people.

This means that at the end of the day, there is only one solution to the problem of global resources and that is to limit population growth. Luckily birth rates tend to fall with rising per-capita income. This is mainly because if people earn more, their subsistence in their old age no longer depends on how many children they have. As people's incomes increase they are generally able to save enough themselves.

In fact, the highly developed industrial nations have to contend more with a problem of a too low rather than too high a birth rate. In many developing countries on the other hand exactly the opposite is the case. The best policy to preserve the world's resources would be to provide these countries with targeted development aid, coupled with measures of birth control and the accumulation of capital. However, it would make no sense whatsoever simply to redistribute the world's output to the benefit of those countries without imposing any conditions on them. This would only result in an even higher population growth and therefore exacerbate the resource problem. In this sense Robert Malthus was entirely right. Misconceived social justice would eventually only bring about the downfall of mankind.

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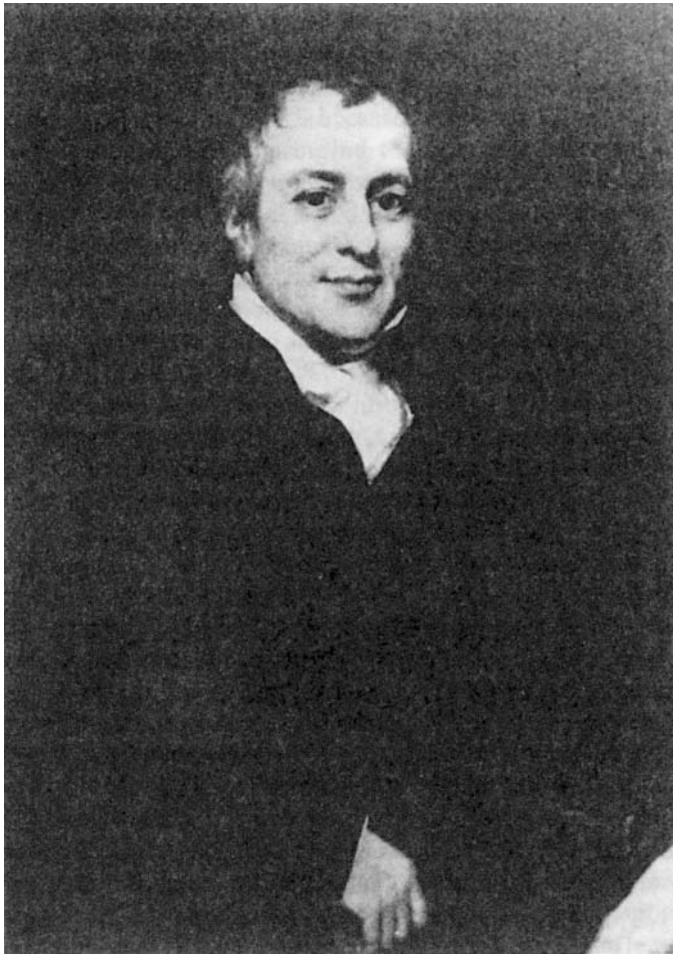
Chapter 3
Trade and Changes in the World Economy (Foreign trade)



The Englishman David Ricardo (1772–1823) was at one and the same time an economist, a successful stockbroker and a politician. His theorem of comparative cost advantages lay the groundwork for the classical free trade theory.

Should We Protect Ourselves from Cheap Competition from Abroad?

From Mercantilism to the Free Trade Theory

In ancient Greece if a ship was loaded with exports, it was only permitted to leave the harbour if it were sure it would return with an equivalent amount of goods from abroad. This was because the Greeks did not want their own people to lose out on the profits from production without getting the corresponding benefits in return. In principle, this attitude was only understandable.

Today, on the other hand, many people believe that the more goods an economy exports the better off it will be. This is because exports are said to create new jobs and because money seems to be pouring into the country, increasing the prosperity of its inhabitants. The import of goods from abroad, on the other hand, is not so popular, at least not if these goods could have been produced at home as well. Many people think it wrong, for example, that the Germans import coal from the USA, whilst German coal miners are losing their jobs. Would it not be better to fall back on the still abundant stocks of coal at home? And should one not strive, on employment-policy grounds, to achieve a surplus in the balance of trade, i.e. a surplus of exports over imports?

There are many examples in economic history where people have tried to keep foreign products out of their home markets. A variety of protectionist measures has been developed for this purpose, of which the most important has traditionally been the imposition of import duties. Such duties seem to carry the dual advantage of increasing the price of foreign goods on the home market, thereby giving domestic producers a competitive edge, while at the same time the state earns revenues on the basis of duties. In fact, during the 18th and 19th centuries such duties were by far the most important source of income for the state, much more so than taxes.

Depending on the primary motive for the imposition of duties, people used to distinguish between purely protectionist duties and excise (financial) duties. Nowadays, this distinction has become less significant because the state finances its expenditure primarily from tax revenues. Nevertheless, there are still many people even today who argue in favour of protectionist duties.

These arguments reached a high point during the days of mercantilism that dominated economic thinking from the 16th until the end of the 18th century. The French were the most consistent in their pursuit of a mercantilist foreign trade policy, managed at the time by the Comptroller-General, Jean Baptiste Colbert (1619–1683). And they by no means limited their policies to the levying of import duties. They also imposed quantitative restrictions on the import of certain goods, if not an outright embargo. Those who contravened these rules faced severe punishment, in extreme cases even the death penalty.

In order to understand the mercantilists, we must bear in mind that they measured a country's wealth by its stocks of gold and silver. Since the quantity of precious metals available throughout the world was limited, it seemed logical to

the mercantilists that each individual country should accumulate as many reserves of such metals as possible. Abundant stocks of gold and silver made it possible not only to finance wars, but also the extravagant life of the court of Versailles. It is for this reason that mercantilism has also been referred to as the "theory of the wealth of princes".

Foreign trade policy was therefore governed by the simple principle "buy cheaply, sell expensively". The import of raw materials was encouraged; at the same time a country would try to sell as many high-quality goods as possible, such as textiles or crafts product, on the world market. As the latter products could be sold for a higher price than raw materials, a lasting inflow of precious metals into the country was ensured because in those days gold and silver were the only means of payment in foreign trade. This is what the mercantilist doctrine of a balance of trade surplus boiled down to.

The end of the mercantilist era was rung in by Adam Smith in 1776 with his famous work "The Wealth of Nations". Smith did not believe in measuring the wealth of a nation by how many precious metals it possessed. Already the first sentence in his book contains his central message: "The annual labour of every nation is the fund which originally supplies it with all the necessaries and conveniences of life which it annually consumes, and which consist always either in the immediate produce of that labour, or in what is purchased with that produce from other nations."

Thus, Smith was arguing that it was the amount of goods available in a country that was important and not its stocks of precious metals. Even though a country also needed a certain amount of such metals to pay for the exchange of goods at home, that was about it. If a country's stocks of precious metals doubled, this would only result in a doubling of the prices of goods, but not in an increase in the quantity of these goods. Therefore it was not only futile but even detrimental to exchange scarce commodities for precious metals in international trade.

However, this does not mean that Smith opposed international trade as such. On the contrary, he considered it highly beneficial because it increased the advantages of the division of labour. According to Smith every country should concentrate on producing those goods that it could produce more cheaply than its competitors on the world market. Contrary to the mercantilists he did not regard foreign trade as a "zero-sum game" where a country could only make gains at the expense of other countries. Rather, the international division of labour made it possible to specialize in a way that would ultimately increase the prosperity of all trading nations.

Let us illustrate this central idea of classical foreign trade theory with a simple example. Assume the French were able to produce one ton of coal with 10 hours of labour, whilst the Dutch were only able to produce the same quantity of coal with 30 hours of labour. The reason for this could be that in the Netherlands, where there is not such an abundance of raw materials, coal may have to be dug up from a greater depth than in France, where it may even be possible to extract it by opencast mining. By contrast, the French may require 30 hours to produce a porcelain teapot, whilst the Dutch can manufacture this teapot with only 10 hours of labour. The reason could be that the crafts trade is more developed in the Netherlands and that therefore more workers have been trained in the necessary skills.

Working hours required to produce one unit of ...

	Coal	Teapot
France	10	30
Netherlands	30	10

Adam Smith argued with absolute cost advantages: France can produce coal more cheaply and should therefore specialize entirely in this product, whereas for the Netherlands the same applies to the production of teapots.

Let us now compare the total quantity of goods that could be produced if both countries put in 40 working hours. If they did not engage in international trade, each country would end up with one teapot and one ton of coal. It would therefore obviously make far more sense for the French to produce only coal and the Dutch only teapots. Because then, even without any increase in working hours, they would be able to produce four tons of coal altogether instead of only two, as well as four teapots instead of only two! The French could now exchange two tons of coal with the Dutch for two teapots, which would mean that in the end, each country would have doubled the number of its available products. This apparent miracle goes back exclusively to the fact that labour is being used more efficiently than if each country were entirely self-sufficient.

It should be noted that in our example the French would not be exporting a finished product but a raw material in order to benefit from foreign trade. Imagine now the French specialised in the production of teapots and the Dutch in the mining of coal. This would mean that they would produce altogether 1.25 tons of coal and 1.25 teapots, which would be even less than if each country were operating on the basis of self-sufficiency. It is therefore vitally important that each country specializes in the production of the right products, i.e. those where it has a real cost advantage in comparison to other countries.

According to Adam Smith, international trade should be conducted on the basis of market prices, i.e. prices should not be distorted by the state through tariffs or subsidies. He opposed the mercantilist strategy of encouraging only the export of finished products without taking international cost relations into account. Not only did this reduce the total quantity of goods that the world could produce but it also depressed prosperity in the protectionist-orientated countries themselves. On the other hand, if a country forewent the imposition of tariffs and other trade-distorting measures this would increase the wealth of all of the countries engaging in international trade. This is the basic message of the classical free trade theory.

Working hours required to produce one unit of...

	Coal	Teapot
France	20	30
Netherlands	10	10

David Ricardo showed that even relative cost advantages can make foreign trade worthwhile. In our example the absolute advantage of the Netherlands is greater in the production of teapots than in the production of coal. Therefore, the Netherlands should only produce teapots whereas the French should only produce coal.

Ricardo's Theorem of Comparative Cost Advantages

Adam Smith's book was a phenomenal success immediately after its publication and altered economic thinking on foreign trade completely. Nevertheless it left one important question unanswered. What happens if a country is at a cost disadvantage compared with other countries in the production of all goods and not only in the production of some goods in particular? One would think that in this case it could not take part in international trade with any success at all. Would it not inevitably be flooded with cheap products from abroad and lose all possibilities of employment for its workers? It was David Ricardo who drew attention to the falsity of this assumption as well as that of many other popular economic views in his famous work of 1806.

Ricardo chose to illustrate his theories with the exchange of cloth and wine between England and Portugal. However, we will remain with our example and assume that France now requires 20 hours of labour to produce one ton of coal and 30 hours to produce one teapot. The Netherlands, on the other hand, require only 10 hours to produce each of these two items, which means that they have an absolute cost advantage over the French in the production of both items.

According to Ricardo, even then constructive foreign trade between these two countries is possible. This is because it is not only the absolute differences in cost that are important but also the relative differences. In our example, the relative cost advantage of the Netherlands is greater in the production teapots than in the production of coal. This is because the French have to put in three times as much labour as the Dutch to produce teapots whereas the French have to put only twice as much labour as the Dutch into the extraction of one ton of coal. Therefore, provided that the Dutch specialize in the production of teapots and the French in the production of coal, both countries can continue to accrue wealth.

It is easy to understand this. Let us assume once more that both countries each have 40 hours of labour at their disposal. If they were self-sufficient, i.e. if they did not engage in international trade, the French would produce, say, half a ton of coal

and one teapot whilst the Dutch would produce one ton of coal and three teapots. Altogether that would make one and a half tons of coal and four teapots.

Let us follow Ricardo's advice and have the Dutch produce only teapots and the French only coal. The overall output of the two countries could then rise to two tons of coal even though they could also produce four teapots at the same time. Thus, specialization in conformity with the relative cost advantages makes it possible to increase output even though labour input remains the same. Yet again, the reason for this is that labour is being employed more efficiently. This is the essence of Ricardo's famous theorem of comparative cost advantages.

Now, of course the Dutch do not want to freeze and the French do not want to do entirely without their tea. Therefore, even though the Netherlands should specialize entirely in the production of teapots, they should also exchange some of these teapots for coal from France. As total output would be greater than if both countries operated on the basis of self-sufficiency, this exchange would serve to increase consumption of both products in both countries.

This immediately gives rise to the question how such an exchange is possible if both products are cheaper in the Netherlands than in France. Ricardo provided the correct answer to this question too. Let us assume that each hour of labour had to be paid in both countries with an ounce of gold. Then indeed, calculated in gold, both goods would be more expensive in France than in the Netherlands. Theoretically, France would import teapots as well as coal from the Netherlands and pay for them in gold.

However, a mechanism now sets in that had already been described in part by David Hume (1711–1776). Whilst the outflow of gold from France will cause wages and prices in France calculated in gold, to fall, the inflow of gold to the Netherlands will cause wages and prices there to rise. This is a direct conclusion from the quantity theory whereby an increase in the money supply will lead to an increase in prices in the long term.

However, if prices fall in France but rise in the Netherlands, then sooner or later there will come the point where one of the two products calculated in gold, becomes cheaper in France than in the Netherlands. As the relative cost advantage of the Netherlands is lower in the production of coal than in the production of teapots, it can only be the coal that will become cheaper. The two countries would thus exchange coal for teapots and the flow of gold between them would cease. According to Humes' money supply mechanism, the relative cost advantage of France in the production of coal will result in an absolute price advantage for France which will ultimately assert itself on the market. In the end therefore, the most efficient division of labour between the two countries will establish itself automatically.

Arguments Advanced for Duties

The ideas of the economic classicists may seem a little abstract, but in principle, they are still valid even today. To see this, we have to look ahead a little and bring

the rates of exchange between currencies into play. Nowadays people no longer pay in gold but with paper money such as dollars or euros. Assume now that European export products were too expensive on the world market and that the Europeans therefore did nothing but import cheaper goods from abroad without exporting any goods in turn.

The Europeans would then pay for their imports in euros but the exporters from third countries could not do very much with these. After all, they have to pay for their costs in their domestic currency, for example in dollars. Consequently, they would want to exchange all the euros they earn from the Europeans into dollars on the foreign exchange market. However, this would drive down the rate of the euro and boost that of the dollar, making European goods, calculated in dollars, cheaper. It is obvious where this will lead. First of all those European products with which the Europeans have a comparatively low cost disadvantage, i.e. a comparative cost advantage, will become more competitive again. However, then the Europeans can finally offset their imports with exports of their own goods.

International trade has become a little more complex than it was in the 19th century, but the underlying principle is still the same. It is impossible that a country ever gets into a situation where it only imports products without exporting any in return. This is already ruled out from a purely logical point of view because a country cannot have only relative disadvantages but no relative advantages. In this sense, Ricardo put the classical free trade theory on an unassailable basis.

This theory soon became a sweeping success, not only among economists but also in practical economic policy. Throughout the world during the first half of the 19th century, tariffs were lowered or abolished entirely – the age of economic liberalism had dawned. Whereas in 1821 the average tariff in the USA still amounted to 45 %, by 1860 it had fallen to as low as 20 %. Especially the UK, the home of Adam Smith and David Ricardo, set a good example. It has to be said though that the British had a lead of about 50 years over the rest of Europe in terms of industrialization and that for this reason, British industry had a particular interest in liberalizing world trade.

On the other hand, the British themselves impeded this liberalization with the high tariffs on corn that they were charging at the time. Even though these tariffs protected British agriculture from foreign competition, they also increased the cost of living and therefore the wages of British industrial workers. Furthermore, they induced the UK's trading partners to levy duties on British industrial products in turn. Such duties are referred to as punitive or retaliatory duties.

It was the two parliamentarians Richard Cobden and John Bright who led the industrialists' political battle against the corn duties. They set up the Anti-Corn-Law-League, which operated mainly from Manchester and even today, the supporters of free trade are still sometimes derided by their opponents as so-called "Manchester capitalists". In 1846 the Manchester School finally won the day and the Corn Laws were repealed. What followed was a period of flourishing world trade, during which the other European countries also dissociated themselves increasingly from their protectionist stance and lowered their tariffs.

The most ingenious agitator among the free traders of those days was the French economist Frederic Bastiat (1801–1850). In his famous parable about the "Petition of the Candle-Makers" he reduces the arguments of the protectionists to absurdity. In this satire the French candle-makers request a law to mandate the covering of all windows and skylights and other openings, holes, and cracks through which the light of the sun is able to enter houses, in order to boost the consumption of candles, oil and other fuels. They even claim that this would lead to new jobs in other economic sectors, for example in the production of oil lamps and other related industries. In the end, the entire economy would benefit from having the windows covered as a result of a boost in wages and employment.

Even though the candle-makers were in favour of competition, they felt it had to be fair. This could not be said of the competition posed by the sun, because the sun was able to offer its energy continuously at the extreme dumping price of zero. In the eyes of the French even the English candle-makers benefited from an unjust advantage vis-a-vis their French competitors because their sales were boosted by the fact that there was more fog in England.

The absurdity of these arguments is evident. Even so, this kind of argument is still used today in a similar form by economic sectors that can no longer hold their own in international competition. In fact, there is a problem behind this that deserves to be taken seriously. Even though the classicists managed to prove convincingly that all national economies would ultimately benefit from free trade, this did not necessarily apply to every single economic sector in every national economy as well. Therefore at least in the short term, there will be winners and losers in every country when they convert to free trade.

In the long run though, the advantages will outweigh the disadvantages as they do in the case of technological progress. This is because free trade reduces costs and improves the international division of labour, meaning that ultimately, everybody will be able to satisfy their needs for consumer goods at lower prices. Of course this also depends on labour and capital being flexible and mobile enough to be re-orientated if necessary. As every country has a comparative cost advantage by definition in the production of at least some goods, international trade can never actually lead to unemployment. On the contrary, it will result in greater prosperity in all the countries involved.

All the same, classical free trade theory has been under attack by economists time and time again. One of its most prominent critics during the 19th century was the German economist Friedrich List (1789–1846). Originally a town clerk in Reutlingen, List became a professor in administration as well as a member of the Wurttemberg legislature. In 1825 he had to go into exile to America for his political views, where he took up Alexander Hamiltons' idea of imposing protectionist duties. List returned to Germany in 1832 as an American consul and fought tirelessly for the German customs union (the "Zollverein") which was finally set up in 1834. Its main aim was to eliminate the tariff barriers between the 18 participating German states and to replace these with a uniform tariff against non-members. At the same time the large number of different currencies used in those days was reduced to two, the guilder in the South and the Taler in the North. This made List

one of the early forerunners of European Monetary Union, which was completed only much later in 2002. He was also an advocate for the expansion of railroads throughout Germany even though he made no personal economic gains from this. In 1846 he shot himself at Kufstein in Austria.

List accused the English economic classicists of painting too static a picture of economic reality. In his major work of 1841, "The National System of Political Economy", he presented a more dynamic view, claiming that the productive capacity of a national economy did not depend primarily on how much labour and capital were available but rather on whether this capacity was being used efficiently. It was the government's responsibility to encourage production. Only in this way could technological progress unfold in an optimal way. As we have already seen, in more recent growth theory as well, technological progress is regarded as a variable that can be influenced and the state is expected to play a role in this. In this sense List can also be regarded as a forerunner of these more recent approaches.

His famous argument regarding "corrective duties" aims in the same direction. List believed that industry in continental Europe was hopelessly inferior to British competition due to the latter's lead in development. Therefore industry in continental Europe had to be protected for some time through the imposition of "corrective duties" until it had become productive enough to hold its own in international competition. Only then was it possible to engage in free trade. The Americans also refer to List's argument as the "infant industry argument".

All the same, List has not been able to assert himself among economists with his theory. The risk is too great that on the basis of this argument, countries erect a permanent bulwark of protective tariffs that is only very difficult to dismantle at a political level. Moreover, it is by no means guaranteed that the protected industries really use the time they are given to increase their competitiveness. The chances are that they will become even more sluggish under this protection. The raw winds of competition, on the other hand, will motivate them to actively increase their competitiveness. Moreover, just as in the case of the arguments in favour of subsidies put forward by the "New Growth Theory", the question is how the state is supposed to know in advance which industries actually have a lasting chance of survival. Thus, no matter how convincing List's arguments seem at first sight, upon closer examination, the disadvantages ultimately outweigh the advantages.

Dumping and Protectionism

As it happens, economic history took a different direction. Even though there have been repeated setbacks for the free trade theory, such as during the neo-mercantilist age between 1870 and 1914 and then again during the Great Depression of the 1930s, experience with protectionism has, in the end, always been negative, with countries outbidding each other with duties and other trade barriers to the detriment of world trade.

As a result, people thought better of it after World War II and set up the General Agreement on Tariffs and Trade, the GATT, in Geneva in 1947. Initially, 23 member states signed up to this treaty which aimed at a step-by-step dismantling of trade barriers. In the meantime this number has risen to 120 countries and successive rounds of negotiations have resulted in a general lowering of tariffs. In 1995 the GATT was succeeded by the World Trade Organisation, also based in Geneva.

Today the WTO focuses less on tariffs than on the dismantling of non-tariff barriers to trade. Apart from quantitative import restrictions these include hidden protectionist measures, such as product standards and bureaucratic barriers to imports.

One famous example of such a trade barrier is the German Tariff Act of 1902, the aim of which was to promote the import of Swiss cows without at the same time exempting imports of cows from other countries from payment of duties. The problem was that the Germans had committed themselves to applying what was called the most-favoured-nation clause, which meant that a reduction of tariffs on Swiss cows had to be applied automatically to beef from other countries as well.

The Germans solved this problem by simply defining a special type of cow, the so-called "Gesommerte Hohenfleckvieh". In legal terms such a cow was defined as a "brown or spotted cow that was reared at least 300 m above sea level and spent at least one month each summer at a level of 800 m above sea level". By definition Dutch cows, for instance, could never meet these criteria. In this way, the Germans found an elegant way of discriminating trade in favour of Swiss cows without actually breaching international agreements.

The majority of today's international trade problems are based on this kind of more or less well-concealed trade barrier. In every country the protectionists are still very good at pushing through their aims at a political level, and like Bastiat's candle makers will cleverly camouflage their specific interests as economic necessities that will be a benefit to everybody in the end.

Let us turn in this context to one last argument that is advanced in favour of protectionism, the prevention of dumping argument. In order to prove the existence of dumping prices it is by no means sufficient to show that competitors are offering products at lower prices than those in another country. Yet, politicians often use the term in this way. However, if a country is able to offer its products at lower prices on the basis of a true cost advantage, there is nothing to be said against these lower prices.

The Viennese economist Gottfried Haberler (1900–1995) came up with a more viable definition of dumping prices, defining dumping as a practice where a foreign supplier offers his export goods either below cost or at least below the home-market price. Such practices can indeed be classed as unfair trade practices, because they harbour the risk that the foreign suppliers will beat their competitors in the export markets, only to raise their prices all the more afterwards, once they have gained a monopoly position. Even liberal economists advocate the levying of so-called anti-dumping duties in order to deter such practices and they are foreseen by the WTO for such cases as well.

All the same, this does not mean that there is a lot to be said in favour of protectionism. Firstly, dumping is only possible under very specific circumstances. The foreign suppliers already have to be in a monopoly position in their home market or at least be part of a cartel. For if they were competing with each other they would not be able to gain a monopoly position in the export market.

Secondly, dumping only works if the foreign suppliers are protected in their home markets by tariffs or other trade barriers. Otherwise the products that they export would be re-imported back into their country. This was the case, for instance, on the automobile market within the European Union. As the prices of German cars were lower in France than in Germany, it was advantageous for German consumers to buy their Mercedes in France. For this reason the laws of the market alone impose rather strict limits on dumping.

More recent versions of the argument in favour of limiting free trade have also focused on the various environmental and social standards that are applied in individual countries. For example, people often argue that child labour is common in Third-World countries, that wages are a mere pittance and that social conditions are bad – conditions, with which the Western industrial nations cannot and do not want to compete. Environmental protection is not taken so seriously in the Third World either. Therefore domestic industry should be protected from foreign competition from these countries.

It is true that things are bad in many countries. But this does not mean that trade policy is necessarily the right tool with which to redress these grievances. The risk is always great that such arguments are abused to justify the imposition of purely protective duties. Pharmacists in Germany still maintain that the import of cheaper medicinal products from abroad – for instance via the internet – should be banned because otherwise there may be quality losses and health problems. In reality though the pharmacists are more concerned about the health of their finances than of the German population.

Most importantly, one must question the practical consequences of a policy that takes domestic environmental and social standards as a yardstick for the conditions of production in the rest of the world. It is the developing countries of all countries that are denied market access to the industrial countries on the basis of such arguments. However, as a result the social grievances in these countries will only become greater, not lower. Moreover, they will be able to spend even less money on environmental protection than before.

History has shown that especially in the case of so-called social or environmental dumping, free trade is the best alternative. This is because child labour, social hardship and environmental abuse decline automatically as prosperity increases. We have already discussed the theoretical reason for this in the context of the growth theory. The best thing therefore would be to promote economic growth in the poorer countries and help them get their population growth under control. This means though that they must be given the possibility to engage in international trade. This may well be painful for certain economic sectors in the industrial nations and may not even always be entirely fair. But in the long term, it is the only way of truly solving the world's social and ecological problems.

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Winners and Losers in World Trade

Do Large Countries Have Big Advantages?

After World War II world trade began to thrive and in the Western industrial nations prosperity and employment increased. This was not the case in the developing countries, however. Even though many of them were also engaged in world trade as important suppliers of raw materials, they did not benefit from it in the same way. Obviously then, the gains in welfare offered by free trade were not being distributed very equitably among the countries involved. Is this only a matter of economic and political power, as the developing countries suspect it is? Or is it possible to explain the inequitable distribution of welfare on the basis of the economic laws of international trade?

The first person to try and close this gap in classical economic theory was John Stuart Mill (1806–1873). His father, James Mill, a friend of David Ricardo, had been a famous economist too, whose whole ambition consisted in making his son into an economic genius. He educated his son in mathematics, philosophy and economics already from his earliest years with the result that John Stuart Mill actually began to publish his first works as young as sixteen. His father's merciless drill nevertheless took its toll, with Mill suffering from depression and experiencing his first nervous breakdown when still an adolescent.

All the same, Mill's strict upbringing eventually had the desired success. John Stuart Mill became much more famous than his father ever was and he published his groundbreaking essay on the distribution of the gains of commerce among countries in 1844 at the mere age of twenty-three. His later major work "Principles of Political Economy", which he published in 1848, is regarded as the last great work of the economic classics.

Mill's theories are easier to understand if we examine them in conjunction with those of the Cambridge economist, Alfred Marshall. Mill and Marshall had much in common, not only in terms of their research and its relevance in their respective times, because just like Mill, Marshall was also the victim of his tyrannical father

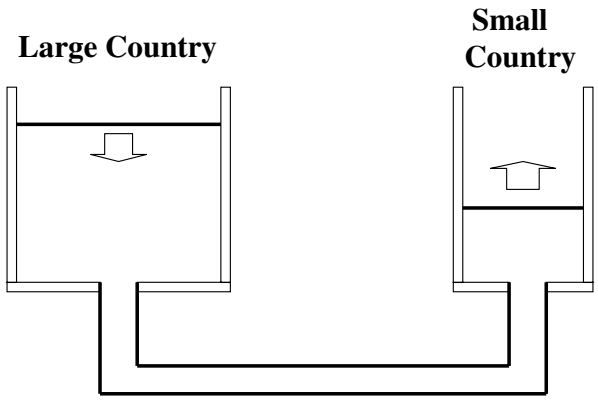
who insisted that he become a clergyman. It was only with the financial support of his uncle that Marshall was able to study economics at all. He became the leading economist of his times and his most famous pupil was none other than John Maynard Keynes.

The answer of Mill and Marshall to the question of the distribution of the gains of commerce may come as a surprise to some because Mill and Marshall concluded that the smaller a country was, the greater its gains in prosperity from foreign trade would be! The larger countries on the other hand, they believed, would not benefit so strongly from international trade because their price levels would hardly differ, if they were operating on the basis of self-sufficiency, from those on the world market if they were engaged in international trade.

In order to understand this we must remember that the costs of production will rise with increasing demand. Let us now apply this principle to Ricardo's example of trade between England and Portugal and assume that wine was a very scarce product in England, whilst cloth was scarce and expensive in Portugal. Before engaging in trade with Portugal, English demand for wine will have been limited due to the high price of wine. Once trade relations had been established, the English were able to buy wine at a lower price and their wine consumption increased accordingly. This in turn benefited the Portuguese wine producers who now saw undreamt-of sales opportunities on the horizon.

Let us go on to assume that in comparison to England, Portugal was a relatively small country. This would mean that the Portuguese wine producers would find it increasingly difficult to satisfy English demand for wine. As a result, they would have to start cultivating less fertile areas and the price of wine would rise accordingly steeply in Portugal. On the other hand, the price of cloth in Portugal would fall significantly because the Portuguese would now be able to choose from the abundant supplies from England. Thus, for the Portuguese, the ratio between the prices of the goods they exported and the prices of the goods they imported would improve accordingly. In the theory of foreign trade this ratio is also referred to as the terms of trade.

Conversely, Portuguese demand for English cloth would only have relatively little influence on the price of cloth in England, because compared to England, Portugal was a relatively small country. Even wine would not become much cheaper in England because English demand for wine would increase the costs of production in Portugal. Most Portuguese wine producers would achieve high profits – remember Marshall's producers' surplus that was achieved with rising demand. The Portuguese "marginal producer", on the other hand, would have roughly the same costs as the English wine producers. And as we already know, it is the costs of the marginal producer that ultimately determine the price! Thus, England would benefit only relatively little from the exchange of wine and cloth. At the end of the day, prices in England would hardly change, whilst for the Portuguese the terms of trade would improve significantly. This means nothing other though than that the smaller country, Portugal, would achieve greater gains in prosperity from international trade than its larger counterpart, England.



In foreign trade, costs and prices act like in a system of connected pipes. They change less strongly in larger countries than in smaller countries.

This result can be explained as follows. For a larger country it is not so important whether it engages in international trade or not. This is because as a rule it can provide for the most important products it needs itself and is therefore not so dependent on the international division of labour. Smaller countries, on the other hand, have a much better chance of increasing their wealth through international trade. Those products, where they have relative cost advantages, will be bought up very quickly by the larger countries since supplies are limited. Consequently, the smaller countries can easily supply themselves from abroad with those goods they no longer produce themselves.

Are the Countries that Have Raw Materials Being Exploited?

Most developing countries are small in comparison to the industrial nations with which they trade. It is not so much the size of the population that counts in this context but rather the individual country's domestic product and the volume of its demand. Going by Mill and Marshall, one would assume that the developing countries achieve relatively large gains from international trade. This applies in particular if they are endowed with raw materials such as oil that are especially scarce in the industrial nations. In fact, some countries in the Middle East have become so rich from their exports of oil, that even today their inhabitants are exempt from paying any taxes.

However, most developing countries have mainly foodstuffs and raw materials other than oil to offer on the world market. In contrast to the goods offered by the industrial nations the prices of most of the developing countries' products have declined over time. This was already pointed out in 1950 by the Argentine economist Raúl Prebisch (born in 1901). Going by what was called the Prebisch-Singer theory, that has since been contradicted, the developing countries' terms

of trade have steadily deteriorated over time. To the developing countries this seems unjust even though they have undoubtedly done better than if they had cut themselves off from world markets.

In 1964 many of the developing countries joined forces in the so-called "Group of 77", which eventually resulted in the setting-up of the world trade conference UNCTAD as a permanent body of the UN General Assembly in Geneva. Today UNCTAD (United Nations Conference on Trade and Development) has about 180 members. Even though it cannot lay down binding trade regulations like the WTO, its resolutions have nevertheless had some influence at the political level. As early as 1964, for instance, the industrial nations were persuaded to pledge 1 % annually of their national income to the payment of development aid (a pledge, to which they have not adhered, however). Moreover, owing to pressure from UNCTAD many industrial nations agreed to relieve the developing countries from a part of their debts.

As far as their policy regarding raw materials was concerned, the developing countries tried to keep their export revenues as high as possible, which meant that they had to align their prices on those in the industrial nations so as to stabilize their terms of trade. Henceforth though, prices on the world market were determined by supply and demand and could not simply be frozen at a certain level by law. For this reason the developing countries suggested setting up international stocks of raw materials so as to influence the price of these materials through targeted buying and selling.

A certain number of such "buffer stocks" were thus established, for example for coffee, cocoa, tin, sugar and a few other raw materials. In practice, however, it quickly became apparent that market forces could not be brought under control by these means. Stocks were far too low to stabilize prices on a lasting basis and there was not enough money to intervene in any significant way in the world market. It would also have been an enormous waste of capital to hoard large quantities of raw materials in unproductive stocks solely for the purpose of stabilizing prices. This capital would boost development far more if it were invested, for instance, into schools and infrastructure in the developing countries. In the meantime many developing countries have realized this too and buffer stocks have lost their importance in economic policy.

The Effect of the Terms of Trade and the Optimal Tariff

All the same, the developing countries are still calling on the industrial nations to abolish their tariffs on raw materials, and quite rightly so! Quite possibly a substantial proportion of development aid could be saved if the donor countries opened up their markets completely instead. One of the worst offenders in this respect is the European Union, which pulls out all the stops it can in order to protect in particular its agricultural sector from much cheaper food imports from overseas.

This may come as a surprise to some, considering that going by the classical school of thought, the protectionist countries are ultimately harming only themselves with their policy. But things are not so simple after all. In many countries, farmers are an extremely influential lobby and know very well how to make their own interests look as if they were for the public good, just as Frederic Bastiat's candle-makers did.

There is another aspect that is relevant in this context, which is known in economic theory as the optimal tariff problem. In fact, it is only the relatively small nations that really feel the negative effect of import duties and their demand has hardly any influence on world market prices. Larger nations, on the other hand, can sometimes even increase their general welfare if they abstain from free trade. This is because they can markedly influence world market prices with their demand, to their advantage.

Assume, for example, that the European Union imposed a tariff on imports of cars. As a result demand for cars on the world market would fall so much, due to the size of the European Union, that the producing countries would feel compelled to lower their prices.

This is what is referred to as a tariff's terms-of-trade effect. Even though the consumer in Europe has to pay more for a car, on the world market car prices actually decline. It is the EU-authorities who will retain the difference as revenue. Thus, provided it applies the right tariff, the country imposing this tariff can in effect maximize its overall welfare at the expense of the supplier countries.

In order to understand this, we only need to imagine what would happen if the EU lowered its taxes by as much as its additional revenue from duties. In this case EU consumers would still benefit in spite of the fact that cars had become more expensive, simply because third countries would be paying for part of the duties in the form of falling world market prices.

Even though Mill and Marshall had already been aware of the terms-of-trade effect, they were not yet able to calculate the optimal tariff from the point of view of the country imposing the tariff. It was the German mathematician, Wilhelm Launhardt (1832–1918), who was the first to do so, in 1885. His calculations were later expanded by Abba P. Lerner (1903–1982) and the Nobel Prize Laureate, Wassily Leontieff (1906–1999), who were both born in Russia and emigrated to the USA. They concluded that the optimal tariff was determined by costs as well as by demand and calculated it on the basis of a formula that was both complicated and impractical in the sense that most of the decisive variables were unknown in practice.

However, this does not really matter because the optimal tariff argument has met with so much fundamental opposition that nowadays hardly any economists still believe in it. The most important objection is that even if the country charging the optimal tariff achieves an advantage, it can only do so at the expense of its trading partners. From the point of view of the global economy therefore it would be far better to engage in free trade, i.e. to abstain from the imposition of any kind of tariff or other trade barrier. We could of course ask why this should be of any concern to the country levying the tariff if it stands to gain from not engaging in free trade. However, this view would be a little too short-sighted.

Because, what would happen if every country tried to impose optimal tariffs to their advantage? The result would be the end of world trade, which would ultimately lead to serious losses in welfare for all the countries concerned. The effect would be as with the well-known cinema paradox: if a spectator gets up to get a better view he may well fulfil his aim in the short term. However, if all the other spectators get up as well as a result, nobody will benefit. On the contrary, everybody will lose the comfort of no longer being able to sit down. Therefore the optimal tariff argument may be an interesting problem of national economics at the theoretical level. However, in practice it is better not to take any note of it.

This also applies if a country's terms of trade deteriorate over time and the country no longer benefits so much from international trade. After all, nobody would close down a profitable company only because profits went down for a temporary period. Likewise, since international trade is always better for a country than cutting itself off from the world market, it would not make sense to close a country's borders simply because its terms of trade had deteriorated. Imagine the Germans doing something of the kind. Almost immediately, German consumers would have to pay higher prices for cars, raw materials and foodstuffs. Some products such as oil or sophisticated computers would no longer be available at all. Possibly, the suppliers of German cars or computers would profit from this for a short time. All in all though, the effects on the prosperity of the German population would undoubtedly be negative.

The same applies to the developing countries. Even though it is understandable that they wish the sell their export goods at high prices on the world market and it is true that focussing their output primarily on raw materials has hindered their development in some cases, de-industrialization should not be used as an argument in favour of protectionism. On the contrary, it is the artificially inflated prices of raw materials above all things that give the developing countries the impression that they are on the right track if they concentrate on such exports. If we really want to help these countries, we should promote free markets and prices that reflect the scarcity of products. Only then can each country specialize in the production of those goods where it has real comparative cost advantages.

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When National Economies Run into Debt

What Is a Balance in Foreign Trade?

The German Law of 1967 for the Promotion of Economic Stability and Growth requires the Federal and State governments to draw up their budgets in the light of four principal economic policy objectives that have become popularly known as the "magic square" or the "magic polygon". These objectives are price stability, a high level of employment, steady economic growth and a balance in foreign trade. However, the law does not describe what is meant exactly by a balance in foreign trade, and there has been a great deal of general confusion surrounding this issue ever since. Indeed, it is a somewhat complex problem.

Some politicians believe, for instance, that a country should strive for as high a surplus in exports as possible, because this would boost domestic employment. Frequently though, countries also desire a high inflow of foreign capital in order to boost investment at home. Needless to say, this is a clear contradiction because it is not possible to have both things at the same time!

In order to comprehend this one only has to understand what exactly an export surplus means. Say, the Germans exported cars worth 1 million euros to the USA and imported American computers worth 800,000 dollars. To keep things simple, say the dollar was worth 1 euro. In this case Germany would achieve a surplus in exports equivalent to the difference of 200,000 dollars.

However, this means nothing other than that the Germans would be giving the Americans a credit of exactly this amount! The Germans could not spend their net surplus of 200,000 dollars in their own country because the dollar is not legal tender in Germany and represents a claim to some of the American national product. It would therefore make more sense for German exporters to invest their surpluses in dollars in the American capital market, for instance by buying shares or other securities. Alternatively, they could use the money to construct a new factory in the USA or to buy real estate in Florida; this is referred to as direct investment. Whatever the case, the revenues from the German surplus in exports will be invested in the USA, which means that the export of goods is accompanied by a similar export of capital.

For the Germans therefore, the surplus in exports is a double-edged sword. In the short term it is of course a benefit to be able to sell a lot of products on the world market and thus create jobs at home. However, over time this may become a problem, as German companies will be more or less forced to transfer more of their investments abroad. This will become a problem above all if there is a simultaneous shortage of jobs and investment at home.

However, for the USA as well, a German surplus in exports is not necessarily only a blessing. This applies particularly when such a surplus is not only temporary but occurs each year. Because what is a surplus in exports for the Germans is of course a deficit in the balance of trade for the Americans. The main problem for the USA is

that interest has to be paid on the capital imported from Germany. Chronic deficits in the balance of trade mean that a country runs into ever more debt vis-à-vis its trading partners and has to pay ever more interest to other countries. Just like a private individual living above his means, a national economy runs the risk of insolvency through this.

This would obviously be neither in the interests of the debtor country nor in that of the creditor countries because the latter would ultimately be stuck with their bad loans. Even for the surplus countries things may become uncomfortable if other countries have too great a deficit in the balance of trade. Most importantly though, they would be contradicting themselves if, on the one hand, they insisted in such a situation on having their debts paid back and, on the other hand, they wanted to maintain their surplus in exports vis-à-vis the creditor countries. Because this is a logical impossibility!

One very instructive example of this is that of Germany's foreign debts resulting from the Treaty of Versailles after the First World War. On the one hand, the Germans had to pay reparations, on the other hand, the victor countries wanted to prevent German exports from entering their markets. It was none other than John Maynard Keynes who pointed to this so-called transfer problem in 1919. In his book "The Economic Consequences of the Peace" he suggested simply letting the Germans off some of their war debts. At first this suggestion met with little comprehension among his contemporaries, whereupon the ever-querulous Keynes derided the then American President Wilson as being a deaf Don Quixote who had no idea of economics.

At the end of the day, however, Keynes' views were followed through. After some of the larger Latin American countries like Argentina and Mexico had run into a similar debt crisis at the beginning of the 1980s, they were eventually let off a substantial portion of their foreign debt. In fact, this is the only way many developing countries can be re-integrated into the world trading system. No doubt even creditor countries benefit more from this in the long term than if they lose their trading partners due to outstanding debt.

Equilibrium in the Balance of Payments and the J-Curve Effect

What should we conclude from all this as regards a desirable result of the balance of trade? It seems that neither a permanent surplus in exports nor a lasting deficit in the balance of trade is of benefit to a country. At least in the long term it appears the best thing would be to strive for a balance between exports and imports, i.e. equilibrium in the balance of trade.

As it happens, a balance in foreign trade is often interpreted in this way. People mostly focus on the balance of payments in this context that is a little broader defined than the balance of trade. The balance of payments not only takes account of trade in goods but also trade in services. The Germans, for instance, traditionally spend a lot of money on travel abroad. Economically, this has the same effect

as if they imported watches from Switzerland or cheese from the Netherlands. Expressed in very simple terms, equilibrium in the balance of payments means that the Germans' revenues from exports in goods must be equivalent to their expenditure on the import of goods and foreign travel.

Assume now that the German balance of payments were not in balance but showed a surplus of 200,000 dollars. What could the Germans do to bring it back into balance?

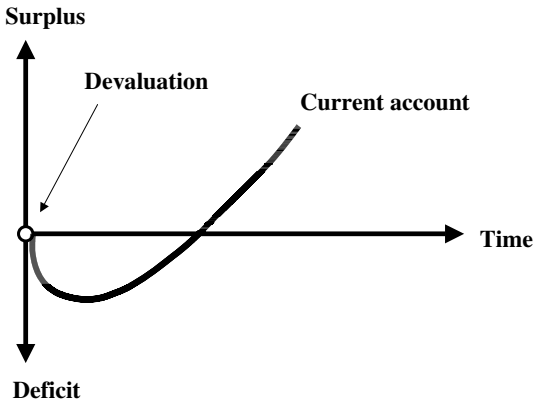
One alternative would be simply to wait; in fact there could be much worse things to do than that! For if German exporters constantly earned a surplus in dollars, they would sooner or later want to exchange at least some of these dollars into euros. After all, they have to pay their employees in euros. However, a rising supply of dollars on the foreign exchange market would result in a decline in the dollar rate. The dollar might then only be worth 90 cents and no longer 1 euro as we have assumed so far.

In this case the balance of payments would more or less automatically tend back to equilibrium. This is because a falling dollar means that American computers for instance, expressed in euros, would become cheaper. Therefore more computers could be sold in Germany. Even if the American suppliers did not take advantage of this increase in demand to raise their prices, the value of German imports, expressed in dollars, would undoubtedly increase. This alone would mean that the German surplus in the balance of payments would recede.

Things are a little more complicated with regard to Germany's revenues from exports, the flip-side of the coin. In this case two contrary effects will set in: on the one hand, the weaker dollar rate will increase the price of German products in America because German producers will only earn 90 euro-cents for one dollar, meaning that they will have to raise their prices in the USA. On the other hand, the volume of their sales in the USA will decline as a result. Thus, it is not certain how the revenues from exports, i.e. the result of the price multiplied by the quantity, will develop. The result may be either higher or lower – expressed in dollars.

How will the balance of payments react to all this? In the first case, the German surplus in the balance of payments will definitely decline. This is because German revenues from exports will recede, whilst expenditure on imports will simultaneously increase. This is how one would expect the balance of payments to react. In the second case, on the other hand, it could be that the German surplus even increases. If it did, this would imply that revenues from exports have risen so strongly that they more than offset the effects of increasing expenditure on imports. This is described as an abnormal reaction of the balance of payments, which can never be ruled out entirely, at least not in the short term.

It was Alfred Marshall who in 1923 illustrated with a simple formula in what conditions the balance of payments would react abnormally to an alteration in the exchange rate. His formula was subsequently rediscovered by Abba P. Lerner and has been described since then as the Marshall-Lerner condition. The essence of this theory is that demand for imported goods has to be relatively inelastic even if prices rise. In our example this would imply that American demand for German products hardly declined in spite of rising prices. This is what is referred to as



The devaluation of a currency will often worsen the current account of the balance of payments position before it improves it. This is known as the J-curve effect.

price-inelastic demand, a term that was introduced into economic teaching by Marshall himself.

The analysis of possible reactions of the balance of payments was expanded further in 1947 by the English economist Joan Robinson (1903–1983). As the so-called Robinson condition shows, an abnormal reaction is less probable than Marshall and Lerner had assumed. In fact, the whole problem was more of theoretical than of practical interest. Even Marshall admitted that his formula basically applied only to temporary situations.

It is true that if a country decides to lower the value of its currency this will often initially lead to a deterioration in the current account of the balance of payments position (deficit) of that country. However, after a certain time the balance of payments will begin to improve. In a time-graph this development will look like a J and is therefore known as the J-curve effect.

After all we have said, this effect is easy to explain. In the short term demand will not react very elastically to changes in prices. Existing supply contracts have to be fulfilled and consumer habits do not change overnight. In the long term, however, consumers will begin to look for alternatives and, to stay with our example, will start buying more American cars than expensive German cars. Thus, over time, demand will become more elastic, which is why the balance of payments will eventually improve.

Are Deficits in the Balance of Payments a Sign of Weakness?

So far we have always assumed that disequilibrium in the balance of payments originates from trade in goods and services. Movements in capital are, as it were, a consequence of the prior flows in goods. To remain with our simple example, the only reason why the German companies invest in the USA is because they want to

invest the surpluses in dollars they have earned from trade in goods in an efficient way.

However, things can also develop in exactly the opposite way. Say, German exports were exactly equivalent to imports i.e. there was equilibrium in the balance of payments. Say, a German capital investor decided of his own accord to invest some of his capital in the USA. To do so he would have to exchange euros into dollars on the foreign exchange market which would cause the rate of the dollar to rise. This, in turn, would boost German exports to the USA for the same reasons we have just dealt with and cause American exports to Germany to decline.

This means that the German balance of payments would be in surplus in this case as well, albeit with an equally high export of capital to the USA. However, this time it is the flow of capital that is the triggering factor for the surplus, whilst the flow of goods just follows on. This is referred to as the independent export of capital. It is in fact far more than just a turn-around in the sequence of events, because the economic assessment of the balance of payments disequilibrium is entirely different in each case!

This is perhaps even clearer if we look at the situation from the point of view of the deficit country, i.e. in our example from the perspective of the USA. If the American deficit in the balance of payments had its origins in the trade of goods, this could be a negative sign, because a deficit could mean, for instance, that American export goods were not competitive enough. Even though some may think that lowering the value of the dollar would easily solve this problem, this solution also has its drawbacks as we shall see later when dealing with the subject of exchange rates. In general people will find that even after such a devaluation, they will not be able to avoid taking relatively drastic measures to improve competitiveness.

Let us compare this with the case where the deficit in the balance of payments is caused by an autonomous inflow of capital from abroad. This can obviously be seen as a sign of trust in the country concerned, which is in principle a positive sign. Provided that the incoming capital is invested efficiently, economic growth and employment will be boosted.

It is not always possible to tell whether a deficit in the balance of payments has been caused more by a weakness in the export market or rather by particularly favourable investment conditions in a particular country. A deficit can, but does not always have to mean that an economy is living above its means. It could just as easily be that this economy was considered by international investors as particularly attractive for investment.

Those who find all this too complicated would do well to remember that things are often no different in our private lives. If somebody constantly spends more than he earns, he will eventually no longer be able to borrow any money and will get into serious financial difficulties. Conversely, high debts do not have to be a problem if the money borrowed is invested efficiently, for example in a company or a house. Because then the investor will earn the necessary revenues or rent to pay off the interest on the initial loan. Indeed, the creditworthiness of a debtor may even increase as a result of the assets he earns in the meantime. The same applies to the debts or capital imports that an economy acquires from the rest of the world.

In fact for the less developed economies of the developing countries this is even an absolute must. As these countries are only able to make very few savings, the only way for them to raise their labour productivity and lastingly increase their wealth is with the help of foreign capital.

The history of the so-called "four small tiger economies" has been a good example of this. This term was used to describe the emerging East Asian countries, South Korea, Singapore, Hong Kong and Taiwan. As late as the 1950s these countries were among the poorest nations on earth. South Korea in particular had to battle with high foreign debt for many years. However, despite the fact that none of these countries possess any notable stocks in primary materials, they have managed to evolve into successful industrial countries as a result of astute investment and the implementation of a relatively market-based economic policy. Even though at the end of the 1990s, their progress was tainted a little by speculation and long-delayed reforms – especially in the banking sector – overall, they are a good example of how a development strategy financed by capital imports can work. The same applies to Chile and Malaysia which have been able to extricate themselves from their previous mountains of debts through their own efforts

But even Western Germany can be cited as a positive example in this context. After the Germans had lost World War II, they were obliged for some time to take on foreign debt and relied on financial aid from the Marshall plan. However, by 1951 already, the deficit in their balance of payments had turned into a surplus. Since then Germany has mostly been a net exporter of capital. It was only after re-unification in 1990 with formerly Socialist East Germany that the German balance of payments moved into deficit again temporarily. This was mainly because of the huge amount of capital that was needed to modernize the run-down East German economy, something that would not have been possible without the help of foreign capital. In this respect, the deficit in the balance of payments could not be regarded as a sign of weakness in the export market.

The other countries of formerly Socialist Eastern Europe also require large sums of foreign capital to be able to re-build their dilapidated economies. We should not make the mistake of believing that this need for capital could be covered by printing new money because this would only result in inflation and not in new investments or in new jobs. Many Eastern European countries had to go through this bitter experience at the outset of the 1990s. It is only with the help of foreign capital that they can acquire the necessary capital goods with which to construct new modern production plants.

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Will International Competition Lead to Falling Wages?

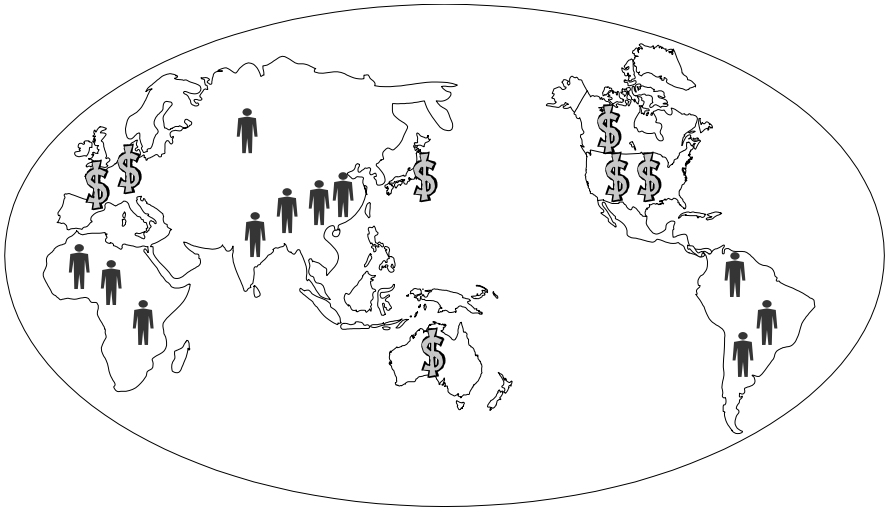
The Factor-Proportions Theorem

Many people are afraid of international competition, fearing most of all that cheap labour in other countries will take away their jobs. In Germany, workers maintain that they cannot compete with the low wages paid, for instance, in Korea or in the Czech Republic, especially as they also have far higher costs of living.

In order to assess whether these fears are justified, we have to go back a little. The first question we must ask ourselves is why certain goods can be produced more cheaply in some countries than in others in the first place. David Ricardo had attributed this phenomenon to the differences in the natural and technological conditions of production. It made sense that the Portuguese were more able to produce wine than the English, if only because their climatic conditions were more suited to this. On the other hand, English workers were better trained than their Portuguese counterparts and there were more modern machines and production techniques available in England. England's comparative cost advantages in the production of cloth were largely attributed to these factors.

Over time the share of agricultural products in world trade steadily declined and climatic advantages and differences in the fertility of land became less significant. Moreover, new techniques such as steam engines and the mechanical loom spread relatively quickly throughout the world, reducing the differences in the production techniques of individual countries. However, these developments did not lead to a decline in international trade; on the contrary, trade expanded, making it necessary to search for a more thorough explanation of the comparative cost differences between individual countries.

It was the Stockholm economist Eli Heckscher (1879–1952) who provided such an explanation in 1919. Heckscher was actually an economic historian who wrote a standard work on mercantilism that has not been surpassed up till this day. But it was only through an essay that he wrote in 1919 that he really became famous. Initially this essay was published only in Swedish. In 1933, Heckscher's pupil Bertil Ohlin (1899–1979) refined Heckscher's principles in a book written in English. In 1977 Ohlin was awarded the Nobel Prize in economics and the Heckscher-Ohlin theorem still belongs to the standard repertoire of any economics students learning about international trade.



According to the factor-proportions theorem capital-rich countries will export capital-intensive goods, whilst countries with many workers will export labour-intensive goods.

Heckscher's and Ohlin's theorem was based on the assumption that all economies disposed of identical production techniques. Moreover, it was assumed that all workers had identical skills and that differences in the quality of land were of no significance. Heckscher's and Ohlin's greatest achievement consisted in showing that even under such circumstances it was possible to conduct effective international trade.

The reasons for this are to be found in the respective endowment of an economy with capital and labour. Say, for example, Germany had a lot of capital whilst China had many workers but only little capital. Suppose also that capital and labour were immobile, i.e. they could not migrate from Germany to China or vice versa. In such circumstances, Germany would logically specialize in the production of those items that can only be produced capital-intensively such as cars or chemical products. Conversely, China would concentrate on the production of goods that are relatively labour-intensive, for example primary products or simple consumer goods such as plastic toys or ties.

Even though in principle the Chinese could also produce cars using the same techniques as the Germans, they would not do this. The reason is that these techniques require a lot of capital. In Germany, capital is abundant and therefore comparatively cheap; labour, on the other hand, is scarce in comparison to China and therefore more expensive. However, this means nothing other than that Germany has a comparative cost advantage in the production of capital-intensive goods, whereas China has a comparative advantage in the production of those goods requiring a lot of labour.

Heckscher and Ohlin were able to show that such differences in the quantitative availability of the production factors will give rise to the same advantages in free

trade as differences in production techniques do. Their discovery is also referred to as the factor-proportions theorem. It is worth noting that this is not a matter of a country having more workers or capital in absolute terms. The decisive thing is the ratio or proportion in which these factors are available in each country. According to Heckscher and Ohlin, relatively capital-abundant countries should and will export relatively capital-intensive goods, whereas countries with a greater abundance of labour will focus on relatively labour-intensive goods.

Factor Price Equalization and the Stolper-Samuelson Theorem

This explanation of international trade on the basis of the different relative factor endowments of countries gave rise to the entirely new question of whether and how international trade would influence the level of wages and interest rates in the individual economies. The answer to this question is provided by the theorem of factor price equalization. Even though this theorem can be derived almost directly from the factor-proportions model, it took another three decades after Heckscher's groundbreaking essay until this issue had been illuminated in its full complexity.

The basic principle had already been discovered by Heckscher and Ohlin and in retrospect it almost seems trivial. Suppose that Germany, endowed with an abundance of capital, really did begin to specialize in the production of capital-intensive goods such as cars and machines. In this case the Germans would obviously use up more of their initially abundant capital, thereby increasing its scarcity. As a result, German interest rates would rise.

The opposite would be the case in China that would specialize in the production of labour-intensive goods. Here it would be labour that would be becoming ever scarcer, resulting in an increase in wage rates. This means that it is the relatively abundant production factor in a country that will benefit most from international trade. This is because this factor is more in demand and will therefore become more expensive.

To take our example, interest rates will rise in Germany, whereas in China this will be the case with wages. This means though that ultimately, international trade will bring the prices of the factors of production of the countries involved back into line! Since labour was scarcer initially in Germany than in China, it can be assumed that wage levels were higher in Germany as well, at least in relation to interest rates. On the other hand, in China it was capital that was relatively scarce at first and therefore more expensive. However, as interest rates will go up in Germany and wages will go up in China, once the two countries have started engaging in international trade, the factor prices will eventually become identical in both countries.

Interestingly, this will even happen in a world where the factors of production cannot move. This is because if the goods themselves can move freely, trade in goods can be viewed as a substitution for factor mobility, which should then have a very similar effect.

If the rate of interest in Germany rose relative to the rate of wages, this would mean obviously that the wages of German workers would fall relative to the interest paid on German capital. If, for example, the initial German wage rate was 15 euros and the rate of interest was 10 %, this would be equivalent to a wage-interest ratio of 3 to 1. According to the factor price equalization theorem this ratio would decline as a result of international trade, say to a ratio of 2 to 1.

Even so, this still leaves open the question whether German wage rates will decline only in relation to the rate of interest or whether they will also fall in absolute terms. This is because the new wage rate ratio of 2 to 1 can arise in different ways. A positive example would be if wages rose, say, to 20 euros and interest rates to 10 %, because then both production factors would have gained. In principle this is quite conceivable because international trade brings gains in prosperity to all the countries involved, as we have already seen.

However, it could just as easily be that wages had fallen in absolute terms to 12 euros whilst interest rates had risen to 6 %. In this case the wage-interest ratio would have also fallen to a ratio of 2 to 1 except that now, there would be a winner and a loser. German capital would still profit in absolute terms, but German workers would now be paid less in absolute terms.

Which of these two cases will actually occur? The answer to this question can be found in an essay by Wolfgang F. Stolper and Paul A. Samuelson written in 1941. Stolper and Samuelson had both studied with Schumpeter at the University of Harvard and were among the first economists to tackle the complex problems of international trade theory with the help of a rigorous mathematical approach. Ironically, their essay that acquired such fame later, was not accepted at the time for publication by the American Economic Review, the leading economic journal up till this day. In fact Paul Samuelson, who has made many outstanding contributions in many areas of economics, was only the third economist ever to be awarded the Nobel Prize, in 1970. His textbook on general economics became so popular that it made him a multimillionaire.

The Stolper-Samuelson theorem actually covers the effects of the lifting of tariffs. However, it can be just as easily applied to international trade with a labour-abundant country like China and it will lead to a conclusion the German workers in our example will hardly like. This is that their wage rate will not only fall relative to the rate of interest but in absolute terms as well! The economy as a whole may well benefit from international trade – in other words, if each citizen were at the same time a worker and an owner of capital, his overall income would rise – but those workers who do not have any capital on which to earn income, will suffer a loss in absolute terms. Even though they will also benefit from the fact that the prices of goods are falling, this effect will by no means be strong enough to compensate for the loss in their wages. This is because less capital will be employed as a result of the rising rate of interest, which will, in turn, lower the productivity of German jobs and therefore also the real wage rate.

Does this mean then that workers in the industrial nations would be better off if their countries did not engage in international trade with the developing countries? There are people who will occasionally defend such an argument in

the context of debates on the issue of globalization, claiming that trade with the lower-wage countries literally forces the workers in the industrial countries to offer their labour for a mere pittance whilst the capitalists make a fortune.

However, we should be very careful with such a pessimistic interpretation of the Stolper-Samuelson-Theorem. First of all we should not forget that despite two centuries of intense world trade, wages have not fallen, in particular not in the capital-rich industrial nations. On the contrary, they have risen dramatically during this period, much more than in the labour-abundant developing countries. Technological progress and the constant improvement of capital endowment per job have played a decisive role in this. Moreover, about three-quarters of the industrial nations' foreign trade takes place among themselves and not with the low-wage countries of the Third World. For this reason alone, people would be making it too easy for themselves, if they tried to explain unemployment, for instance, on the basis of the Stolper-Samuelson theorem.

It has to be said though, that the theorem does not state that wage levels in the industrial nations will necessarily fall over time, but only that they would have risen faster, at least the wages of less qualified workers, if there had been no international trade with the developing countries. However, even if this were true, it would only apply under very specific conditions. Most importantly, we would have to assume that the industrial nations would continue to produce labour-intensive goods even after taking up international trade, albeit in lower quantities than before. In other words, the specialization of countries in the production of particular goods would not be perfect. To take our example this would mean that the Germans would continue to produce limited quantities of simple toys and ties even after they had taken up international trade with China. Only in this case would the Stolper-Samuelson theorem apply.

If, on the other hand, the comparative cost differences were so great between the countries in question that the industrial nations stopped producing labour-intensive goods entirely, the result would be quite different. It is quite possible then that the real wages of the lower-qualified workers in the industrial nations would rise as a result of international trade and not fall, in particular if workers improved their skills and thereby increased their productivity. This is because if people want to produce capital-intensive goods like cars and machines, they will need highly skilled workers, who will be accordingly better paid.

Globalization and Dynamic Competition

There is another aspect to consider. Just like the Heckscher-Ohlin model, the Stolper-Samuelson theorem is based on a very static view of the economy and does not take account of the possible effects of international trade on technological progress and the formation of capital. This was one of the arguments that had, quite rightly, been put forward against the classical foreign trade theory, among others by Friedrich List.

List pointed out that, of all things, it was the intense competition with other countries that released otherwise undiscovered national productive powers. Even though he used this argument to justify his somewhat controversial urge for a policy of punitive tariffs and economic protection for young industries and nations, his basic idea that one could not simply regard an economy's endowment with capital and technical know-how as given variables was entirely correct. On the contrary, these variables depended for their part on the economic framework conditions, among other things on the intensity of competition with other economies. If this competition boosted the productivity of labour, the workers in the industrial nations would ultimately benefit from it as well. Economic history so far has proven that at the end of the day this positive effect will prevail.

A dynamic study of international trade also explains why cars, for instance, are simultaneously exported from Germany to Italy and vice versa. This is referred to as intra-industry trade, as opposed to the exchange of entirely different goods, which classical international trade theory dealt with for the most part. Intra-industry trade between the industrial nations has in fact become far more important nowadays than the classical exchange of different products. This is linked to the fact that, on the one hand, consumer desires are becoming more and more differentiated and that, on the other hand, technological progress constantly brings forth new product variations and innovations. Thus, England and Portugal no longer just exchange textiles and wine as they used to do in Ricardo's days, but they trade a large amount of goods that can be very similar and are produced in both countries simultaneously.

What does this development imply as regards the problem of globalization? Obviously, the capital-abundant countries have it largely in their own hands how international competition will effect their workers' wage-levels. In particular, they will have to remain permanently innovative and concentrate on the production of those items where they can make the most of their specific advantages. On the other hand it will make little sense for the capital-abundant countries to hold on to labour-intensive industries such as the textiles industry, solely on superficial employment grounds. For if the products in question can be produced more cheaply elsewhere, they should be imported from there.

Importing such products does not have to be a disadvantage for workers if the industrial nations continuously invest in their training and if necessary even re-educate them. In fact, only in this way can wages remain high in spite of pressure from international competition. What will happen though, some will say, to those workers who for whatever reason are only able perform very simple tasks? Well, in future they will have to look more for employment in the services sector in the industrial nations than in industrial production itself. This sector offers a multitude of comparatively simple jobs that are nonetheless in high demand, for instance in catering and in the cleaning industry as well as in numerous other services. Since services cannot be imported, this sector is less vulnerable to the competitive pressures coming from the lower-wage countries.

Luckily, the richer nations can afford such extensive service sectors. In fact, according to what is called the three-sector-hypothesis, it is the service sector that

is expanding most strongly in the highly developed economies. Therefore, if there is a problem of high unemployment among less qualified workers, it is in this sector that solutions are most likely to be found.

By contrast, it would be entirely wrong for countries to try and protect themselves from the competition of the lower-wage countries by erecting protectionist trade barriers. For one thing this would be unjust towards the workers in the lower-wage countries, who, after all, live in much greater poverty than we do. Secondly, this would be a very short-sighted move even as regards our own interests. For as the prosperity of an economy as a whole clearly decreases if it cuts itself off from the world market, we would be making it far more difficult to help those on the margins of society. Even though some workers would maybe receive a larger share of the national product, all in all there would be less to go round than if a country's border remained open. Indeed, there has not been a single example of a country that has been able to increase the standard of living of its workers by cutting itself off from the world market. In particular the more protectionist countries have had to pay a heavy price for such policies in terms of losses in productivity and falling standards of living.

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Globalization and Competition Between Locations

Mobile Capital – Falling Wages?

Up till now we have mainly dealt with international trade in goods. However, not only goods move from one country to another, but also the production factors, labour and capital. Capital in particular can be moved to almost any place in the world nowadays. And even workers no longer have to limit their search for a job

to their home countries, especially not those who are highly qualified. As we shall see, it is in particular the mobility of labour that can give rise to problems that do not occur in trade with goods.

Let us deal first of all with the effects of the international mobility of capital. Most of the economic classicists held the view that the movement of capital between countries would always benefit both the country of origin and the country of destination. Let us assume, for example, that German capital flowed to the USA. Obviously, this would only happen if investors earned a higher dividend in the USA than in Germany. If this were the case, German savers would do better to invest their money abroad rather than at home. However, the USA would benefit as well because the inflow of foreign capital would boost investment and the creation of jobs there. So in this sense, both countries would make a gain.

Thus, in the view of the classicists, the mobility of capital promoted economic welfare. In terms of the international division of labour, it could only be an advantage if capital always moved to where it would yield the highest dividend. Adam Smith, David Ricardo and John Stuart Mill did not deal with this issue in very great depth though because at the outset of the 19th century, capital was not yet as mobile as it is now. In those days, capital mainly moved from the European countries to their respective colonies. Moreover, the risks involved with foreign investments were very high and there were also a number of legal restrictions in place on the import and export of capital between industrial nations. Indeed, it was only very recently that such restrictions still represented a significant barrier within Europe to the international movement of capital.

As it happened, the mobility of capital poses far more problems than may at first appear. Even Adam Smith had realized that it could alter the distribution of income in the countries in question. In other words there would be winners and losers, just like there were with trade with goods.

Let us illustrate this, taking our example of German exports of capital to the USA. Assuming that these exports are triggered by the prospect of higher dividends in the USA, they will eventually lead to interest rates going down in the USA and going up in Germany. Obviously, capital will become ever scarcer in Germany, whereas in the USA it will become ever more abundant.

But that is not all. Wage levels will also change in both countries, and they will develop in exactly the opposite direction to the rate of interest. In other words, the movement of capital from Germany to the USA will tend to push wages down in Germany, whilst in America wages will rise! The word "tend" implies that this effect can be masked by other influences such as technological progress. Whatever the case, it is immediately evident that it is not necessarily in the interests of the workers if a country exports capital abroad. This can quite possibly lead to job losses at home, and the remaining jobs may become less productive than if the capital had not been exported. Either effect can imply that the workers in the exporting country have to make concessions in terms of their wages in order to keep their jobs.

Against this backdrop it is understandable why people are so afraid of the phenomenon of the globalization of the financial markets. In this day of computers

and the internet, it is no longer a problem for a capital investor to move his savings within seconds to any country in the world. Even more importantly, multinational firms can transfer their investments as it suits them to those countries where the highest dividends are paid. Therefore, in particular in the European countries there is the fear that the current high wage levels and social benefits cannot be maintained in the long term.

Is the Competition between Locations a Zero-Sum Game?

Nowadays, international competition between locations is characterized above all by the immobile production factors on the one hand competing for the mobile production factors on the other hand, in particular for capital. In contrast to the 19th century, in our modern world technological knowledge can be deployed to more or less the same extent in every country. The same car manufacturing plant that creates jobs in Germany could theoretically also be built anywhere else in the world. And since capital is far more mobile nowadays than it used to be, it has become much more important to create favourable investment conditions at home.

This can perhaps best be illustrated as follows. Imagine that individual countries were like islands the workers had no possibility of leaving. Say, on the other hand, international capital was like an amphibian which could swim from one island to another, like a seal for instance. For the islands' inhabitants, everything would then depend on their being able to establish an optimal stock of seals. They could do this either by rearing seals themselves or by trying to catch approaching seals. In either case they would have to ensure that the seals always had enough fodder and that the island's environment was suited to the seals' needs, otherwise the approaching animals would avoid the island and any existing stocks would eventually die out. Under no circumstances should the island's inhabitants try to lock up the animals by force, because there is nothing that seals tolerate less than not being free, in particular if this is coupled with mediocre living conditions.

Things are no different with international capital. On the one hand, it needs to pay sufficiently high dividends, on the other hand, it has to be ensured that capital can leave a country again once these dividends are no longer so high. Occasionally, people insist that capital should remain in the country in which it was earned so as to boost the creation of new jobs there. On the one hand, this argument is understandable, on the other hand, it is somewhat na"ve. Because at the end of the day, investors will only be encouraged to invest their money in their own country if they can earn enough dividends there.

Now, it would be wrong to believe that for this to happen, wages and social benefits would have to be lowered all the time. Most importantly, wages in the industrial countries would not have to be brought into line with those in the developing countries, as is sometimes feared. After all, the conditions of investment in a country are also influenced by other factors, for instance by the level of education among the working population, on how well a country is equipped with roads and

other infrastructures and not least by its social and political stability. Because what use are low wage levels to international investors if workers are badly qualified or unreliable, or if strikes or even political unrest are common occurrences? Even the seals in our example will not take account only of their fodder but also of their living conditions as a whole.

Most of the old industrial nations have definite advantages in this respect over their new competitors on the world market. They can bring an extensive infrastructure, qualified labour and stable economic and political framework conditions to bear, and the more carefully they protect and expand these advantages, the less they will have to worry about possible outflows of capital.

There is another very important aspect to consider, however. International capital is no given variable where one country's gain is equal to another country's losses. On the contrary, the greater the overall range of profitable investment opportunities, the more capital will be accumulated throughout the world. Moreover, as prosperity rises in the emerging economies, they will begin to save more over time. This means that sooner or later they will be able to cover their need for capital largely from their own savings or even become exporters of capital themselves. International competition between locations is therefore just as little a "zero-sum game" as international competition on the markets for products. In the long term, all the participating countries will benefit!

However, this depends not least on the in-flowing capital being invested as efficiently as possible and on its not being wasted on the financing of short-term consumer wishes. Regrettably, there are plenty of negative examples in economic history in this respect. And by no means do they only apply to the developing countries or the Eastern European countries after the downfall of Socialism. Even a mature industrial nation like the USA used its high capital imports at the beginning of the 1980s mainly to finance the Federal budget instead of spending it on investment and the creation of jobs. Those were the days of the USA's so-called twin deficit, i.e. a deficit in both the balance of payments and in the Federal budget. It was only after stringent measures had been adopted to rectify the government's finances, that the number of jobs began to pick up strongly again in the United States during the second half of the 1980s.

We should therefore not consider the mobility of capital as something negative. On the contrary, it should be regarded as a salutary force to promote the adoption of a sound economic policy at home. Just like competition among companies stops firms from falling into a rut and into mismanagement, competition between locations forces governments to take account of investments and jobs in their economic policy.

Migration of Labour

Let us now turn to the problem of the migration of people from one country to another. For not only has capital become more mobile over time but also labour to

a certain degree. In the European Union, for instance, almost all the legal barriers that a Frenchman would have encountered in the past if he had wanted to work in Germany, have been removed. Likewise, people are also free to choose where they would like to live within the European Union. In other parts of the world similar efforts are being made to open up national borders for job seekers. This means that land itself remains the only really immobile production factor as well as, to a certain degree, the buildings and plants that have been built on it. It is not for nothing that the Germans use the term "Immobilien" for such items.

Basically, the migration of labour follows the same principles as the movement of capital and it also has similar economic consequences. If, for instance, Portuguese masons move to Germany, wages in the German construction sector will tend to go down, whereas in Portugal they will go up. As a rule, the Portuguese will only come to Germany if wage levels are higher there than in Portugal. Thus, over time wages in both countries will approximate each other until they are, to take the extreme case, exactly equal, i.e. at a middle level.

However, because people have roots in their country and because of linguistic differences, the international mobility of labour is limited. Therefore, as a rule, the above-described approximation of wages will not be perfect. Moreover, the trade unions in the high-wage countries will frequently resist the immigration of workers. They will either try to keep wage levels high at home on the basis of collective agreements or they will exert pressure on policy makers to prescribe legal minimum wages. From their point of view this may be understandable, but as regards the economy as a whole, this is somewhat questionable.

It must not be forgotten that when wage levels are low in the construction sector, the price of housing and rents will fall as well in the country in question. This means that there will not only be losers in the country of immigration but also winners. In our example this would be everybody living in that country apart from the construction workers themselves. Furthermore, those Portuguese workers who have migrated to Germany will also benefit as they are being paid better in Germany than they would be at home. On the other hand, wages and the prices in the construction industry in Portugal will rise, which means that at least those Portuguese people who do not work in the construction sector will suffer. Is it possible to draw a conclusion from all these effects that argues either clearly in favour of or clearly against immigration?

It is not easy to draw such a conclusion, even if we take account of the overall prosperity in both counties. Even though one would assume that workers should migrate to the country where they expect to earn the highest wages, because this is where they will make their greatest contribution to the national product, there are other effects on economic welfare that need to be taken into account as well, that are not always automatically reflected by the wage rate. For example, there may be negative effects from regional overcrowding, such as heavy pollution and the existing infrastructures no longer being able to absorb the rising population. Conversely, in the emigrant countries, per-capita income might fall, resulting in a vicious circle that will ultimately result in the complete impoverishment of the regions in question.

The problem is that such a development can occur even if from the point of view of the economy as a whole, this would not actually make sense. Suppose the population were at exactly the right level in the immigrant country as to allow everybody to enjoy as high a standard of living as possible. In the emigrant country, on the other hand, the population was too low to reach the optimum rate of division of labour. Living standards would be lower there than in the immigrant country, hence there would a strong incentive for people to move away.

However, if people really migrate extensively, prosperity will drop in both countries! This is because in the immigrant country, the rising population will make it impossible to keep up the standard of living enjoyed so far, whilst in the emigrant country the division of labour will become even more difficult than it was before. Thus, from the point of view of the economy as a whole, the migration of labour can result in losses in welfare even though the migrants themselves may benefit. Incidentally, this does not only apply to countries but also to individual regions within countries, which is why corrective measures at regional level can be economically justified.

At a concrete level, it depends very much on what type of migration we are talking about. When there was a shortage of unskilled labourers in Germany during the 1960s, it made sense to invite workers from Italy, Greece and Turkey into the country. Later, when unemployment among German low-skilled workers was high, such a policy would have posed far more problems. Nonetheless, Germany would still benefit from the immigration of highly skilled doctors or technical experts, for instance. In fact many countries make the immigration of foreign workers conditional on whether they experience a shortage of the skills that these workers offer.

We have to be equally discriminating when examining this problem from the point of view of the emigrant countries. In many developing countries there are far too few highly qualified experts and far too many unskilled workers. The problem is that of all people, it is the highly qualified experts that are the most mobile in general, and many of them will try and settle in the industrial countries where they will enjoy a higher standard of living. People refer to this as the brain drain. What they mean is the migration of well-educated, highly qualified people from poorer countries, where they are in fact needed most. It can therefore also be in the interests of the emigrant countries to provide their working population with incentives not to move abroad.

To sum up, the migration of labour poses far more problems than the movement of capital. In case of doubt it is always preferable to raise productivity in the poorer countries through an inflow of capital rather than encourage the migration of large sectors of the population to more prosperous countries.

One of the organizations that has dedicated itself to this task is the World Bank. The World Bank was established in 1944 on the occasion of the famous Bretton Woods conference, which we shall be dealing with in the following section. The World Bank works according to a very simple principle, borrowing private capital on the international markets, on the one hand, and transferring it immediately to the developing countries, on the other hand. The point of this exercise is that

the World Bank is more creditworthy than the developing countries and it can therefore borrow capital at relatively low interest rates. It passes this advantage on to the debtor countries, although not without imposing strict requirements to ensure that the money is used productively. The success of the World Bank's policy in terms of development policy is not entirely undisputed, but in principle it is preferable that capital migrates rather than people.

Not least, we have to take into account when discussing labour migration, to what extent the cultural, religious and linguistic circumstances of countries can be compared. The less these differ from one another, the more the migration of workers will seem an alternative to the movement of capital and the exchange of goods between economies. In this sense the free movement of workers within Western Europe or within North America cannot be regarded as the same thing as the immigration of people from other cultures to these regions.

This brings us to the limit of what we can say about labour migration in purely economic terms. This issue is still the object of intense discussion among economists, and in politics it can give rise to great controversy. In view of the differences in population growth and the enormous discrepancy in prosperity in the world, this issue will most likely become more acute in the future. We shall come back to it further on in this book when discussing the problems of pension policy.

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The History of the Currency System

The Gold Standard and its Demise

In 1974, for the first time since the Great Depression of the 1930s, another spectacular bank collapse occurred in Germany, with the largest German private bank, Herstatt, having to close down from one day to the next because of bad speculation on the foreign exchange market. The backdrop to this crisis was a massive fall in the rate of the dollar, to an extent that seemed to have no economic rationale. Even though, unlike the 1930s, a general run on the banks was avoided this time, this was nevertheless the greatest financial scandal that post-war Germany had witnessed until then. And even though many of Herstatt's creditors were finally compensated, from then on, the foreign exchange transactions of the banks underwent much tighter controls.

All this happened during the period immediately following the break-down of the then prevailing world currency system. This system had been put on an entirely new footing for the post-war world as early as 1944, in a small American town named Bretton Woods. The Bretton Woods system represented a compromise between the ideas of the then leading economic powers, America and the United Kingdom. On the American side the negotiations were led by Harry Dexter White, the deputy of Finance Minister Morgenthau. The UK was represented by none other than John Maynard Keynes. It was one of those rare occasions when a famous economist was directly involved in economic policy decisions of a fateful significance. At the end of the day though it was the White Plan that was carried through in first place.

In order to pay proper tribute to the importance of the Bretton Woods agreement we must take a look at how the world currency system was constructed before the Second World War. Those were the days of the gold standard that was based on a very simple principle. A country was said to be on the gold standard when its central bank was obliged to exchange its currency for gold at a fixed rate whenever it was presented. In 1934, for instance, the U.S. dollar was convertible into gold at 35 dollars per ounce, whilst in Germany an ounce of gold was exchanged by the Deutsche Reichsbank at a guaranteed rate of 147 Reichsmarks. The par rate of exchange therefore amounted to 4.20 Reichsmarks for 1 U.S. dollar.

This rate could only fluctuate within very narrow limits. Say, for instance, the dollar rose for some reason by 10 % on the foreign exchange market, i.e. to 4.62 Reichsmarks. In this case it would obviously be profitable to buy an ounce of gold from the Deutsche Reichsbank at the fixed rate of 147 Reichsmarks and then to send this gold to the USA and sell it there to the American Central Bank for 35 dollars. On the free foreign exchange market, these 35 dollars would fetch just under 162 Reichsmarks at an exchange rate of 4.62. Thus, the initial 147 Reichsmarks could have been quickly converted into 162 Reichsmarks at no risk at all!

It goes without saying that under these circumstances everybody would try to make such risk-free profits on the basis of what we call arbitrage. If the dollar

The Bretton Woods Conference in 1944 established the basis of the currency system for the next thirty years. In the middle is John M. Keynes, who led the negotiations for the United Kingdom.
(Picture W. Hankel, John Maynard Keynes, Munich/Zurich 1986, p. 73)

rate was high, more dollars would be offered in exchange for Reichsmarks on the foreign exchange market. However, as a result the dollar rate would immediately start falling again until it was eventually back at 4.20 and arbitrage was no longer possible.

That the dollar rate was able to fluctuate at all a little went back exclusively to the cost of the transport of gold between countries that was necessary to conduct the arbitrage business. However, if the differences between the central banks' guaranteed rates and the market rate were not very significant, arbitrage transactions were no longer worthwhile. People therefore also referred to gold or specie points that denoted the limits between which the exchange rate of the dollar on the gold standard could fluctuate.

This mechanism did not require any international agreement on the rate of the dollar or on the rate of any other currency for that matter! The only important thing was that every central bank guaranteed a fixed price for gold in its own currency. Everything else more or less regulated itself. Moreover, the gold standard had the further advantage that it almost automatically ensured equilibrium in the balance of payments of every country.

Assume, for instance, that in terms of value the Germans had imported more products than they sold as exports on the world market. The result would have been an excess supply of Reichsmarks on the foreign exchange market because the Germans would have only been able to pay for their surplus imports in Reichsmarks. As a result, the rate of the Reichsmark would have fallen whilst the rate of the other currencies, for instance of the dollar, would have risen. This in turn would have led to outflows of gold from Germany due to the arbitrage mechanism. The Deutsche

Reichsbank would have had to take immediate measures to prevent the loss of all of its gold reserves.

But what could it have done about this? The most obvious option would have been to raise its interest rates, especially the minimum lending rate, which in those days was the most important instrument the banks had at their disposal to influence how things went. With this the Reichsbank could have achieved two effects simultaneously. On the one hand, higher interest rates were an incentive for foreign owners of Reichsmarks to invest their stocks on the German capital market instead of having them converted into gold by the central bank. On the other hand, high interest rates meant that the German commercial banks did not need so much cash, i.e. the German money supply declined. Most central banks were even obliged by law to reduce the money supply if their gold reserves declined. In Germany, the so-called "triple-backing" rule applied, that is, the quantity of Reichsmarks in circulation was not permitted to be higher than three times the gold reserves. We have already dealt with the monetary-policy background of this rule in the context of the Banking-Currency-Controversy of the 19th century.

This brings us to the last step in the chain of effects of the gold standard. Going by the quantity theory, if the money supply declined in Germany, price levels would eventually fall proportionately. Conversely, the fact that gold was flowing to other countries meant that the money supply in these countries expanded and that prices rose. As a result, German products became relatively inexpensive, whereas the goods imported by Germany became expensive. The whole process would only come to an end once the balance of payments had returned to equilibrium and the outflow of gold had ceased. If all the issuing banks adhered to the rules of the gold standard, lasting deficits in the balance of payments would be just as impossible as severe fluctuations in the exchange rates.

It is true that the era of the gold standard before the First World War was one of thriving world trade, stable exchange rates and widespread price stability in the larger industrial nations. Why then did it break down between the two World Wars? And why did the Bretton Woods conference of 1944 not try and set it up again?

The demise of the gold standard was closely linked to the Great Depression, which led to the large industrial nations devaluing their currencies one after another and eventually repealing the obligation to convert paper currency into gold altogether. It was the UK that started off this process in 1931 with the devaluation of the pound sterling, hoping that exports would benefit from a low gold value of the pound and thus revive the economy. Furthermore, the 1930s were characterized by falling price levels in most important countries. This general deflation could only be halted if more money was put into circulation, which, in turn, was only possible, given the current gold reserves, if more paper money per unit of gold was spent.

However, the initial result of these competitive devaluations was that world trade shrank. This was because the initial export advantages of the devaluing country were soon offset by similar currency devaluations in other countries. The consequences were wild currency speculation and a renaissance of protectionism. The Germans in particular indulged in unfair trading practices. Under Hitler's Minis-

ter of Economics, Hjalmar Schacht, new regulations on trade in goods and capital were issued so rapidly one after the other that they could hardly be translated into other languages quickly enough. It is said that the relevant dossiers piled up higher on the floors of the American interpreters' offices than the tops of their desks.

By the end of the 1930s the worst had been overcome for the moment. There was far more paper money in circulation overall now and it seemed that the general lack of liquidity had been resolved for the time being. This had also been prompted by the fact that many countries had by now gone over from the pure gold standard to the gold exchange standard, which meant that apart from gold, foreign currency could also be used to back the creation of money at home, in particular dollars and the British pound. But then the Second World War began and with it the final demise of the gold standard.

Bretton Woods and Triffin's Dilemma

At the Bretton Woods conference in 1944 the 44 participating nations founded a new world currency system that was supposed to avoid the disadvantages of the former gold standard. In principle this new system was also based on a gold exchange standard, only now the dollar had become the most important reserve medium and only the dollar was still convertible into gold. In contrast to the gold standard the obligation to convert no longer applied to private persons but only to the issuing banks. From then on people also referred to the dollar standard, meaning that the dollar had become the key currency of the world currency system.

Thus, the Bank of England, for instance, could now present its stocks of dollars to the American central bank at any time and demand to have them converted into gold at the pre-war rate of 35 dollars per ounce of gold. The pound sterling and all the other currencies, on the other hand, were defined in terms of the dollar, i.e. the exchange rates or parities were fixed by international agreement. In 1951, for instance, the official exchange rate between the pound and the dollar was 2.80 dollars per 1 £ and the dollar was worth 4.20 Deutschmarks. This meant that a pound cost just under 12 Deutschmarks. Fluctuations around the agreed par rate of plus or minus one per cent were permissible but changes in the par rate itself could only be made in the face of serious balance of payments problems. These measures were intended to avoid the kind of competitive devaluations that had taken place the 1930s. In order to monitor the situation, the International Monetary Fund (IMF) was established and any change in the par rate had to be agreed by the IMF.

One significant advantage of the Bretton Woods System was that the world's money supply was now no longer limited by the world's gold reserves. If world trade expanded and more international liquidity was required, this could be ensured very simply by the American issuing bank injecting more dollars into circulation. Thus, the USA was the only country that was able to create international liquidity itself, an

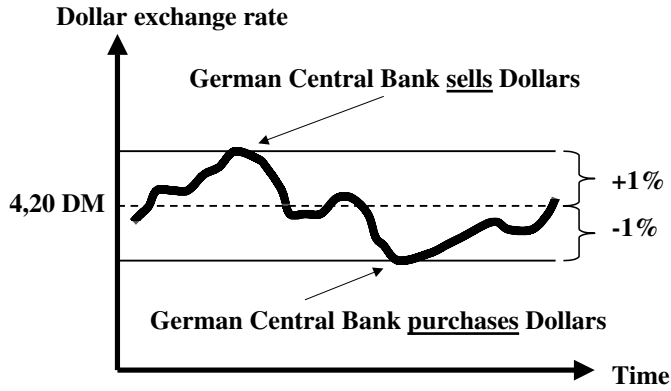
advantage that it subsequently made great use of. The Vietnam War, for instance, was financed in part simply through the printing of new dollar bills.

The American gold reserves were in no danger as long as the other issuing banks held the new dollars as reserves and did not present them for conversion into gold. In effect, the other issuing banks co-operated with this system for many years because they needed these reserves in dollars in order to keep the agreed exchange rates of their currencies within the fixed limits.

Let us turn now to the problems of the Bretton Woods System, that manifested themselves increasingly over time and finally lead to its demise in 1973. We must bear in mind that to agree on a particular exchange rate is one thing, but that the actual development of the value of a currency on the foreign exchange market is an entirely different matter. Take the example of Italy. The initially agreed rate of the lira soon revealed itself as far too high. This was because the Italian issuing bank did not manage to combat the depreciation of its currency effectively. As a result, Italian products became too expensive on the world market, putting the lira under pressure. According to the rules of the Bretton Woods System, the Italian issuing bank was obliged take appropriate counter-measures.

One possibility was to raise the rate of interest, as would have been the case under the system of the gold standard. However, the Italian issuing bank was not very keen on this option because it would have dampened the domestic economy. At that time all the issuing banks had subscribed themselves, in the true spirit of Keynesianism, to a monetary policy geared at expanding the economy.

The second option was to intervene on the foreign exchange market in favour of the domestic currency. This would have meant that the Italian issuing bank would have had to buy lire, which it could only have done if it had sold off some of its stocks of international currency reserves. However, these reserves, in particular the dollar reserves, were limited and could quickly become depleted. Even though



In the Bretton Woods System the central banks were obliged to intervene in the foreign exchange market if their currencies rose or fell in relation to the dollar. Fluctuations were only permissible within a narrow margin of plus or minus 1 per cent around the agreed par rate.

the Bretton Woods System foresaw the possibility in this case of obtaining short-term loans from the International Monetary Fund, this would not have been a long-term solution for such a fundamental balance of payments disequilibrium as Italy's that was not only caused by temporary difficulties.

Thus, there remained only the third option and that was to devalue the lira. Not only the Italians had to take this measure on several occasions, but numerous other countries with very high inflation rates had to do the same thing.

Even countries with relatively stable prices soon ran into difficulties as well, in particular Germany. Owing to their negative experiences with inflation the Germans tried from the very beginning to become a model country in the area of monetary stability. This was often smiled at by their neighbouring countries, which accused the Deutsche Bundesbank of suspecting inflation underneath practically every cobblestone. However, events would later prove the Bundesbank right.

What exactly was Germany's problem with the Bretton Woods System? Obviously, there was no shortage of currency reserves. On the contrary, since the Deutschmark was under constant pressure to be revalued, the Bundesbank had to sell Deutschmarks all the time for dollars on the foreign exchange markets. As a result, Germany's currency reserves grew steadily, in particular its dollar reserves. The Bundesbank was not too happy about this because the Deutschmark-stocks that had to be sold off as a result of intervention increased the German money supply and jeopardized price stability.

Quite appropriately, people referred to this as imported inflation. After all, the reason why the Deutschmark was under such pressure to be revalued was because other countries were not so particular with the stability of their currencies. It was precisely these currencies that the Bundesbank had to support on the foreign exchange market by selling off Deutschmarks. In this way, the Bretton Woods system was practically forcing the Bundesbank to go along with the inflationary policy of other countries by expanding its own money supply.

Again, the only alternative that remained was to change the par rate, which in this case of course meant a revaluation of the Deutschmark. The Germans managed thereby to more or less dodge international inflationary pressure several times. This was not easy to push through at political level, because the real purpose of the Bretton Woods system was, after all, to keep the par rate as stable as possible. Thus, there was a conflict between internal monetary stability, on the one hand, and external stability, on the other hand, in terms of the stability of the exchange rate.

There was much debate in Germany as to which of these two goals was more important. Industry in particular wanted to hold on to the undervaluation of the Deutschmark so as not to jeopardize its success on the export market, a view which enjoyed much support among politicians and the public. The whole issue came to a head at the end of the 1960s in a huge conflict between the government and the autonomous Bundesbank that had committed itself in first place to maintaining price stability. However, by this time, the entire Bretton Woods System was already on its last legs. After the final few revaluations of the Deutschmark and some

desperate attempts to repair the fixed-parity system, the world finally moved into the era of flexible exchange rates in 1973.

Why was it that the system of fixed parities that had been established with such enthusiasm in 1944 finally failed? There can be no doubt that one of the reasons was that countries did not adhere to the rules of the system. The weak-currency countries preferred to devalue their currencies instead of combating the real causes of the depreciation of their currencies, namely inflation at home. The strong-currency countries, on the other hand, preferred to revalue their currencies so as not to get infected with the general inflation bug. Under such circumstances it was hardly to be expected that exchange rates could remain stable long-term.

Apart from that, however, Robert Triffin (1911–1993), an economist born in Belgium who later emigrated to the USA, drew attention as early as 1959 to a fundamental error in the construction of the system. On the one hand, it was only possible, due to the limited gold reserves, to provide the liquidity required for world trade by injecting more dollars into circulation. On the other hand, this meant that the USA had a permanent balance of payments deficit. How otherwise could the USA have distributed their dollars throughout the world other than by simply giving them away? The problem was that these persistent deficits in the American balance of payments undermined people's confidence in the dollar as the reserve currency.

Two possibilities were discussed in those days to try and avoid the Triffin dilemma. One possibility was simply to raise the price of gold to the exact extent that more liquidity was needed by the expanding world economy at current price levels. Then more dollars could have been put into circulation for each ounce of gold which would have solved the liquidity problem. The main drawback with this solution was that it would have benefited in particular the gold-producing countries. The fact that these countries were principally South Africa and the Soviet Union obviously did not make this option any more attractive.

Triffin himself suggested creating an artificial currency in addition to gold and the dollar, which was put into effect in 1969 in the form of special drawing rights. These were special lines of credit at the International Monetary Fund that were distributed to the individual member countries without any service in return. Initially, a special drawing right was equivalent to 1 dollar at the gold rate of exchange of 35 dollars per ounce of gold. People therefore referred to this right as so-called paper gold because just like real gold it could be used as a means of payment, albeit only among the issuing banks.

Special drawing rights still exist today, and in particular the developing countries have requested on many occasions that their volume should be increased, preferably to their advantage. Today, however, the value of a special drawing right is no longer linked to gold and since 1974 it has been valued in terms of a "basket" of currencies that includes the most important currencies in the world.

All the same, the special drawing rights were introduced too late to be able to hold back the fatal consequences of the Triffin dilemma. The glut of dollars had already become too great, which meant that the convertibility of the dollar into gold had only been but a thing on paper for already a long time. Never would the USA have been able to raise enough gold in order to meet their commitments had

they been requested to do so. The other central banks ignored this problem for a long time and would certainly never have dared to put it to a test. Everybody was walking the same imaginary tightrope, as it were, that would have vanished instantly, had anybody ever looked down to the ground.

Fixed Exchange Rates Cannot be Enforced

Private investors were less willing than the issuing bank simply to bury their heads in the sand and gradually, they lost their confidence in the stability of the dollar. Eventually, the price of gold began to rise above the official parity of 35 dollars and in 1968, the monetary authorities gave up their intervention policy of keeping it at this level. Only for transactions between the issuing banks was the official gold price still maintained. The result was a divided gold market and this was the beginning of the end for the Bretton Woods System.

What followed was ever stronger speculation against the dollar. The French central bank was the first finally to lose its nerve, requesting conversion of its dollar reserves into gold and causing the last floodgates to open. On 15 August 1971 the USA had to withdraw officially their commitment to convert into gold as unfulfillable, bringing the system practically to an end. Some tried to hold it up for a little longer without the gold anchor and with greater margins of fluctuations of 2.25 % in exchange rates, but by now the speculators had tasted blood. The value of the dollar continued to fall and after several devaluations, policy makers finally went over to flexible exchange rates in March 1973.

The most important lesson to be learned from the failure of the Bretton Woods system was this. If we want to ensure fixed exchange rates between currencies, it is not enough simply to agree on this, because an exchange rate is a market price that is ultimately determined by supply and demand. Even though the central banks can influence this price to a limited extent by acting themselves as buyers or sellers on the foreign exchange markets, if the economic fundamentals of the countries involved, especially the inflation rate, deviate too far from one another, this will no longer work. In such a case, international movements of capital can easily develop into a raging torrent that will sweep away all artificial dams erected to defend the exchange rates.

There is thus only one possibility of guaranteeing true exchange rate stability and that is that countries must avoid disequilibrium in the balance of payments by means of a sound economic policy and by ensuring as low an inflation rate as possible. Only in this way is it possible to establish lasting confidence by the markets in the stability of the exchange rates and to rob speculation of its most important source of nourishment. In the following chapter we shall see how far monetary policy makers took this lesson to heart after the collapse of the Bretton Woods system.

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Why Does the Dollar Rate Fluctuate?

The Purchasing-Power Parity Theory and its Limits

The story of the Bretton Woods system is an example of how little even the combined powers of all the major central banks can do to counteract the market forces. Even today our experience with Bretton Woods serves as a warning against the belief that stable monetary conditions can be imposed simply by decree.

As is so often the case, after the collapse of the Bretton Woods system policy makers tried their luck with exactly the opposite. Long before Bretton Woods broke down renowned economists like Milton Friedman had called for floating exchange rates, determined only by the forces of supply and demand. Even the German Council of Economic Experts, the counterpart to the American Council of Economic Advisors, subscribed to this plea. So now was the time to put this suggestion to a test.

One of the main advantages of the new monetary system was that strong-currency countries like Germany were no longer forced to import inflation from abroad. As exchange rates were now flexible, the Bundesbank no longer needed to intervene in the foreign-exchange markets and therefore regained control over the domestic money supply. Even if prices continued to rise abroad this did not automatically have to result in price increases at home, since inflation abroad, it was argued, would push up the exchange rate of the Deutschmark correspondingly. However, the prices of foreign goods, expressed in Deutschmarks, would then have to fall by exactly as much as they had become more expensive in domestic currency. For

Germany this would mean that the prices of imports in Deutschmarks remained practically unchanged.

These views were based on what was called the purchasing-power parity theory that had its source in the writings of the 17th century but only came into prominence through the writings of the Swedish economist, Gustav Cassel (1866–1945). Cassel was the founder of the so-called Stockholm school of neo-classicism. His pupils included among others Eli Heckscher and Bertil Ohlin, whom we have already got to know when discussing the factor proportion theorem.

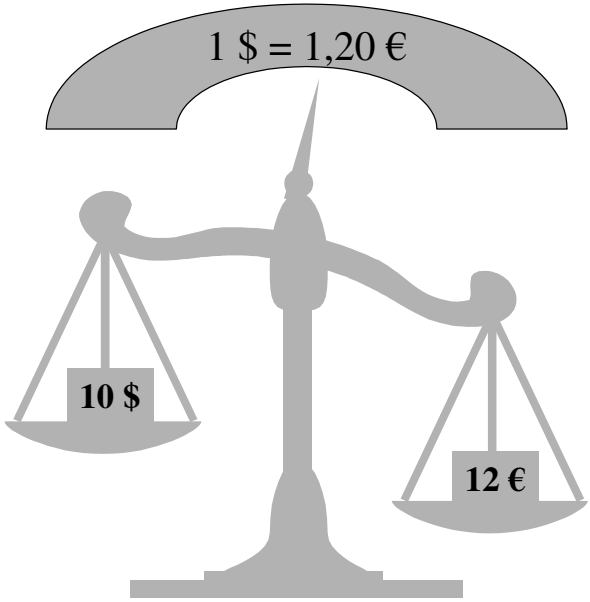
In its absolute form, the purchasing-power parity theory implies that the price levels of two countries, if converted at a particular exchange rate, will always be the same. If the average price of all American products amounted to roughly 10 dollars and the average price of all German products to 12 euros, the exchange rate of the dollar would be 1.2 euros. This is based on the assumption that the price of each individual product should be the same everywhere, at least if the costs of transportation are not taken into account. This is also referred to as the international correlation of individual prices.

Assume, for instance, that a video cassette cost 10 dollars in the USA and 12 euros in continental Europe. If the dollar rate were, say, 1.10 euros it would obviously pay for the Europeans to import videos from the USA. This, in turn, would raise demand for dollars on the foreign-exchange market and push up the rate of the dollar. The video market would only return to equilibrium once the dollar rate levelled out the price of a video, expressed in the same currency, in the USA as well as in Europe.

In our example this would be the case if the exchange rate of the dollar were 1.20 euros. However, it is to be expected that the switch in demand in favour of American suppliers will raise the price of videos in dollars and lower it a little in Europe. Equilibrium would therefore also be achieved if a video ultimately cost 10.50 dollars in the USA and 11.75 euros in Europe. Nevertheless, the international correlation of prices should also apply in this case and would obviously pre-suppose a dollar rate of 1.12 euros.

In practice of course, it is not just individual goods, such as videos, that are traded between Europe and the USA but also cars, soft drinks and several thousand other products. However, this does not pose any particular problem because the respective domestic prices of all these products would eventually adjust around the equilibrium exchange rate, so that in the end the international correlation of prices would be maintained for each one of them. Only then is it possible for these goods to continue to be produced in each country.

However, from this we can by no means derive the purchasing-power parity theory in its absolute form because it refers expressly to the average price of all products of the countries involved, i.e. to the general price level in those countries. However, this level also includes products that do not form part of international trade, such as services. Hardly anybody would think of flying to the USA from Europe or vice versa to have their hair cut, for instance. Thus, the prices of such goods or services do not have to be the same in all countries either.



According to the absolute purchasing-power parity theory, the exchange rate reacts like a pair of scales: if American prices double, the dollar rate should halve and American goods will cost just as much in Germany as they did before.

For this reason, the purchasing-power parity theory only has approximate validity in practice. Even Gustav Cassel had realized this, which is why he interpreted the theory in terms of changes in, rather than absolute levels of, prices and exchange rates. This means that the price levels of two countries expressed in the same currency will not be equal. However, if prices double in the USA, the dollar rate for the euro will halve, meaning that relative price levels in Europe and in the USA will remain the same. In actual fact, it seems that more than that is not necessary to protect the domestic economy from inflation imported from abroad.

All the same, even in its relative version, the purchasing-power parity theory only serves to explain how exchange rates will develop in the long term. In the short term, by contrast, exchange rates can deviate quite substantially from purchasing-power parity. This is mainly because trade flows are relatively slow to react. If cars, for instance, become cheaper in the USA, it will take some time until demand from overseas will rise. After all, people do not buy a new car every day and besides, in the case of many goods, supplier relations are long-term. In the meantime, however, many things can happen to the exchange rate.

The Role of the International Flow of Capital

One of the most important things we have to take into consideration in this context is that exchange rates are also influenced by international flows of capital. In fact, in terms of their volume, these flows are much more important nowadays than the flows of goods. This gives rise to the question what the flows of capital between economies depend on and how they influence exchange rates.

Our search for an answer will bring us back, once again, to John Maynard Keynes. Not only was Keynes a great economist, but also a highly successful speculator. Moreover, he was one of very few famous economists apart from David Ricardo to amass considerable private wealth. The occasional heavy setback he had to contend with in the course of his speculative dealings only encouraged him to examine these issues in more depth at the theoretical level. In his "Tract on Monetary Reform" of 1923 he developed his so-called interest-rate parity theory, which is now of equal value to Gustav Cassel's purchasing-power parity theory.

Keynes asked himself under what circumstances an English owner of capital would invest his money in the USA. If we assume that this depends solely on the interest rate, it follows that higher interest rates in the USA will cause capital to flow to the USA from England until the interest rate is back in balance.

We must not forget, however, that a money investment overseas also involves an exchange rate risk. Assume that an investment in the USA yielded 10 % interest whereas in England it yielded only 6 %. For an English investor it would still only pay to invest his money in the USA if the rate of the dollar did not fall during that year. If, for instance, the dollar lost 8 % of its value in relation to the pound, his investment, calculated in pounds, would only yield 2 % interest in the end. Thus, an international investor must always take account not only of differences in interest rates but also of how exchange rates are likely to develop.

The problem is that at the time of investment, an investor is unable to tell how the exchange rate will develop. In a system of fixed exchange rates he may still be able to trust in the interventions of the central banks to keep the exchange rate at least within a certain margin, but in a system of floating exchange rates this is no longer possible. Floating exchange rates thus add a considerable element of uncertainty to the future development of exchange rates and people have therefore to rely heavily on their own judgement.

According to Keynes, equilibrium would be established on the international capital market if, taking our example, the USA's advantage in terms of interest was offset by the expectation that the dollar would depreciate accordingly. Because then, it would generally not pay for English investors to invest in the USA and no net flow of capital between the two countries would take place. This would bring the foreign-exchange market back into balance.

Later, Keynes' interest-rate parity theory was refined into a comprehensive financial market theory of exchange rates. This theory was based on the portfolio theory developed by James Tobin (1918–2000), for which Tobin was awarded the Nobel Prize in 1981. The financial market theory takes account, amongst other

things, of the fact that there are different forms of capital investment as well as different interest rates in each country. Moreover, not all debtors are trustworthy and the amount of risk an investor is willing to take also varies. For these reasons a reciprocal exchange of capital between two countries can take place even when interest rate levels are equal and exchange rates are deemed stable. As far as the net flow of capital between two countries is concerned, a very similar correlation applies as that described by Keynes.

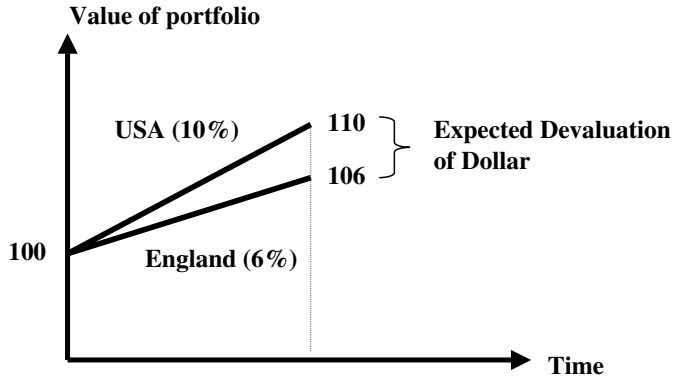
What does all this mean for the exchange rate? It seems that two entirely different explanations were put forward for how these are determined, the one being based solely on the flow of goods and the other on the flow of capital. Can the purchasing-power parity theory be reconciled with the interest-rate parity theory?

The answer to this question was provided by Rudiger Dornbusch (1942–2002) in 1976. Dornbusch was born in Germany in 1942, but emigrated later to the USA. His so-called monetary exchange rate theory did not just merge the ideas of Cassel with those of Keynes but also served to explain why an exchange rate could temporarily "shoot over" the equilibrium rate.

Assume, for instance, that price levels in continental Europe and in the USA were the same in terms of their respective currencies. Going by the absolute purchasing-power parity theory that we shall take as a basis for the sake of simplicity, the euro should cost exactly one dollar. Now, suppose the USA had a lead on Europe in terms of the interest rate by 4 %. Going by Keynes' interest rate parity theory, the international capital market could only be in balance if the market participants expected the dollar to depreciate by an average of 4 % as well.

However, this gives rise to the following problem. According to the purchasing-power parity theory the exchange rate would be in equilibrium but the interest-rate parity theory tells us that markets would still expect the rate of the dollar to fall. How can this obvious contradiction be solved?

Taking our example, as Dornbusch maintained, the dollar rate would evolve at first only in keeping with the interest-rate parity theory because capital markets



According to Keynes' interest-rate parity theory international differences in interest rates are always levelled out by inverse expectancies of how the exchange rate will develop.

react more quickly than markets for goods. As long as the dollar remained at its purchasing-power parity of 1 euro, capital would flow from Europe to the USA because investors would want to take advantage of the favourable interest rates. This, in turn, would drive up the rate of the dollar. It would have to rise for so long until it was expected that the dollar would depreciate by the difference in interest of 4 %. Only then, going by the interest-rate parity theory, would the flow of capital from Europe to the USA cease.

Dornbusch assumed that long-term exchange-rate expectations would be guided by the purchasing-power parity theory. Taking our example, this would mean that people would only expect the dollar to depreciate by 4 % if its rate rose to 1.04 euros, because only then, going by the purchasing-power parity theory, would it have been overvalued by exactly 4 %. However, according to Keynes' interest-rate parity theory it is precisely this "overshooting" of the dollar rate that would bring the capital market into equilibrium. In fact, this phenomenon of "overshooting" exchange rates had already been observed by Gustav Cassel as well; he was, however, unable to explain it satisfactorily. Such an explanation was only provided by Dornbusch's monetary exchange rate theory.

How do things go on from there? As far as the prices of goods are concerned, the dollar is now overvalued, which will cause more European products to be exported to the USA. As a result the dollar rate will fall, confirming people's expectation that it would depreciate. At the same time, however, the flow of capital from Europe to the USA will probably lead to an adjustment of the rate of interest. Thus, both the expectation of depreciation and the disparities in interest rates will diminish increasingly over time, at least if no new upheavals occur.

The equilibrium exchange rate is therefore a simultaneous product of the international flows of capital and goods and the trade in currencies that goes with these. In the end, the rate of the dollar will adjust in such a way that neither the capital investors nor the buyers of goods have a reason to change their plans in favour of the one or the other country because in a state of long-term equilibrium, the conditions of both the purchasing-power parity theory and the interest-rate parity theory will be fulfilled.

Currency Speculation

Let us draw an interim conclusion from these perhaps rather complicated extrapolations. It seems that a floating exchange rate has considerable advantages in the long term because it tends to balance out disparities in the development of national price levels and therefore protects countries with low inflation rates from inflation imported from abroad.

Initially, people were of the opinion that in a system of floating exchange rates the domestic economy would no longer be affected by business cycle fluctuations abroad. For instance, a drop in demand in the USA would only have a marginal effect on demand in continental Europe because if American demand for European

exports declined, the rate of the euro on the foreign-exchange markets would fall as well. Since European exports became cheaper, demand would drop in Europe only to a very limited extent.

Nevertheless, this simple line of argument is not enough to explain the complicated mechanism of how the economy in one country affects that in another. For instance, a slump in the USA is often associated with a fall in interest rates. As a result, capital will flow from America to Europe and eventually push down interest rates in Europe as well. This, in turn, will have a boosting effect on the European economy and counteract the dampening effect of declining demand for exports. Thus, whilst in a system of floating exchange rates the markets for goods send the same economic impulses abroad, the capital markets have a more compensating effect. It is not easy to draw a clear conclusion from this.

What does our practical experience with floating exchange rates tell us? On the whole people observed that the international interdependence of economies remained intact after exchange rates had been made flexible. It was still the case that cyclical trends in larger countries like the USA tended to spread also to other countries, and in general also in the same direction. And certainly nobody could claim that a serious balance of payments disequilibrium was now a thing of the past. Because now the international capital market really began to thrive and exchange-rate speculation was by no means vanquished – quite the contrary.

There have always been speculative fluctuations in exchange rates in capitalist economies, both on the stock exchange as well as on the goods and foreign-exchange markets. An early example of a crash on the stock exchange was the so-called "South Sea Bubble" in 1720. Many obscure joint-stock companies were founded in those days in London which promised to exploit the phenomenal treasures of the South Sea. The public willingly subscribed for shares which soon reached staggering prices. When it finally became clear that the profits promised would not materialize and that some of the founders had simply run away with the money of the shareholders, the speculation bubble burst. What remained were countless defrauded investors, including the English royal family.

We have already mentioned "Black Friday" of 25th October 1929 at the New York Stock Exchange that ushered in the Great Depression. This depression was also preceded by a wave of wild speculation that had been financed primarily from borrowed money. For this reason, in contrast to earlier crises, when share prices fell they took the provision of money and ultimately the entire currency system into the maelstrom. Once the gold standard was abolished, currency speculation started to become a problem.

A currency speculator is interested neither in purchasing-power parities nor in differences between the interest rates of individual currencies, in fact in most cases he does not even have any profound knowledge of these fundamentals of exchange-rate development. His sole aim consists in achieving profits by, for instance, buying dollars at a rate of 0.90 euros and selling them again a short time later at a rate of 0.95 euros.

Of course, when he buys a currency he does not know exactly how its rate will develop; after all, this is what speculation is all about. John M. Keynes explained

once, using the example of the "beautiful girl on page one", why it was that very strange exchange rate movements could occur. Imagine the readers of a tabloid newspaper were asked to select the most beautiful of the pin-up girls that are printed in the paper every day. Those who betted on the winner would receive a prize, say, to spend an evening with the beautiful girl. What should people do, if they wanted to win?

According to Keynes, they should certainly not necessarily choose the girl they themselves considered the most beautiful. Because they might be in a minority with their taste and would then definitely lose when the lots were drawn. It would make more sense to select the girl they believed the majority of the other readers found the most attractive. Only then would they have any chance at all of winning the prize.

However, things become even more complicated. Assume that every reader adopted this strategy. In this case he would have to choose the model he believed most readers thought that most other readers considered the most attractive, etc. At the end of the day, it is quite possible that a girl nobody finds particularly attractive, is declared the winner.

This example illustrates very nicely, why apparently inexplicable speculation bubbles occur time and time again on the world's stock exchanges and foreign-exchange markets. This is because for the speculator as well, the "true value" of a share or a currency is of secondary importance. Just as in the case of the beauty competition his main aim will consist in finding out which shares or currencies other speculators are likely to buy.

Assume, for instance, that for some reason the rate of the dollar rose by a few eurocents. This might induce some speculators to buy dollars because they are betting on a continuation of this development. Their purchases of dollars would indeed push up the rate further, possibly inciting other speculators to jump on the bandwagon. One bullish movement feeds the next bullish movement, as people would say on the stock exchange. The whole process would only end if expectations suddenly changed for some, possibly quite unimportant, reason. Even a minor fall in the rate of the dollar could unleash a bearish movement, which, in turn, might go well beyond correcting the over-valuation of the dollar that has occurred in the meantime.

Such "roller coaster rides" of the dollar rate obviously have little to do with economic fundamentals. Even worse, they distort international relations between prices of goods and are therefore particularly unpopular with the export industries of those countries, whose currencies come under pressure to be revalued. This is because if the exchange rate of the domestic currency rises, exports will become more expensive on the world market. If these increases have speculative causes, prices will rise far higher than would have been necessary or useful to offset any differences in inflation in other countries.

Very soon after floating exchange rates were introduced at the beginning of the 1970s, many countries started to counteract at least the most severe fluctuations in exchange rates through interventions by the central bank. This was also referred to as "dirty" floating because a pure system of floating rates would not have been

reconcilable with such interventions on the foreign-exchange markets. The countries of the European Economic Community even tried for some time to keep up a system of managed exchange rates at least among themselves. This system was referred to as the European currency snake. It soon broke down, however.

Only in 1979 was it possible to re-establish a reasonably operative fixed-rate system in Europe, with the setting up of the European Monetary System (EMS). In contrast to the Bretton Woods system there was initially no reserve currency in the EMS, all participating currencies being equal in principle. In practice, however, the Deutschmark soon turned out to be the secret anchor of the system, because not only was Germany the most important economy but it also had the lowest inflation rate in Europe.

Can Monetary Union Help?

The EMS was devised in such a way that, in the end, the other participating countries only had the choice of either attaining monetary stability by their own efforts or of leaving the system. This was because in the EMS it was in fact only the weak-currency countries that were obliged to intervene on the foreign-exchange markets. Therefore, in contrast to the Bretton Woods system, a country like Germany was no longer forced to import inflation by buying weak currencies. After some initial turbulence and political arguments, the EMS was so firmly established by the beginning of the 1990s that policy makers even decided with the Treaty of Maastricht to move beyond it and develop it into European Monetary Union. Since January 2002, twelve continental European countries, among them Germany, France and Italy, no longer have a national currency. Deutschmarks, French francs, Italian lire and the other national currencies have been replaced by the euro which was put into circulation and is controlled exclusively by the European Central Bank as a supra-national legal institution.

At first sight such a currency union has considerable advantages. For example, the costs and fees that always had to be paid when exchanging one currency into another no longer exist. People had worked out that out of 100 Deutschmarks only about 20 Deutschmarks would have been left over if somebody had travelled through all the countries of the European Union, doing nothing else but changing this money into the respective national currencies. It is even more important for exporters that the exchange rate risk has disappeared, at least within the Eurozone. Moreover, in relation to other currencies such as the dollar or the yen, the euro has turned out to be more stable than the individual European currencies had been on average. After all, a big ship rocks less in the waters of the streams of capital than a small boat.

Whether this alone is enough reason to defend European Monetary Union is still a matter of debate. After all, with the introduction of the common European currency, the Deutschmark, which had been the most stable currency in Europe apart from the Swiss franc, was abolished and replaced by the euro, which still has

to prove its stability in the long term. And even though the European Central Bank has been modelled on the Deutsche Bundesbank as an autonomous institution that is committed in first place to maintaining monetary stability, in concrete cases of conflict it will be individuals, who will no doubt be strongly influenced by their cultural and economic backgrounds, who will have the final say. It is true that the euro has started off very well with low inflation and a stable exchange rate but it still remains to be seen whether the proponents of stability-orientated monetary policy will win the day in the long run.

Most importantly, however, the countries of the European Union do not fulfil the requirements that economic theory presupposes for a functioning monetary union. One important criterion had already been put forward by Robert A. Mundell (born 1932) in 1961 in his theory of optimum currency areas, for which he was awarded the Nobel Prize in 1999. Mundell argued as follows. Assume that for some reason there was a shift in demand from France to Germany. For instance, demand rises in the engineering industry, an industry that is far more important in Germany than in France. Such a shift is also referred to as an asymmetrical shock. One would assume that in this case incomes in Germany rise and French incomes fall, i.e. wages as well. However, as workers generally refuse to accept any losses in their wages, unemployment could quite easily rise in France. For if French wages do not adapt to the new market conditions, it will not be possible for businesses to compensate for declining sales of French products with lower prices.

According to Mundell only two alternatives remained in this case to ensure full employment. One possibility was to introduce a system of floating exchange rates. In this case the rate of the French franc would have fallen, pushing down the price of French products in Germany without having to lower wages in France. Even though the value of French wages would have gone down in real terms because French workers would have had to pay more for imported goods due to the depreciation of the French franc, as a rule it was easier to push through at the political level such more or less invisible reductions in real wages than cuts in nominal wages.

However, now that we have monetary union, there are no longer any exchange rates between France and Germany! Both countries use the euro. According to Mundell this leaves only one possibility to ensure full employment, should there be a shift in demand in favour of Germany. French workers would have to migrate to Germany or at least look for a new job there. This would balance supply and demand for labour in both countries even without any significant changes in wages.

The conclusion that Mundell drew from this is obvious. It is only possible to do without a system of floating exchange rates if the labour force in the countries in question is relatively mobile. Only then can we risk establishing monetary union between these countries. Obviously, if we apply this criterion, the countries of the European Union are anything but an optimum currency area. Even though in the course of the construction of the European internal market most of the remaining legal barriers to the international mobility of workers have been removed, the cultural and linguistic differences between, for example, Germany and France are still very great.

A further problem is that in a currency union, wage disparities between the participating countries become directly visible. For instance, in Portugal wages are significantly lower than in Germany because productivity is higher in Germany. As long as the Portuguese were paid in escudos and the Germans in Deutschmarks nobody was particularly bothered about this. However, now that everybody is paid in euros, people may well start demanding equal wages for the same work. However, this would lead to high unemployment in Portugal as long as productivity in Portugal was not high enough to pay German-level wages. In effect, the Germans had to go through this experience following re-unification with the former German Democratic Republic. As soon as the Ostmark had been replaced by the West German Deutschmark, workers started demanding the same wages for the same work in both parts of Germany. Unemployment immediately soared to over 20 % in East Germany, which had been economically run down during 40 years of Socialism, and so far this part of Germany has not managed to catch up in relation to West Germany as it was hoped it would.

Another problem of monetary union is that the European Central Bank now has to conduct a common monetary policy for 12 countries with highly different conditions. This already became evident during the first year after monetary union had been accomplished. The smaller member states such as Ireland and the Netherlands had relatively strong economic growth and high inflation, which would normally have necessitated the adoption of a relatively restrictive monetary policy. In Germany, on the other hand, economic growth has been very weak and prices have risen hardly at all, in fact, there have even been fears of deflation. Thus, the European Central Bank is now faced with the almost unmanageable task of conducting a monetary policy that takes account of these highly different economic situations in the individual member states. In this sense the warnings that many economists expressed before the euro was introduced have been confirmed.

Monetary Policy in the Hotel Foyer

As far as the dollar is concerned, a return to a fixed-exchange rate system is hardly likely for the time being. The shortcomings of the Bretton Woods system induced the international issuing banks to take other measures to dampen the volatility of the dollar rate. In the mid-1980s, under the American president Ronald Reagan, the dollar suddenly began to rise sharply until it reached its highest value in the Spring of 1985 of what would now be 1.75 euro. This was far higher than could be explained by any economic fundamentals. In fact, the exact reasons for this rise of the dollar are still a matter of dispute. What is certain is that the newly awakened confidence in the strength of the American economy played a major role. Those were the days of the so-called "Reagonomics", a supply-orientated economic policy that was centred more on tax breaks and deregulation than on the by then highly criticized Keynesian doctrine. However, it was also a period of high deficits, both in the balance of payments and in the Federal budget of the USA. People generally

agreed that this could not go on forever and that it was more appropriate to bring down the dollar gradually to a more realistic rate.

In the end, in the autumn of 1985, the five leading economic nations of the world organized a by now famous meeting in the New York Plaza Hotel where they worked out the following. If speculators indeed reacted to every either deliberate or hasty word from the mouth of a politician, why not take specific advantage of this? Indeed, the announcement alone at the end of the meeting that interventionist measures would be taken to lower the rate of the dollar was enough to lastingly influence the downward trend of the dollar that had already set in just beforehand. This marked the birth of the so-called "open mouth policy", that was aimed at guiding the foreign-exchange markets in the desired direction simply by voicing statements of intention without actually intervening to any great extent at all.

Encouraged by the success of the Plaza agreement, this approach was taken up Plaza agreement, this approach was taken up again in February 1987 with the equally famous Louvre accord, agreed by representatives of the seven leading industrial nations who met at the French Ministry of Finance. The fact that this accord bears the same name as the Louvre museum is because the ministry was located in the same building. This time the aim of the accord was to halt what had become a rather too fast downward trend of the dollar. Again, a statement of intent was enough to keep the dollar at a rate of about 0.90 euros even though this rate was never declared officially as a target. The danger would have been too great, if the target had been missed, that speculators would have immediately lost their new-found respect for the powers of the central banks.

In the following years policy makers kept up this cautious exchange rate policy with varying degrees of success. Exchange rates were treated like tigers that, on the one hand, could never be let out of sight, but, on the other hand, could not be kept in too small a cage either because otherwise they would have escaped sooner or later. Speculators, as well, seemed better kept on a long leash and positive persuasion seemed to work better than excessively rigid exchange rate barriers.

All the same, this approach only works if the economic policies of the participating countries are reasonably aligned with each other. In particular there should be no excessive disparity in inflation. In fact, the best thing would be if there was no inflation at all. For then, it would hardly make any difference whether exchange rates were floating or fixed, because speculation would lose its most important source of nourishment.

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Chapter 4
The State and Social Matters (Public Finance)

The social philosopher, John Stuart Mill (1806–1873) completed the edifice of classical economic thought. One of his main concerns was to reconcile economic reason with social equality.

The State and its Role in the Economy

Rule of Law or Rule of the Elite?

If anything goes wrong in a market economy people are generally very quick to call on the state for help. After a major tour operator went bankrupt in Germany a few years ago and left customers stranded on the island of Majorca, people immediately demanded that the state should ensure better protection of consumers. If a large company has to make people redundant, it is also often expected that the state should come to their help. After all, the German Law of 1967 for the Promotion of Economic Stability and Growth includes a high level of employment among the four principal economic policy objectives of the government, the so-called "magic quadrangle".

The other three policy objectives of this legislation include price stability, steady economic growth and balanced foreign trade, for which the state has also effectively assumed responsibility. In addition it has always been considered the state's task to ensure an equitable distribution of income and wealth. People do not trust that a market economy left to its own devices is capable of providing for such things. Adam Smith's invisible hand of the market is thus to be assisted by the clearly visible hand of the state.

Now, it was not as if the economic classicists had regarded the state as something wholly superfluous. Adam Smith, for instance, clearly acknowledged that there were certain tasks that could not be fulfilled by the market. Among these he included national defence and internal security as well as the provision of infrastructure and the judiciary system. As we have already discussed these are things, the utility of which is reflected only inadequately or not at all in market prices because people can utilize them without having to pay for them. For instance, for obvious reasons it is not possible to exclude a person from benefiting from street lighting only because he has refused to pay for it. This non-excludability of certain products was the main reason that the classicists saw to justify any intervention by the state.

John Stuart Mill, who completed the edifice of classical economic thought, went one step further, pleading, for instance, for the introduction of an inheritance tax as well as a proportional income tax to prevent disparities between incomes from becoming too great. One has to say though that he had much lower income tax rates in mind than are generally charged today. Thus, the debate among economists has been less about whether a state is actually necessary or not, than about the extent to which it should intervene in the market and the ways in which it should do this.

This debate rests on two fundamentally opposite positions that can be traced back as far as the two great Greek philosophers, Plato (427 BC–347 BC), and his pupil, Aristotle (348 BC–322 BC). All other subsequent streams of economic thought can be assigned to a greater or lesser extent to the ideas of either one of these two philosophers.

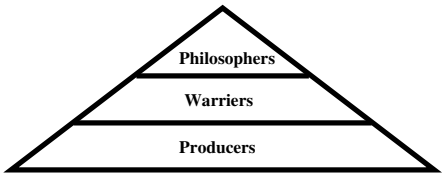
Plato had been one of Socrates' pupils (470 BC–399 BC). The latter left no literary legacy of his own because he generally taught his pupils purely by word of mouth by maintaining a critical dialogue with them on issues of philosophy, mathematics and statesmanship. These discussions took place at the Academy, named after the hero of Greek legend, Academos. This is the origin of the term academics that we use nowadays.

Like Socrates, Plato also searched for the ideal, the forever beautiful, good and true. Thus, his model of the state was a description of a Utopian society, based on the notion of an ideal human being. Plato divided society into three classes with very different abilities, rights and obligations, drawing an analogy between the way a society was built up and the organism of the human body. In fact, this derivation of social and economic laws from the laws of nature was very typical of Greek philosophy.

The lower end of human society, according to Plato, consisted of what he called the "producers," i.e. craftsmen, farmers and merchants. Plato compared them to the human stomach, because they covered only the purely physical needs of people such as hunger, thirst and other desires. In the middle section of society, Plato placed the army, comparing it with the human heart because it symbolized the higher virtues like courage and heroism. The highest end of society was taken up by the philosophers and statesmen. They stood for intelligence and wisdom, which is why they naturally made up the head of society.

However, within these three classes Plato believed that everybody was equal. This is reflected among other things by the fact that his model state also foresaw collective ownership of goods, children and women. Strictly speaking this only applied to the class of warriors as these were not be distracted from their important task of defending the nation by any pursuit of personal possessions. As far as the class of the philosophers was concerned, Plato did not foresee this type of collective ownership.

Thus, Plato's form of society combines the characteristics of a class society with the idea of equality of (almost) all people. His model of society has therefore also been described as aristocratic Communism. Society's highest goal is to fulfil the laws that have been drawn up by the state, which the wise men at the highest end of society have found to be good and true. All the activities of the rest of the population are to be measured according to whether they contribute to the public good in this sense. Any form of self-interest is condemned. These basic ideas were



In Plato's ideal state, the lowest end of society consisted of the working population. People were only equal within the same class.

taken up later above all by the economic systems of mercantilism and Socialism. In the mercantilist system, however, philosophers were replaced by kings and princes as rulers of the state, whereas under Socialism, this task was assigned to the leaders of the working class.

Aristotle took an entirely different approach to these problems. Being more of a pragmatist than an idealist, he tried to see people rather as they were. He did not confine wisdom, courage or desire to any one social class but regarded these characteristics as different forms of happiness that could be sought after by anybody even if nobody would ever attain them in the same degree. Aristotle considered it a natural right for everybody to pursue his or her personal happiness in this sense and believed that the state's prime role consisted in making this pursuit possible. Under no circumstances should the state hinder anybody in this pursuit, claiming some higher goal as a reason, not even if it had the backing of the majority of the people.

Thus Aristotle substituted Plato's almighty state rulers with a government system based on the rule of law. In his view, public interest could only be defined on the basis of the happiness of the individual and not on the basis of government-imposed targets, no matter how wise and well-meaning the ruling elite that had drawn them up. This does not mean that Aristotle questioned the need as such for state legislation. But his philosophical reasoning behind such legislation was entirely different from Plato's and imposed far narrower limits on the state as far as its intervention into economic processes was concerned. Whereas Plato argued that a (good) purpose justified almost any intervention, Aristotle believed that the state should merely impose a suitable legislative framework within which everybody could pursue their own happiness. This idea was taken up again later by the liberals and influenced also the founders of the type of social market economy that was developed in Germany following the Second World War.

When discussing issues of philosophy and views about mankind our opinions may well differ about which of these two approaches is correct. In fact, this is a very difficult matter to decide objectively in terms of what is right or wrong. The simple fact is that Aristotle and Plato had very different views about how people are or rather about how they should be.

This applied in particular to their views about how politicians should be. To Plato a politician was a kind of benevolent dictator who had only the best in mind for his people and who also knew what this was. Aristotle, on the other hand, was far more sceptical about such matters. He knew that both a monarchy and a democracy could evolve into a tyranny, in which minority groups or even everybody was oppressed. At least in this sense history has proven Aristotle right because in particular those systems that have followed or pretended to follow Plato's ideals have invariably ended up as inhuman dictatorships and in economic disaster, the most recent examples being the Communist states of the former Eastern Bloc.

The Church and the State

In the Middle Ages another complex of ideas came into play, notably the teachings of Christianity. Ecclesiastical thinkers tried to combine their teachings with Greek philosophy in order to define their own public law. Augustine (354–430), for instance, was more partial to Plato's doctrines. However, he replaced Plato's ideals with the will of God as a measure to judge the activities of the state. Good and evil thus became central concepts of economic activity. Ideally the real world should be what God had wanted it to be when He created it.

It is evident that this was no less utopian than Plato's ideal state. Christian thinkers also took up Plato's system of a class society, albeit with a slightly different composition of the individual classes. Not surprisingly, it was the clergy who now occupied the top end of society because only clergymen were able to recognize God's will. The middle class now consisted of the aristocracy instead of Plato's warriors, which may be regarded as a concession to the real distribution of power during the Middle Ages. Only at the lowest end of society did everything remain more or less as with Plato, this class continuing to be composed of the farmers and other professionals even though it was they who were producing the greatest part of the national product.

The scholastics as well, in particular Albertus Magnus (1193–1280) and his pupil, Thomas Aquinas (1225–1274), were anything but propagators of a classless society. Going by their credo, everybody should live in accordance with their social status. At least they placed a little more importance on the individual, similarly to Aristotle, because to them the individual was the direct addressee of the message of God. Thus, people were not to orientate their actions around the aims of the state but act in accordance with their conscience and ecclesiastical teaching.

Logically, divine law (lex divina) occupied the highest place in ecclesiastical teaching, followed by Aristotle's law of nature (lex naturalis) that also included, for instance, the right to private property. Public law (lex positiva) only came in third place, for example the duty to pay taxes. Moreover, the scholastics distinguished between just and unjust laws and only violations of the former were actually deemed a sin. Thus, the scholastics had nothing against somebody evading an unjust tax, for instance, because the real sin in this case consisted in levying this tax in the first place!

It is evident from this that the scholastics had clear reservations about the wisdom of the state, believing that it was not the politicians who were the good shepherd of the people but God. Neither were they much in favour of the individual pursuit of happiness because they regarded this as hedonism. They only accepted people accruing any personal wealth if this served to help the poor (or the Church). Even today the idea of property being endowed with a social duty still has a marked influence on the economic ethics of the church.

On the other hand, the scholastics placed a very high value on labour, proclaiming the credo, ora et labora, pray and work. Not only could people thereby ensure their own livelihood but equally important was that they could thereby also acquire the

means to help the poor. Most importantly though, working also had a value as such which was underlined above all by Thomas Aquinas. For even if it yielded only a small return it at least protected people from idleness and vice.

The sociologist and economist, Max Weber (1864–1920), later advanced the famous theory that one of the main reasons why there was so little economic progress during the Middle Ages was because of this Christian-dominated economic ethics. The Church's condemnation of the pursuit of personal profit prevented people from amassing any capital and conducting successful trade. According to Weber, it was not until the era of Calvinism that the intellectual foundations of capitalism and thus also of prosperity and growth were laid. This was because the Swiss religious founder, John Calvin (1509–1564), advocated the so-called theory of predestination, whereby a person's going to Heaven depended among other things on his material wealth on Earth. As a result, in their desire to be ensured the grace of God, people were motivated not only to work very hard but also to accrue some wealth and if possible to increase it through sound investment.

Max Weber's theory is nevertheless highly disputed; Schumpeter, for instance, rejected it outright, arguing that the Church had also extolled diligence and approved of personal property. Even so, there is a small kernel of truth to Weber's theory because we know from the unfortunate history of the Socialist states that no matter how hard people work, this is of little use if the pursuit of profit and the accumulation of private capital are forbidden. Time has shown that there is nothing that can replace these economic driving forces, neither a Christian lifestyle nor a guiding state.

Mercantilism and Socialism

During the age of mercantilism, religion became less dominant, with the more profane princes gaining in influence instead and the state intervening increasingly into economic life, in particular in France. The famous statement of the Sun King Louis XIV (1638–1715) "I am the state" was typical of the absolutist way of thinking of those days and the needs of the people or even the individual's personal pursuit of happiness were accordingly held in low esteem.

In those days the state financed itself primarily from the high duties that it levied, among other things to prevent too much money from flowing overseas. At the same time, in accordance with the doctrine of the positive balance of trade, it encouraged the export of goods so as to have as much revenue as possible flow into the country in the form of gold and silver. It was above all through the levying of a high number of taxes on consumption, so-called excise duties, that the state robbed the people of a good part of their income. Apart from costly warfare, the ever-increasing extravagance of the Court called forth an almost insatiable appetite on the part of the state for money. It has to be said though that the state also made some highly useful investments during that time, putting a lot of money, for instance, into the

construction of factories as well as into transport infrastructure. Most canals in Germany go back to those days.

Mercantilism was most pronounced in France and has left its mark on French economic policy up till this day. Whereas the Germans, for instance, went over to a market-orientated and comparatively liberal economy after the Second World War, the French kept up their system of relatively strong state intervention in the form of what they call "planification". During the 17th and 18th centuries mercantilism dominated in Prussia as well, however. The German form of mercantilism is also referred to as cameralism, derived from the Latin word camera, which means as much as a royal treasure chest. Even today people refer to the one-sided orientation of economic policy around the financial needs of the state as a cameralist policy.

The best-known mercantilist economist was Jean Baptiste Colbert (1619–1683) even though he contributed virtually nothing to theoretical analysis. As the Comptroller-General for finance under Louis XIV, he brought the interventionist economic system of the mercantilists to such perfection that this era was later sometimes also referred to as Colbertism. It was also Colbert who introduced income taxes to France with the so-called "taille". All the same, the state never had enough money and finally Colbert got into such conflict with his king regarding the costs of Versailles that he died of frustration and worry. His last words were said to have been: "Had I done as much for God as I did for that man, I would have been saved twice over."

The intellectual demise of the mercantilist system was heralded by the publication of Adam Smith's "Wealth of Nations" in 1776 and politically, it was swept away together with the monarchy by the French Revolution in 1789. What followed was a period of almost 100 years of economic liberalism all over Europe, where private entrepreneurship and the free exchange of goods, both in domestic and international trade, replaced former state intervention. At the same time the industrial revolution introduced fundamental changes to the conditions of production – the era of capitalism had thus come.

There are two things that should not be overlooked when assessing the early days of industrialization. Firstly the almost total withdrawal of the state from the economy was surely also an overreaction to the excesses of mercantilism. In the general euphoria about what seemed to be the almost perfect working of Adam Smith's invisible hand of competition, people overlooked the fact that purely market-orientated economic systems had their drawbacks as well. This applied above all to the protection of competition itself, which was in constant danger of being undermined by mighty cartels or monopolies. The USA were the first industrial nation to draw the necessary consequences in the late 19th century, introducing competition rules and setting up cartel authorities. In Europe, by contrast, most countries introduced such measures only after the Second World War. We have to be fair though and add that important legislation such as commercial law, regulations on stocks and the German Civil Code go back the liberalist era.

Moreover, people soon realized that under conditions of capitalism, the gains in prosperity offered by free trade were very unevenly distributed. Whereas on the one hand the owners of capital and entrepreneurs were amassing huge assets,

the workers were often living on the brink of poverty or even below since they had nothing to offer on the market other than their labour. The supply of labour exceeded demand in those days and wages were accordingly low. This was no law of nature but went back to the fact that as a result of medical progress and the diminishing appetite of governments for war, population growth began to explode in the 19th century. In the agricultural sector young people could no longer find any appropriate work and therefore migrated to the cities in order to earn their living in the newly built factories.

This would not have been a problem as such – even today most of the national income is earned in the non-agricultural sectors, industry, commerce and services – however, in order to create jobs, people need capital and in the 19th century this was a very scarce commodity indeed. Inevitably therefore, income from capital was high and income from labour – i.e. wages – was low. On the other hand, we cannot deny that had it not been for the extremely high profits made during the period of financial speculation following the Franco-Prussian war and the resulting incentives to create more capital, large sections of the population would have been unemployed and not had any income at all. Even the state and the trade unions could not have done much about that. Most importantly though, the capitalists, unlike the mercantilist princes, did not just squander their money on the consumption of luxury items but invested most of it into their factories. August Thyssen, for instance, was said to have been so mean that he only ever booked a seat in fourth class if he took the train.

Even though one reason why the situation of the workers had improved so much by the end of the 19th century was because they had begun to organize themselves in trade unions and the state was beginning to develop a social conscience, the main reason was that the productivity of labour had increased significantly due to the accumulation of capital. Had this not been the case, it would not have been possible to finance either the higher wages that people now earned or the gradual introduction of social security systems. Even Karl Marx, the most ardent critic of early capitalism would have agreed with this. It is true that he believed that the capitalist system was doomed due to its inner contradictions, but he still built his vision of the ensuing dictatorship of the proletariat on the fruits of the capitalist system, claiming that the accumulation of capital would have increased the productivity of labour to such an extent that under Communism, everybody would have enjoyed a high standard of living and worked far fewer hours.

What Marx overlooked of course was that the Communist system would inevitably destroy the accumulation of capital and thus its own economic basis. Even though the Socialist states of Eastern Europe also invested a lot of money, this was only done by order of the government and without the guiding force of competition. The results were bad investments, mismanagement and bureaucracy, driving these countries first into economic and ultimately into political ruin. We could therefore interpret Socialism as yet another extreme stroke of the pendulum of state intervention into the economy, an understandable but nonetheless mistaken reaction to the excesses of unrestrained liberalism.

Ordoliberalism

Another way of reacting to these excesses was that of the ordoliberalists surrounding Walter Eucken (1891–1950) and Franz Böhm (1895–1977). The ordoliberalists were a group of economists and jurists who discussed during the 1930s how the German economy might develop once the madness of National Socialism was over. As a theoretical starting point they took the writings of Adam Smith and the other classicists of national economics.

The ordoliberalists also based their theories on their practical experience with state interventionism during the first half of the 20th century that Eucken and his followers had, after all, witnessed personally. Already during the Weimar Republic and in particular during National Socialism the state and the economy were brought ever more into line which had terrible consequences both in practical and economic terms. This led to the ordoliberalists' conviction that a constitution based on the principle of liberty was inextricably associated with a free economic system.

Unlike the classicists, the ordoliberalists argued that it was necessary to place private competition within a regulatory framework, denoting the limits within which competition could operate. For all practical purposes, the term ordo means order and that is exactly what ordoliberalism was about. Even though the state was not supposed to intervene directly into economic activity, it was nevertheless supposed to provide a legal framework to which all enterprises and households would adhere. In this way the advantages of free economic activity were to be combined with the necessity of a certain supervisory function of the state.

It was Walter Eucken who elaborated this regulatory framework in most detail in his book "Principles of economic policy" of 1952, in which he distinguished between seven constituent and four regulatory principles of market economy. The constituent principles provided the basic regulatory framework, i.e. the basic rules of play of the market forces, whereas the regulatory principles consisted of measures that the state should take to correct certain market results and that were justified because pure competition had certain shortcomings.

In short, Eucken's constituent principles can be summarized as follows: competition as the fundamental principle of the economic system, monetary stability ensured by an autonomous central bank, unrestricted market access (in particular for foreign suppliers), private ownership, contractual freedom, responsible economic decisions (particularly through the sanctioning mechanism of profit and loss) and consistency in economic policy. The last-mentioned point referred not only to the prevention of cyclical fluctuations but above all to the principle that the state should not alter its legislation all the time. There is no point, after all, in constantly changing the rules of the game, otherwise arbitrariness and uncertainty in planning will eventually replace competition-orientated markets. The ordoliberalists therefore also pleaded for the definition of clear principles for the dealings of the state, from which a political majority should not simply deviate whenever it wanted to. In particular the constituent principles of the market economy were not

to be touched. As a result the ordoliberalists were often accused of being somewhat dogmatic.

Eucken's regulatory principles applied to the following four corrective measures by the state: securing competition through the supervision of monopolies and cartel legislation, a limited redistribution of the income achieved on the market according to social criteria, correction of market prices if they do not reflect real economic costs such as in the case of environmental goods, as well as corrective measures in the case of abnormal reactions on the supply side in certain markets.

Eucken did not take these problems as a justification for a comprehensive government structural policy, but he was also realistic enough to realize that there can be exceptions to a smoothly functioning market mechanism. In fact, this realism is one of the characteristic features of ordoliberalism, distinguishing it above all from the abstract model world of neo-classicism. This will have been one of the main reasons why it had such a marked influence on practical economic policy, notably in post-war Germany.

In actual fact, ordoliberalism is anything but a compromise approach. Eucken expressly opposed an "economic policy trying to steer a middle course" that draws no clear boundaries between the tasks of the market and those of the state, believing that selective intervention into market results was bound to fail owing to the complex intertwining of the various markets with each other. We can maybe illustrate this best using the model from physics of communicating pipes. If we press down a pipe that is connected to other pipes by water pressure, some of the other pipes will necessarily rise. Similarly, the economy as a whole can only be influenced by a clever regulatory framework and not by constantly new individual interventionist measures. This is the actual theory that ordoliberalism is based upon.

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Democracy and Market Economy

Is there a "Third Way"?

Democracy implies the rule of the people. It has become a natural form of government to us today and has also been introduced in the meantime in Eastern Europe that used to be governed dictatorially. Even so, many people do not understand why such important matters as the determination of prices and production should be left to the anonymous mechanism of the market. Would it not be more appropriate to democratize the economy as well? And is there no other alternative apart from the Socialist-style planned economy that has so obviously failed?

Already in the 1930s there were some economists who tried to develop a more democratically legitimized economic system. That a purely planned economy could not work had been convincingly demonstrated especially by Ludwig von Mises (1881–1973), the then leading economist of Austrian neo-classicism, in his book "Socialism" of 1922. Thereupon the Polish economist, Oskar Lange (1904–1965), and the Russian-born economist, Abba P. Lerner, who both taught at American universities at the time, developed the model of so-called market socialism. This model foresaw the nationalization of businesses and the sale of products at cost prices. Although output was to be determined by demand, strict state intervention was foreseen as well, giving the state the possibility to influence indirectly the formation of prices. In this way, the model tried to combine the advantages of a decentralized organization of production with the goal of a government-determined product structure.

All the same, market socialism remained a largely theoretical concept because it left many questions unanswered. On the one hand, it foresaw that public enterprises should run their businesses in such a way that they only just covered their costs, on the other hand, output was to be determined by demand. It was never explained how this should be brought about without the incentives of profits and losses. On the contrary, the likelihood was great that mismanagement and excessive bureaucracy would soon replace entrepreneurial striving for efficiency.

Even Oskar Lange himself, when he later worked for the Polish government as Minister of Economics, did not succeed in putting his model into effect. Even though he suggested placing a statue of his adversary, Ludwig von Mises, in the central planning authority "as a permanent reminder of the necessity of correct calculation", at the end of the day, his policies boiled down to a planned economy that did not work out.

In the 1960s the former Yugoslavia attempted to establish a socialist-style market economy administered by the workers, which caused a great stir. Businesses were handed over to their employees who were given the responsibility to decide about investment and the structure of production. Once the initial euphoria about this "third way" between Socialism and market economy had died down, this model failed as well. One of the main problems was that businesses did not invest enough because their employees preferred to spend the profits achieved on wage increases or on the payment of shares in profit rather than investing them into an uncertain future. It did not help matters that when an employee left the business he was working for, he was not permitted to take his share of capital with him. Moreover, in many cases, businesses refrained from taking on new labour because the "worker capitalists" did not want to share their entitlement to profits with new colleagues who had not participated in the setting-up of the business. Many new investments were therefore financed with borrowed capital, i.e. bank loans, and at the end of the day, it was the banks and no longer the workers who had the final word in the running of the business.

In Germany, the democratization of the economy became an issue only immediately after the Second World War, with even the middle-class orientated Christian Democrats heralding the nationalization of key industries in their party programme of that time. However, after Ludwig Erhard's market-orientated economy had proved such a success and large sections of the population had benefited from the economic miracle of the 1950s and 1960s, there was no talk of such a democratization anymore.

It was only at the beginning of the 1970s, that the debate in Germany about the democratic legitimacy of the market economy took off again. Using the catchphrase "government-controlled investment", several proposals were made on how the state could exert more influence on the way production was organized without necessarily at the same time destroying the market-orientated system. Paradoxically, it was the success of the market economy of all things that fuelled this debate because in contrast to earlier times it was not the lack but the superabundance of items produced by this form of economy that was now being criticized. Could one justify producing such superfluous objects as electric egg boilers and coloured men's underpants on a mass scale whilst there was a shortage of kindergartens, schools and universities? People spoke of undue pressures on consumers to spend and the ruinous influence of advertising that lured people into buying extravagant luxuries, which upon closer thought they did not actually want at all. The emerging ecological movement provided additional arguments in favour of government-controlled investment.

Co-determination of Workers

In essence, this debate brought forth the same arguments and counter-arguments that had already been postulated during the discussions on market socialism during

the 1930s. Politically, this discussion had little effect worth speaking of, at least as far as the control of investment was concerned, because in the meantime people were focussing increasingly on what had become a far more urgent problem, namely that of growing unemployment. Those who were either unemployed or in fear of losing their jobs had quite different concerns than the question whether the production of coloured underwear was justified or not.

Still, this debate resulted in a strengthening of worker-participation in German companies, starting with the revision in 1972 of the by then twenty-year old Works Constitution Act. Even in its original version of 1952 this Act had stipulated that one-third of the supervisory board seats in joint stock companies should go to the representatives of the workers. After the revision of this Act all companies with at least five employees – regardless of their legal form – were also obliged to set up a works council if their employees required it. Ever since, workers have had a direct say in the operational and decision-making processes of the firms they work in. This applies in particular to the hiring and dismissal of workers but also to organizational matters as well as the description and scope of individual jobs.

Works councils are not permitted to participate in wage negotiations in Germany because these are reserved for the trade unions and the employer organisations and are not considered a task for individual companies and their workforce. Even if a large company such as Volkswagen AG concludes its own wage agreement, it has to do so with a trade union and may not choose its own works council as its negotiating partner.

In 1976, after long and controversial discussions, the Co-determination Act was adopted for large joint-stock companies. Henceforth employees were represented in the same numbers and with the same rights on the supervisory board as the shareholders. However, when a decision has to be made and there is parity of votes of management and employees' representatives, the vote of the chairman of the supervisory board counts double and can therefore tip the balance.

As the law stipulates that the chairman of the supervisory board always has to come from the management side, there is in fact no genuine parity of representation. This is the fundamental difference between this Act and that applying to the coal and steel industry which was already adopted in 1952 for large companies in this industry. The latter model foresees the involvement of a "neutral person" instead of the chairman having a double vote and this person is generally elected jointly by the representatives of the employees and the shareholders. Thus, as far as parity representation of employees is concerned, the Co-determination Act of 1976 remained a little behind the coal and steel industry's Act of 1952. Even so, if the rare case occurred that the shareholders could not agree, the views of the employees' representatives on company policy were now heard in all large joint-stock companies. Moreover, they were now always informed about important company matters and were able to present their ideas directly to the management.

The employers fought in vain against the adoption of the Co-determination Act, failing once and for all in 1979 before the Federal Constitutional Court. Since then of course the uproar about this issue has largely died down. In practice, co-determined companies are not run much differently than they were before, which

is hardly surprising. After all, there is a far more powerful compellant than a supervisory board to decide on important company matters and that is the market. Under conditions of competition a business cannot afford to pay excessive wages at the expense of profitability, nor can it grant social benefits that are impossible to finance afterwards. Even the representatives of the employees in the supervisory boards were quick to realize this, which resulted in them being accused occasionally by their colleagues of having mentally transformed into capitalists themselves over time.

Our experience gained with co-determination illustrates the basic problems of any attempt at democratizing economic decisions. At the end of the day it is not possible to serve two masters at the same time and this applies to businesses as well. Either they have to stand up to competition – in which case there is only little scope for democratic decisions because the market dictates to a large extent what needs to be done – or they try consciously to circumvent the dictates of the market, for instance by refraining from necessary closures of businesses or by granting their employees expensive social benefits that exceed the normal standards. However, this they can only afford to do if they have a monopoly or if they are subsidized by the state. Neither of these options is reconcilable with the market and with competition.

Let us take a brief look at the history of the co-determined coal and steel industry in Germany. Ever since the 1960s it has no longer been possible to extract coal profitably in Germany. Whereas it can still be extracted in open-cast mining in other countries, the more easily accessible seams in Germany were depleted long ago, meaning that one now has to dig at depths of 1000 metres or even more. Already in the 1990s the costs of extracting German coal were three times higher than the world market price.

In spite of this, the representatives of both the employees and the shareholders have done everything to push through ever-new subsidies in favour of coal. In total these subsidies have amounted to well over 100 billion euros without anybody even stopping to think about whether German coal will ever be competitive again. Had the same sum been invested in competitive businesses, there is no doubt that far more jobs would have been created than were artificially maintained in the coal mining industry. The fact is though that these jobs were not supported by any political lobby.

Arrow's Voting Paradox

Needless to say, the political system of democracy has also contributed to the maladministration of subsidies. Whenever a large company gets into difficulties, politicians will soon turn up who want to save the jobs provided by this company. If the government grants any aid, the workers concerned will of course be very thankful. The costs of this aid, on the other hand, are distributed over the anonymous mass of taxpayers and will therefore not put the politicians who authorized them

at any risk. After all, nobody can attribute their tax burden to the subsidizing of any one company in particular, no matter how high their overall burden becomes.

It took a long time for economists to recognize how these political mechanisms worked; even as late as the 1960s most of them still assumed that politicians always had the best in mind for the people. Many political economists therefore believed that their role in society consisted only in providing the right policy instruments to the politicians so that the latter could achieve their political aims. The economists took the political aims themselves as the democratically legitimized basis for their work and the farthest they would go was to calculate for the politicians what their economic decisions would cost.

In the meantime, however, all this has changed. Alarmed by the many wrong decisions taken at the political level, economists themselves started analyzing the political decision-making process. This gave rise to the specialized field of "new political economy". Politicians were now no longer just looked upon as well-meaning public tribunes but as egoists whose main aim consisted in being re-elected – regardless of what would really benefit the people!

The image of the profit-maximizing firm was supplemented by the image of the vote-maximizing politician. Ever since Adam Smith people had known that the motive of businesses to make profits benefited also the general public provided the framework conditions were right. But, which invisible hand existed to ensure that the egoistic motives of politicians were also put to the service of the public good?

In order to answer this question, people had to clarify first how best to define what the public good was. The most obvious answer is that it corresponds to the democratically legitimate aims of politics and that it is therefore ultimately determined by the will of the majority. Unfortunately though, things are not as easy as this.

In 1951, a young American economist named Kenneth Arrow (born 1921) published a dissertation on this subject which gave him instant fame; in 1972 he was awarded the Nobel Prize for his work. Arrow showed that it was logically impossible for a community to make a choice between a number of options by any method of voting which did not result in partially contradicting the preferences between options expressed by individuals. This is also referred to as Arrow's Impossibility Theorem or simply as Arrow's voting paradox. Arrow's proof for his theory was somewhat complicated, but his basic idea can be demonstrated by using a simple example, as the French social philosopher, Marquis de Condorcet (1743–1794), already did in 1785. Suppose a family wanted to decide on a democratic basis whether it should buy a dog, a cat or a budgerigar. Suppose each family member had a different order of preference, corresponding to the following table:

Father:	Dog $>$ Cat $>$ Budgerigar
Mother:	Cat $>$ Budgerigar $>$ Dog
Child:	Budgerigar $>$ Dog $>$ Cat

No matter which of these animals was finally bought, the majority of the family would always be dissatisfied! If the family bought a dog, for instance, the mother

and the child would be disappointed because they would have both preferred to buy a budgerigar. If the family bought a budgerigar, the father and the mother would be dissatisfied because they would have both preferred to buy a cat. But even if they had bought a cat, the problem would not have been solved because both the father and the child would have preferred a dog to a cat! Thus we have an endless circular argument that is impossible to solve by any majority decision.

The conclusion from Arrow's analysis is that even for theoretical reasons, the public good cannot just be defined by democratic voting. Not only does the possibility of a contradictory voting outcome have to be taken into account, as in our example, but other dangers as well, in particular the oppression of minorities.

By contrast, on the market every consumer has the free choice of which goods he wishes to consume without needing to obtain permission from anybody else. It is only because the market is an anonymous mechanism which under conditions of competition cannot be manipulated, that it is in a sense more democratic than a political voting system, no matter how ingenious this system may be.

It is evident that it is not possible to solve every problem via the market. To take our simple example again, it could be that the dog, the cat and the budgerigar do not get along together or that the household budget allows for the purchase of only one animal. In this case there will be no other option than some kind of vote, just as this is the case with certain public investments like dykes or national defence. All the same, whenever a market-based solution to an economic problem of choice is possible, it should always be given preference to a political solution based on a majority vote.

For economic policy this means that democratic legitimacy refers above all to establishing a regulatory framework within which individual decisions should be taken. Once people have understood, for instance, that businesses will achieve better results in a competitive system than if they receive subsidies, subsidies should be forbidden once and for all. Moreover, no exceptions to this ban should be permitted whenever superficial employment considerations make this seem politically opportune. It is not possible, after all, to determine the rules and the outcome of a game at the same time! Unfortunately, the tendency is great among politicians, who generally only set their sights on being re-elected, to disregard this principle when concrete problems come up.

It was Friedrich A. von Hayek who suggested taking the precautionary measure of establishing a political system of two chambers. The first chamber's task was to define the basic regulatory framework and to ensure that this framework was decided on a mandatory basis for a long time. The second chamber, on the other hand, was to deal only with daily affairs and was to adhere to the regulatory framework set by the first chamber. Under such a system it would naturally be very difficult to violate principles that had proven beneficial for the whole population in the long term for the sake of short-term electoral rewards.

This regulatory framework was to be defined as independently as possible from current affairs because only then could influential interest groups be prevented from asserting their short term and egoistic motives. In a theoretically ideal case all members of society would contribute to the establishment of this framework,

albeit without knowing or even having any idea of which concrete place they may one day take up in this society. This would be the most likely way of ensuring that fair and effective rules are developed in the long term. People also refer to the so-called "veil of ignorance" as a prerequisite for fair decisions.

The idea of a voluntary social contract with a long-term binding effect has been propagated by many liberal economists and philosophers, starting with Thomas Hobbes (1588–1679) and John Locke (1632–1704) during the mercantilist era up till James Buchanan (born 1919, Nobel Prize laureate in 1986) and Gordon Tullock (born 1922), who picked up these ideas again in the 1960s. Difficulties with these ideas arise when trying to put them into practice. In reality, of course, we are all fairly aware of which concrete social situation we are in and which rules would therefore be of most personal benefit to us. This means that when we are agreeing on the rules we are in fact already in the middle of the game! Moreover, the willingness of politicians in office to limit their future scope for decisions through the adoption of long-term binding legislation is not very great.

Even so, in some cases such limitations have been agreed upon. One example is the independence of central banks from governments that has been introduced in most industrial countries and has also been agreed for the European Central Bank. Here, the influence of daily politics on monetary decisions was consciously ruled out so as not to jeopardize the goal of price stability. Another example is the stability pact that has been adopted by the countries participating in monetary union, which has committed them to keeping government indebtedness within certain limits.

We could easily go further and agree, for instance, on a general ban on subsidies – maybe supplemented by a number of precisely defined special regulations – or on the introduction of maximum limits for the share of government outlays in the domestic product and the tax burden for the individual citizen. In an ideal case, we could draw up some kind of basic legislation governing economic policy, summarizing the most important principles of market economy that could only be changed by a two-thirds majority. Whether policy makers will ever muster up the strength to adopt such legislation remains to be seen.

Is Federalism an Answer?

There is another way of getting vote-maximizing politicians to act in such a way that they meet at least to some degree the real interests of the population they represent. This option was proposed in 1956 by Charles Tiebout and has been discussed under the catchphrase "fiscal federalism" ever since. Tiebout suggested transferring the tasks of the state not only to one central government but to several competing regional authorities. Apart from the USA, Germany and Switzerland are examples of such federally organised states, where Länder or Cantons work alongside the central government. In fact, according to Tiebout, even municipalities could compete with each other in an effective way.

In a federal system citizens have far better possibilities than in a centralist state to voice their preferences in the political arena. Not only do they have a democratic right to vote but they also have the possibility of changing their residence to another region. The American economist Albert O. Hirschman described these two sanction mechanisms illustratively as "exit and voice" (migration and opposition). Local governments therefore have to make more effort and in particular take more account of the interests of minorities than a central government does. Moreover, Tiebout's system of Federalism makes it possible to draw together people who have the same interests, contributing to a better match between supply and demand for public goods than would be possible if such goods were provided by a central government. For example in some areas people would be permitted to keep large dogs whereas in others they would not. Depending on whether people like dogs or not, they could choose between these alternatives when they determine where they want to live.

Critics of federalism point to the danger of competing regional authorities ultimately ending up in "a race to the bottom", i.e. in a ruinous "competition between mayors" with ever declining tax rates and social standards so as to attract as many businesses as possible to their region. What speaks against this is that if there are no tax revenues, there will also be no provision of public services. Every local government will therefore try to offer an optimal balance of tax burden and infrastructure provision, which is exactly the point of federal competition. Even though there are reasons why federal competition will never function as well as competition between businesses – this cannot be the case because politicians are not entrepreneurs – compared to the alternative of a centralist state, federalism undoubtedly offers definite advantages, both in terms of efficiency and democratic legitimacy.

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Social Aspects of a Market Economy

From the "Coal Miners' Penny" to the Welfare State

Market economies are often accused of benefiting only the strong. Successful businesses make good profits and those people who work hard and have had a good education can generally look forward to a high standard of living. But what about the weaker who are not able to stand up to competition? And what about the elderly and the sick who can no longer perform to the extent that the market requires of them? What is a single mother supposed to live off, who already has enough to do just raising her children?

We should not make the mistake of thinking that such problems only occur in capitalist economies. On the contrary, they are common to every society, no matter what the prevailing economic system is. Even the ancient Greeks and the Romans had to contend with such problems. The ancient Greeks, for instance, set up a public relief fund for war victims, something they were badly in need of considering the belligerence of countries in those days. There were also doctors who took care especially of the poor and who were paid from a special doctors' tax financed by the better-off. Even the unemployed received a limited number of benefits in kind as well as some modest financial support. Ironically, slaves did comparatively well in this system because as they were the property of their employers, the latter had a natural interest in keeping them healthy and able to work.

Even the rudiments of private insurance can be traced back to antiquity. For instance, people could join a burial association that paid for their grave after they had died and even contributed to an orphan's allowance if necessary. However, it was only possible to join such a scheme up till a certain age and people had to prove they were in good health so as not to be rejected. Obviously, these were all very modest and incomplete forms of social protection.

In the early capitalist system of the 19th century people did not make so much ado of social issues as they do now. Those people who could not provide for themselves were either dependent on their families or on the help of some charitable organization. These organizations had a long tradition that was strongly influenced by the Church. In the Middle Ages it was mainly the monasteries that attended to the poor, including orders such as the German "Johanniter Bund" that took care above all of the sick. Then there was Caritas, a Christian public charity organization that was not financed from taxes in those days but from voluntary donations by its members – the so-called "nest egg of piety" – for which donors were promised forgiveness for their sins. Only very few city hospitals existed in those days and most of them suffered under bad management.

One exception was the Red Cross that was founded in the mid-19th century by Henri Dunant (1828–1910) from Geneva who was the first person ever to be awarded the Nobel peace prize. Dunant was inspired by what he had witnessed during the terrible Battle of Solferino, where the French fought against the Austrians. The

famous flag of the Red Cross is the same as the Swiss national flag, except that the colours have been switched around.

After the Thirty Years War (1618–1648) the first cooperative forms of social protection started up. The coal mining industry in particular led the way in this area because working in the mines was dangerous and often took place far from any settlements. Initially, social benefits were financed from voluntary donations by the miners, later from regular contributions, the so-called "coal miners' penny". In fact even today, the social security scheme of the coal mining industry in Germany is still in the hands of an independent organisation, the so-called "Knappschaft".

However, there were also some large companies in the 19th century such as Krupp that conducted a company social policy that was quite exemplary for those days. Needless to say, such policies were often inspired less by social ideals than by a need to preserve the strength of the labour force and, what was most important, to fend off the trade unions. One has to say though, that all in all, working conditions were truly unbearable in those days, with people having to work 80 hours or more per week and employers justifying such hours as a measure to protect people from alcoholism and other vices! Even children had sometimes to work 14-hour days in factories until government legislation such as the Prussian Child Protection Act of 1839 imposed the first limits on such practices. Again, this legislation was inspired less by charitable motives than by the fear that such hard work could damage a child's ability to perform in the army.

With progressing industrialization, governments gradually began to focus more on social matters. Again, this was motivated to a high degree by their fear of revolution and social unrest. In 1920 the British government permitted the trade unions to take up their activities again and passed new worker protection legislation following the uprisings of the workers in Manchester in 1919. The Prussians made the first attempts in 1849 to set up a public sickness insurance fund which was no doubt also a reaction to such events as the uprising of the Silesian weavers in 1844 and the revolution of 1848. In fact, policy makers were quite frank about their motives. In his proclamation of 1881, launching the establishment of the Prussian social security system, Emperor William I openly refers to the "repression of Social Democrat rioting".

The foundations for today's national insurance in Germany were laid by Bismarck's social legislation. The first of Bismarck's measures was the introduction of the sickness insurance law in 1883. This was followed by the Accident Insurance Law in 1884 and the Old-Age and Invalidity Insurance Law in 1889. Unemployment insurance, on the other hand, did not exist in those days yet and was only set up in 1927 as a government monopoly insurance.

National economists did not deal systematically with social policy until relatively late. The classicists were mainly interested in increasing prosperity and in maintaining full employment. Even Ludwig Erhard, the father of the German economic miracle after World War II, believed that social matters would become increasingly insignificant the wealthier people became. However, this has turned out to be mistaken because with rising incomes the share of social outlays, i.e. the share of the domestic product spent on social benefits, has increased significantly in practically

every industrial nation. Whereas in 1960 the share of social expenditure was only around 22 %, by 1975 it had already risen to about one third, a level at which it has remained ever since with a few fluctuations.

Thus, on the one hand, people benefit from a degree of social security nowadays that would have been unthinkable in the 19th century. In Germany, apart from cover for the most basic social risks such as sickness, unemployment and old age, a new compulsory nursing care insurance has been introduced and social benefits in general have reached a level they never had before. On the other hand, this high degree of social security has resulted in an ever-increasing burden of taxes and social contributions, because obviously these benefits have to be paid for somehow. Today, almost every second euro in Germany goes to the government which then uses this money on its own expenditure. Apart from financing the national insurance service, the government pays extensive subsidies such as those to the uncompetitive coal mining industry. It also finances council housing, support for farmers and many other things. Some people may think it a good thing that the economy is influenced so strongly by the state, others may oppose this – whatever the case, it has little to do with the capitalist system of the 19th century.

In the past the main aim was to insure people against the most serious risks of life, notably the workers who possessed practically no private property that they might have been able to fall back on in an emergency. Moreover, there was an urgent need to provide for reasonably tolerable working conditions and a minimum of legal protection against exploitation or arbitrary dismissal. Among the national economists it was especially the "Verein für Socialpolitik", founded in 1872 and including such reputable economists as Gustav Schmoller (1838–1917) and Adolf Wagner (1835–1917), that lobbied for such measures. Still, their political influence was limited and they were soon disparagingly referred to as "socialists ex cathedra". Today, the "Verein für Socialpolitik" is the leading association of German speaking economists; its meetings are attended by every economist of stature. It has long expanded its research to all areas of economics and has become a discussion forum that focuses on social policy as only one topic among many.

Nowadays, we know far more about how things like pension schemes should be financed or how sickness insurance schemes should be organized so that they work on a lasting basis. Many economists have also spent a great deal of time deliberating on how one should best help the poor and the unemployed without destroying competition or existing incentives to work. However, so far all this has remained piecemeal and no comprehensive theory of social policy has yet been devised that could be any match at all for our theoretical knowledge of, say, monetary policy. So we have to limit ourselves to recapitulating what can be regarded as reasonably solid facts in this field and we will add a few of our own thoughts as well.

Is there an Optimal Rate of Government Outlays?

Let us begin with the ostensibly paradoxical fact that the scope of national insurance has not declined with increasing prosperity but quite the opposite, it has continuously expanded. Upon closer examination this is not as surprising as Ludwig Erhard would have probably thought. Obviously, security is a matter of great importance to most people, in other words it is an issue where demand rises disproportionately as incomes rise. If people have little to lose as they did in Germany after the Second World War, they will probably put all their efforts into achieving a certain level of prosperity first. After all, the government could hardly deduct half of people's incomes as taxes or social contributions without robbing them of all motivation right from the start or plunging them into social hardship. For this reason it was wise and correct of the German government to deregulate prices and markets and keep the burden of contribution within limits so as first to strengthen people's willingness to work and the dynamics of markets.

People accepted the inequitable distribution of income that went with this approach, where those who worked hard and had that little bit of necessary good luck could become millionaires in the ensuing economic miracle. Even though the rest of the population also benefited from growing prosperity and full employment, in terms of their relative incomes they remained far behind those who were more successful. The tax legislation of those days also contributed to this because it would compensate businesses for retaining their profits instead of paying them to their shareholders. In other words, those who immediately re-invested their profits were rewarded and this resulted in a particularly one-sided distribution of wealth. In the 1960s, a study conducted by the German economist, Wilhelm Krelle, caused a great stir because he claimed that 70 % of German productive assets were in the hands of only 1.7 % of households. However, Krelle had only taken account of a small part of total assets, notably the capital of businesses that logically belonged mainly to the owners.

With increasing prosperity people gradually changed their focus of interest. This was because they suddenly had something to protect, namely a secure job and maybe even a house that they had not yet fully paid for. Sickness, unemployment or even the death of the main breadwinner of a family were not supposed to jeopardize what people had already managed to acquire. Furthermore, as a result of the high growth rates following the war, people had become accustomed to incomes increasing at regular intervals even if they did not work longer hours or, what was more, even if their working hours were reduced. It is evident that under such conditions, social contributions had to be indexed as well because only then was it possible to maintain the acquired standard of living in the event of any crisis.

In political circles, people were only too pleased to pick up on this shift in interest among the majority of the population. We must not forget that in a democracy, politicians are only successful if they "do something", best of all for the ordinary people. Already in the 19th century, a law was drafted by Adolph Wagner on the rising share of government outlays in the domestic product that he based among

other things on the government's growing social responsibilities. Wagner has often been criticized for his somewhat vague proof for his law, but the way that government budgets have developed in the industrial countries has actually proven him right so far.

It is true that taxing high incomes more heavily in order to relieve lower-income earners from some of their burden seems an attractive idea. John Stuart Mill, the most socially-minded of the classical economists, had already advocated the introduction of a radical inheritance tax among other things. However, after World War II government outlays rose to such a degree that they had to be financed by taxing medium incomes and finally even lower incomes fairly heavily as well. Thus, it was in fact the ordinary people themselves who were increasingly financing the social benefits they were receiving from the state.

In the 1970s and the early 1980s owing to high inflation, taxes even started going up automatically without anybody having to actually raise the rates. The reason was that rates were progressive which meant that in many countries lower income brackets were taxed at roughly 20 % whereas higher income brackets were taxed at well over 50 %. With rising incomes, increasing numbers of people were classed in the more highly taxed income brackets. However, as these rising nominal incomes largely reflected little else apart from a depreciation of money, taxes increased without real incomes rising correspondingly. Only few people were actually aware of the effect of this so-called "cold progression" and their resistance to such taxes increases was accordingly low at first.

Things were compounded by the fact that as taxes increased, people's expectations understandably rose as well as regards the payment of benefits by the state – a vicious circle indeed! Hardly anybody realized that the subsidies and the benefits they were receiving for their housing, for instance, represented a correspondingly high tax burden for everybody. And what of it – it was always the others who seemed to be paying in such cases. It was only the sum of government outlays that revealed that many of those who were apparently benefiting were also in fact being asked to pay.

In economics, such conflicting cases are referred to as moral-hazard-problems. What may initially seem to be a benefit to the individual harms him as well in the end because everybody else acts in the same way. All in all, the result will be negative for everybody. Let us take a look for a moment at how the state finances the public health service. Taken to its extreme, medical treatment and medicines are provided free of charge to patients, while the costs are financed from insurance contributions or taxes. The result is that many unnecessary services are claimed, i.e. too many medicines are prescribed in too large a quantity, the number of visits to the doctor is relatively high and if in doubt, people will choose to have one more rather than one less X-ray or electrocardiogram. Those who do not believe this should check in their medicine cabinet how many medicines it contains that have hardly or even never been used.

In such a system, nobody has any interest in paying any attention to costs, neither the patients who do not pay directly for their treatment, nor the doctors who earn more, the higher the number of patients they receive. Even though

ultimately everybody will be complaining about rising contributions or excessive taxes, nobody will behave any more cost-consciously than before because by doing so they would primarily be lessening the burden of others – in other words, we have a classic moral-hazard-problem here!

This problem arises with any type of solidarity-based system of financing where the costs caused by one are passed on to everybody else. Even private insurance companies have to contend with this problem. The situation is comparable with a cold buffet where everybody may eat as much as they wish at a fixed price. Anybody who has ever taken part in such a buffet will have noticed that many people will eat as much as they possibly can, thereby raising the costs of the buffet for everybody. By contrast, if everybody had to pay for each individual portion, some people would soon realize that they were not so hungry after all.

This does not necessarily mean that solidarity-based systems of financing for certain services should be rejected on principle. But the effectiveness of such systems depends very much on how they are organized. Even if patients paid only a low contribution to the costs they cause, this might work wonders. For instance, many countries have introduced unpaid or partially paid days of sick leave whereupon the number of days that people registered as sick suddenly fell dramatically in many cases. The same effect can be achieved if patients have to pay a direct contribution when they visit a doctor or when they buy medicines instead of being charged afterwards via their contributions. Many private insurance companies also offer reimbursement of contributions to their clients if these have claimed only few or even no services at all during a given year.

It is evident that the social implications of such measures have to be weighed up very carefully if the basic principle of solidarity is to be retained. Things should not go so far that people start protracting their illnesses for financial reasons because this would only increase the overall costs in the end. A lot of intuition and imagination regarding the conditions of insurance are required here. However, one thing is certain from the history of national insurance schemes. If everything is provided for nothing, costs will explode and nobody will be prepared in the long term to carry the resulting burden of taxes and contributions.

In particular in the Scandinavian countries but also in countries like the Netherlands or France, government outlays rose to well over 50 % in the mid-1980s. In fact, social benefits were so generous that for many people it was no longer worthwhile working at all. In the Netherlands over one million people went into early retirement due to ill health, out of a population of only 16 million. Other countries such as Austria or Germany preferred to send their older unemployed people into early retirement rather than provide them with better chances of finding employment.

The flip-side of this welfare state policy was that the burden of taxes and contributions got so heavy that it hindered the creation of new jobs. This problem was exacerbated by the fact that high subsidies were being paid to economic sectors that were no longer competitive. Even though some jobs were no doubt saved due to such subsidies, in the end the costs had to be carried by the healthier economic sectors, which paralyzed the economic dynamics in these sectors. Thus these policies were socially-minded only from a very superficial point of view. At the end of

the day everybody was basically exploiting everybody else and the resulting weakening of market forces contributed significantly to the rise in unemployment in Europe.

As far as the optimal share of government outlays in the domestic product is concerned, some economic studies have estimated that this should be somewhere between 25 and 30 %. However, conditions in individual countries vary too much for anybody to be able to define an optimal rate of government outlays applicable to all countries. It is far more important that the provision of benefits is organized as efficiently as possible and can be financed on a lasting basis. Most importantly, it has to be prevented that moral-hazard-problems cause the public sector to expand so much that the dynamics of the market as the basis of prosperity suffer as a result.

The "Magic Triangle" of Social Policy

Ever since World War II the German economic system has been described as a social market economy, a term that was coined by Alfred Müller-Armack (1901–1978). Originally a professor in Münster and Cologne and later Secretary of State at the Ministry of Economics, Müller-Armack contributed significantly to the conception of the social market economy. In comparison to the ideas of the Freiburg school around Walter Eucken, Müller-Armack's model lays a much greater emphasis on social policy. Ordoliberalist economists have therefore often viewed it with a certain degree of reservation or even with mistrust, which was no doubt also fuelled by the developments described in the previous section.

Things are not made any easier by the fact that social policy is not exactly a field for simple elegant solutions, as economists generally like. On the contrary, it is often not possible to avoid choosing between a number of ills. The target conflicts arising in this context are referred to as the "magic triangle" of social policy.

Take, for instance, the problem of adequate insurance against unemployment. In most countries job seekers first receive benefits equivalent to a certain percentage of their prior earnings. After these benefits have expired they will be supported from taxes albeit at a lower rate and in relation to how needy they really are. The length of time that people are eligible to receive such transfer payments and the amount they receive are regulated very differently in the various countries. The same applies to the efforts that unemployed people are required to make to find a new job. In principle, it is possible to distinguish between three basic approaches that can also be applied to other socio-political contexts.

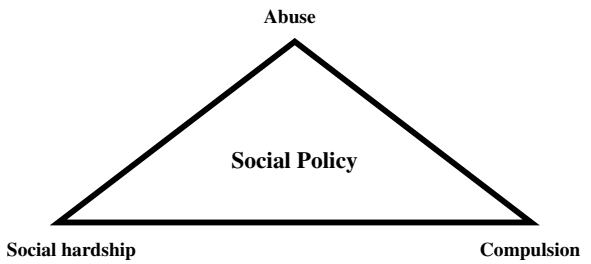
In continental Europe it is generally considered important to provide the best possible cover for the unemployed. Eligibility periods are relatively long, benefits can amount to as much as 70 % of the last net income and the requirements for job seekers as regards their willingness to retrain or to accept less well-paid jobs are not very strict. This model can be described with some justification as the most socio-democratic solution to the problem. Obviously, it has its advantages for job

seekers, but for the economy as a whole it means high costs in the form of transfer payments and long-term unemployment.

In the Anglo-Saxon countries, notably in the USA, policy makers have adopted a different approach. In these countries transfer payments have been cut to a minimum and end completely after a relatively short period. This puts the recipients under heavy pressure to look for a new job within a relatively short time. This approach has been described as the liberal solution. Its advantages are that it does not cost the general public so much and there is a strong incentive for people to work. On the other hand, there is little social protection for the individual, which in some cases can lead to real hardship and to a descent into criminal behaviour.

The third approach is what we call the conservative approach as it is practised, for instance, in Switzerland and in certain Scandinavian countries. In this case, relatively generous transfer payments are combined with strict controls against abuse as well as stringent requirements for job seekers to retrain and keep themselves constantly available for a new job even if it pays less well than their last one. It is a solution that offers a high degree of social protection for the individual but attempts to keep costs within certain limits. Its disadvantage lies in the fact that it is a fairly bureaucratic procedure and that it leaves job seekers with only little choice. Taken to its extreme it even amounts to a general obligation to work.

If we take these three approaches as the corners of the "magic triangle" of social policy it will make sense to look for an efficient compromise solution between these extremes. Even then, it is not possible to define an optimum in the strictest sense at a purely academic level. Such an attempt would soon fail for the following two reasons. Firstly, concrete socio-political problems are far too complex and varied to make it possible to define a common optimal solution. Secondly, value judgements and socio-political attitudes play a significant role here. Depending on how much importance people place on the advantages and disadvantages of the various solutions, they will devise different systems. That leaves the economists with nothing more to do than to point out the conflicts between the various targets and to show ways how these conflicts can at least be kept within limits in practice.



In the "magic triangle" of social policy, people have to search for a compromise between three ills. No optimal solution has yet been found at the academic level.

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Taxes and Justice

Who Should Pay how Much in Taxes?

Until the mid-19th century, the state financed itself primarily from revenues from customs duties. Taxes, by contrast, did not play such a significant role in those days, apart from the occasional "war contribution" that could in fact be quite high. However, after customs duties had been drastically reduced during the era of liberalism, taxes became more important to finance government expenditure. Increasingly, the imposition of taxes was justified with the inequitable distribution of income, i.e. those who were earning high incomes should pay higher taxes than those who were earning relatively little. Even so, compared to today's tax rates the overall tax burden for the population was absurdly low. Even as late as the end of the 19th century, the maximum tax rate in Prussia, for instance, amounted to a mere 4 per cent and it only needed to be paid from an income onwards of what would now be about 50.000 euros.

Today, we take it for granted that higher incomes are taxed over-proportionally. If somebody earns twice as much as the person next-door he not only pays twice as much in taxes, but possibly even three or four times as much. As a result of this progressive income tax, relative disparities in income have diminished with net incomes diverging less than gross incomes. This is quite intentional as one of the purposes of taxation on income is to provide for more social equality.

It is in fact not so easy to come up with a precise economic justification for a progressive tax system. In the 18th and 19th centuries many political scientists and

economists advocated what was called the "insurance theory of taxation", where the services of the government were regarded as a form of insurance for citizens and their property. As the state was responsible for national defence, among other things, as well as for internal law and order, it was those who had the highest incomes and assets who profited most from the state's services. Going by this approach a proportional income tax would have made the most sense because people's need for protection increased proportionally to the income that they needed to preserve.

In effect, the economic classicists, above all John Stuart Mill, advocated a proportional tax whereby if somebody earned double the amount of the person next-door, he or she should pay double the amount of taxes but not more. Moreover, if one took into account that the state also provided for such things as roads and schools, a system of proportional taxes seemed quite justified. One just had to assume that those earning more were also benefiting more from such facilities in proportion to their income than the poorer sections of society. Going by this principle of quid pro quo, the so-called principle of equivalence, these theories led to the development of a proportional tax.

In order to justify the progressive income tax that is commonly applied today, people had to move away from the theory of equivalence. They replaced it with the concept of taxation based on people's ability to pay. It was not how much an individual availed himself of the government's services that was to determine the tax rate but people's respective ability to contribute to the common financing of government expenditure. Still, this did not explain why people's tax burdens should rise over-proportionally to their income and not just proportionally.

There have been many theoretical attempts to substantiate why this should be so. Some argued, for instance, that as from a certain level of income onwards it became increasingly easy to earn more money. This applied primarily to investments and assets on the capital market. It is always the most difficult to earn the first million, as people still say nowadays. Nevertheless, we should not forget the risks involved with capital investments, because many an attempt to increase a fortune of a million has ended up with this fortune melting away instead. Even though some managed to feather their nest in time by limiting their liability or by transferring their assets to their wives, this is more a matter of liability legislation than of taxation. Whether the second million really is easier to earn than the first, the risk being the same, and whether it should therefore be taxed more heavily remains highly questionable.

Another explanation for progressive tax rates is provided by what is called the "theory of sacrifice" that was propagated by the two English economists, Francis Edgeworth (1845–1926) and Arthur Cecil Pigou (1877–1959), amongst others. This theory is closely associated with the assumption of the falling marginal utility of income. Remember the first of Gossen's laws, whereby the utility we draw from the consumption of a product will increase under-proportionally to the quantity of this product, i.e. the first sip of water will serve us better than any other sip, which is the same with all other products as well. The sacrifice theory of taxation transfers this idea to incomes. However, this implies obviously that if a high-income earner pays the same taxes as a low-income earner the former will sacrifice less utility than the latter.

Strictly speaking though we should then only tax the highest incomes and we should do so by just the amount necessary to ensure that the remaining net incomes are no higher than those earned in the next lowest non-taxed income bracket! Only in this way would it be possible to minimize the overall sacrifice that people have to make due to taxation. Even though Pigou and Edgeworth did not draw this radical conclusion they did acknowledge how detrimental such a tax system was to any economic performance. Still, it made sense to derive a system of progressive income tax from this "theory of sacrifice".

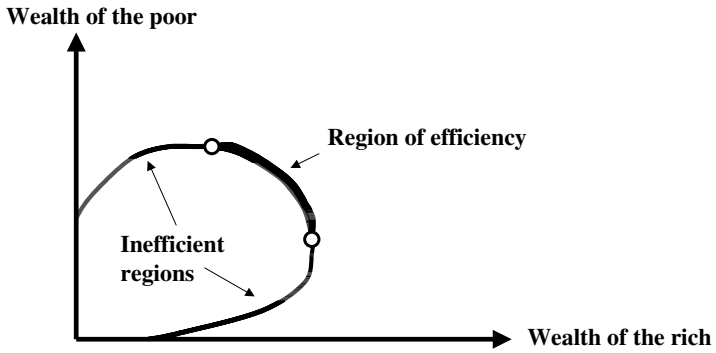
Today, most people reject the sacrifice theory because it has certain fundamental flaws. It is doubtful enough alone whether Gossen's laws can actually be applied to incomes at all, because they refer to the choice between different goods. However, the only alternative to income is leisure time. This means though that an individual's utility should not be measured only in terms of his income but also in terms of his remaining leisure time. If somebody earns twice as much as the person next-door but has only half the leisure time, he or she will not necessarily be better off in the end. Thus, to measure the tax burden solely in terms of income would not be correct, in particular not on the basis of the sacrifice theory.

However, if we also take account of leisure time as a basis for assessment of taxation this will soon give rise to insurmountable assessment problems. This is because people value income and leisure time very differently – this, after all, is one important reason why people earn different incomes. Those who want to regularly start their weekend early on a Friday afternoon and take six weeks' holidays a year obviously have different preferences from those working in the evening or at weekends and therefore earning accordingly more money. It is difficult to explain why a progressive income tax should be applied in this case; in fact, this is already difficult enough with a proportional income tax.

Limits of Social Justice

In summary, we have to say that from an academic point of view it is hardly possible to define what is "equitable" distribution of income. Ultimately this will always be based on political value judgements that we may either agree with or not. However, there are certain limits to income taxation that should be adhered to under all circumstances, in both directions. These limits are not based on aspects of equality but purely on efficiency. This is because both too "lax" and too "strict" an income tax can harm all members of society in the end, including in particular those who are supposed to be benefiting from taxation.

To illustrate this point, let us take once again the extreme conclusions resulting from the theory of sacrifice. If, from a certain level of income onwards, people really had to pay every additional penny they earned in taxes they would soon lose all incentive to work. A hairdresser would immediately drop his scissors once he had reached the taxation threshold, an entrepreneur would no longer carry out even the wisest investments and moonlighting would probably become a national



The prosperity possibility curve indicates all possible combinations of prosperity of the rich and the poor. Only in the boldly coloured section is efficient re-distribution of wealth possible.

sport. As a result, the national product could decline to such an extent that even those incomes would suffer that are exempted from taxes. However, this can hardly be the object of the exercise.

On the other hand, if taxes were too low, this would also cause problems. Because then the state would not earn enough revenue to carry out necessary infrastructure investments and this would not serve the interests of the better-income earners either. Moreover, the danger of social unrest would be very great if the state did not correct very extreme disparities in income. The consequences could be that lower-income earners lost their motivation or went on strike or that there was even a political uprising. This would also hardly be what the high-income earners would want and therefore it is ultimately also in their interest that taxes and social transfer payments are used to establish a certain social equilibrium. Furthermore, many high-income earners will take account of the possibility that they or their relatives or friends may run into financial difficulties one day, which is another reason why they will agree to a certain level of social equilibrium.

It is possible to illustrate these processes with what is called the prosperity possibility curve, the basics of which were first developed by Paul A. Samuelson. The one axis depicts the prosperity of low-income earners, the other axis that of higher-income earners. If the gains in prosperity of the one group were always achieved at the expense of the other group, we would obtain a curve that slopes down from the top left to the bottom right as Samuelson had initially drawn. However, as we have said above, if we take into account that an increase in prosperity of the one group can even be in the interests of the other group, the two ends of the curve will turn back near the two axes, resulting in a club-shaped curve.

Only the downward sloping, north-eastern part of the curve is efficient because only in this area can we choose between higher prosperity either for the poor or for the higher-income earners. Which point on the curve we should go for cannot be defined at a purely academic level, because this is a matter of value judgements. On the other hand, the two rising branches of the curve are clearly inefficient because

here it would be possible to improve the situation of both the poor and the rich by moving towards the north-eastern part of the curve. Any national economy would therefore strive to leave these areas as quickly as possible. If the economy were in the area near the higher end of the two rising branches of the curves it could try to leave this area by lowering the tax rates of the rich, as the resulting increase in the national product would also help the poor to gain more prosperity. If, by contrast, the economy was near the lower branch of the rising curve it would be advisable to redistribute incomes more in favour of the poor, since the resulting social satisfaction would prevent strikes and social unrest from occurring, and this would also be in the interest of the rich.

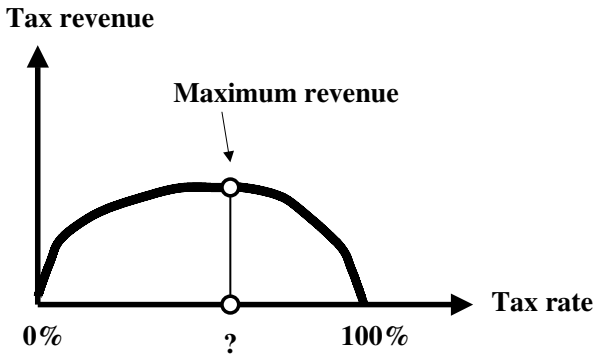
In the early 1970s, the American economist and social philosopher, John Rawls, suggested selecting the point of the curve at which the prosperity of the poorer sections of society would always be maximized. In other words, the rich should be left with only the minimum number of incentives to perform as are absolutely necessary – any additional income should be taken away in tax and distributed to the poor. From a theoretical point of view there is something to be said for this suggestion, that is known in economic literature as the so-called "maximin principle". In this context maximin means the maximization of prosperity among those sections of the population that enjoyed the lowest ("minimal") level of prosperity at the outset. This sounds plausible, not only to Marxists.

The problem is that it is hardly possible to measure individual prosperity objectively. As we have already seen, not only income but also leisure time is an important component in this, not to mention any other elements of prosperity that are far more intangible such as risk, health or satisfaction at the work place. For this reason Rawls' suggestion to measure prosperity only in terms of income is hardly acceptable.

Moreover, Rawls' concept of justice is just as normative and therefore academically unfounded as any other concept of social justice. Basically, he suggested exploiting the wealthy as much as possible in favour of the poor, i.e. up to exactly the point where this would also begin to harm the poor. We could also do the opposite and select the point on the curve that is farthest east. In this case it is the poor who would be being exploited as much as possible, which means that they would be left with just enough wealth as not to put in question the social consensus. To most of us this would seem the less attractive solution, however from a purely academic point of view, there is no more and no less to be said in favour of this solution than of Rawls' maximin principle!

Probably therefore, the best thing is not to go for either of these two extremes but to adopt a more moderate approach in income tax policy leading to somewhere in the efficient north-eastern area of the curve. A more moderate tax policy is advisable if only because the curve represents an extreme simplification of complex social reality and therefore does not serve as much more than an abstract model. It does, however, illustrate relatively clearly why we should be careful not to choose any extremes in tax policy.

There is another closely related theorem, the so-called Laffer curve that comes to the same conclusion. Many politicians believe that the tighter the screws are



The Laffer-curve shows that if tax rates are too high, revenues will fall and not rise! It is still not clear though where exactly the threshold is.

put on the taxpayer, the more revenue the government will earn. However, in the 1980s during the Reagan administration, the American economist, Arthur Laffer, refuted this belief using a simple curve that was later named after him. Apparently he drew this curve for the first time on a serviette during a dinner-party. In actual fact, its central message has already been known since the Middle Ages and was already contained in the book, "Tax Basics", that the English satirist, Jonathan Swift (1667–1745) published in 1728.

In order to explain Laffer's basic idea let us assume the tax rate was zero – obviously, in this case the government would earn no tax revenue at all. Now take the other extreme, i.e. a tax rate of 100 %. In this case the government would earn no revenue either because nobody would be prepared to work anymore. It follows, therefore, that somewhere in between is a tax rate at which government revenue is maximized and that if this optimal rate is exceeded, tax revenues will fall and not rise! This simple idea is embodied in Laffer's bell-shaped curve, although it still remains very difficult to determine the exact level of revenue-maximizing taxation.

All the same, as far as practical tax policy is concerned we can still learn something from these theories. Obviously it is highly ineffective to base tax policy solely on more or less well thought-out concepts of justice because by doing so, we would most likely harm the very people whom we wanted to help gain more prosperity.

Pro and Contra Poll Taxes

There is another reason why we should refrain from discussing taxes only in terms of distribution. Even though it may seem that what people have to pay in taxes goes to the state as revenues and that therefore no money is actually lost, things are not that simple. This is because almost any tax will distort the market's signals in one way or another and will therefore lead to inefficient production structures. For this reason, the loss of prosperity that private businesses will incur will be greater

in reality than their mere loss in disposable income and will therefore also exceed the additional gains of the government. In financial writing this is referred to as the excess burden of taxation.

To illustrate this let us take two artisans, say, a gardener and a plumber and assume that each of them charged an hourly wage of 10 euros. If taxes did not exist it would obviously make sense for these two artisans to exchange their skills, because the gardener could dig up more weeds and mow more grass per hour using his special skills than the plumber, whereas the plumber would be more productive than the gardener in mending water pipes. In this way both artisans would benefit from asking each other to do what they could respectively do best and from using the time they saved to pursue their own jobs. Ultimately, this principle of the distribution of labour would lead to higher gains in prosperity for both of them than if they had tried to do everything themselves.

All the same, it is not as if all taxes triggered off the same distortions; in the case of a poll tax, for instance, such distortions are relatively minor. Suppose the government introduced an income tax of 50 %, i.e. everybody would have to pay half what they earned on the market to the state. This would mean that the gardener would now have to dig up weeds for two hours instead of one hour in order to be able to pay for one hour's work by the plumber. The same applies to the plumber of course! As a result it would pay them to do as much as they can in the house and garden themselves instead of asking their expensive colleague to do so. At least this would be the case as long as the gardener did not have at least double the skills in his special field than the plumber and vice versa.

Thus, the rate of the economic division of labour would decline, but so would the average productivity of labour and the overall prosperity of the two artisans. This means that the tax has practically driven a wedge between people's private assessment of costs and real economic cost relations, thus distorting the structures of production. As a result, the losses in income that the private economic actors incur will be greater than the taxes they have to pay. This is the inevitable excess burden that will occur in one way or another with almost any kind of taxation.

There is only one exception to this rule and this is that of a poll tax. Suppose both our artisans each earned 20.000 euros per year. Suppose the government imposed the same poll tax on all citizens regardless of how much they earned, say, of 10.000 euros. The state's tax revenue would then be just as high as it would have been in the case discussed earlier of an income tax rate of 50 %.

Nonetheless, there is one decisive difference. As a poll tax has to be paid no matter how much money people earn, it will hardly have any influence on any decisions concerning production. Exactly 10 euros will remain as disposable income out of each additional 10 euros earned, which means that the rate for an hour of labour will not increase. As it will therefore be possible to maintain an economically efficient distribution of labour nobody will feel compelled to try and do everything themselves and there will be no losses in productivity or prosperity. Even though the government will have earned the same revenue, the excess tax burden will have been avoided.

Moreover, it would be extremely easy to levy a poll tax, as it would obviously neither be necessary to assess how much money individual people earned nor to fill in any complicated forms. One single tax official would probably suffice for every 100.000 citizens!

Why is it then that in reality poll taxes hardly exist even though they seem to have such definite advantages? Well, the disadvantages of poll taxes are also relatively evident. How is anybody supposed to pay 10.000 euros in tax if they maybe earn only 7.500 euros gross? What about those people who have no income at all, for instance students or unemployed people? And how can a system be described as fair where a simple white-collar worker has to pay as much in tax as a millionaire?

Even so, poll taxes are not quite as utopian as they may seem in view of these problems. After all, we could grant exemptions to students, pensioners and unemployed people, as we also could to those earning only little more or even less than the level of the poll tax. This would leave us only with the problem of fairness between normal-income earners to solve.

To do this we must bear in mind that the gross incomes earned on the market are by no means independent from taxes! This is perhaps clearest in the case of income earned from interest. As a rule a capital investor will only lend his money to others if he can earn an adequate rate of interest for doing so, say of 3 %. As long as no taxes are levied on this 3 %, the market interest rate will also be around 3 %.

Suppose, instead, that earnings from interest were also taxed by 50 %. In this case an investor would obviously have to charge a gross interest rate of 6 % in order to earn the same profit. If he could not charge this rate on the market, he would offer less of his capital for loans and start to consume more of his income himself instead. This, in turn, would push up the market interest rate until it maybe reached 5 %. In this case the investor's net profits would amount to 2.5 % after taxes, which means that they would not have fallen as far as one might have expected had they been taxed by 50 %.

Thus, income taxes reduce disparities between incomes far less than might appear at first. We are dealing here with a phenomenon of "offloading", i.e. the stronger a taxpayer's position on the market is, the easier it will be for him to calculate a part of his tax burden into his prices and pass on his burden to others. On the other hand, a reduction in the tax burden will sometimes be offset by correspondingly changed market prices.

In our case, if we went over from a system of income tax to a system of poll tax the gross incomes of those earning millions would most probably fall. This is because they would have to work less hard in order to earn the disposable income they had before and they would most likely do this so as to enjoy a little more leisure time. At the same time new competitors would appear on the market that were previously deterred by the high income tax. More people would decide to study medicine or pass an examination for a master craftsman's diploma, and this would increase competition between the various professions. As a result, the incomes of doctors and master craftsmen would fall.

The best way to illustrate these market processes is on the capital market. If we decided not to levy any tax on interest but charge poll tax instead, this would prob-

ably boost savings and investment enormously and benefit the entire economy. At the same time, however, the market interest rate would fall due to the increased supply of capital. In the end the net interest rate for capital investors might be hardly any higher than before, but the volume of investment would certainly have increased significantly. This means that an only slightly less equitable distribution of net incomes would have produced a far higher level of employment and prosperity for the economy as a whole!

Thus, upon closer examination the radical proposal to introduce a poll tax is not as absurd as it might seem at first. It is unlikely, however, that this proposal will ever be put into effect because economic processes are too complex and poll taxes are too vulnerable to political attack from more or less trivial arguments of social justice. Nevertheless, the concept of poll tax should at least be used as a reference model when considering other forms of taxation and their effects.

It is far more likely that another extreme model will be put into effect, namely that of a pure consumption tax. In this case, too, incomes would not be taxed at all. Instead sales taxes would be imposed on consumption, including perhaps especially high taxes on luxury items such as cars, jewellery and alcohol. Thus, those people who wanted to spend their money on luxuries instead of saving or investing it, would have to pay the highest taxes.

Even Adam Smith had been in favour of such a tax system. Not only would it benefit the aggregate accumulation of capital and productivity but it would also have its advantages in terms of distribution. After all, those earning more could only benefit from their money if they spent it on their personal needs – however, if consumption taxes were charged they would have to pay particularly high taxes. By contrast, if they invested their income and thereby created new jobs, they would have to pay no taxes at all. This sounds both plausible and just.

However, as always, it is the details that present the most difficulties. How would we proceed if high-income earners spent their money abroad by, for instance, transferring their residence to Monaco? How could we prevent tax fraud in such a system, for example people selling luxury items under the counter? Who and according to which criteria would draw the line between luxury items and normal needs? And not least, would anybody actually want to carry out tax-exempt investments on a lasting basis if afterwards they had to pay up sizeable amounts of money when they wanted to spend their profits on their personal needs?

It is evident from these questions that it is not so easy to devise a tax system that is both efficient and just. Maybe the solution to the problem is an entirely different one, namely simply limiting mandatory contributions to the state to what is absolutely necessary. For if tax rates were low, it would not matter so much which basis for assessment they rested on. In other words, it is not possible to reconcile too high a share of government outlays in the national product with a lasting dynamic economy. No matter how we levy taxes, if they are too high, there will always be the danger that the cake to go round will become so small that nobody will be interested in baking it any longer.

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Family Policy and Provision for Old Age

Birth Rates and Social Protection

The eldest of all solidarity communities is not the state or any insurance policy, but the family. In pre-industrial times people had hardly anything else to fall back on if they fell ill or reached old age and were no longer able to support themselves. Families took it for granted that there was an unspoken agreement between the various generations, i.e. parents raised their children and later the children would take care of their parents. Even grandparents and other relations who had no children of their own were included in this family network. As late as the beginning of the 20th century it was quite typical for three generations to live under the same roof and to support each other, both in every-day life and in cases of hardship.

In such conditions it made sense for many people to have as many children as possible, and it was thus quite common for a family to comprise five, six or even more children. One prominent example of this was the Marx family. Even though Karl Marx lived in dire poverty in a two-room apartment in London, he and his wife Jenny had no fewer than seven children. Only three of these actually survived beyond childhood, which was nothing unusual in those days.

Aside from the fact that medical care and hygiene were very poor in those days there were many hardships involved with raising so many children. Thus, at least in the poorer segments of society it was taken for granted that children would also take part in supporting the family. The older children would look after their younger siblings, help with the housework or in the family business or they were simply sent away to work elsewhere in order to contribute to the family income.

Above all, however, parents hoped that their children would help them in their old age, once they were no longer capable of working themselves.

Now, it is not as if this family-based solidarity system was just a perfect idyll. Not only was the cohabitation of different generations frequently rather unedifying, especially if a family had only little space to live in, the early involvement of children in extensive domestic and professional duties often took place at the expense of their school education, not to mention the damage to their health caused by heavy toil in the factories.

Most importantly, however, such a system of taking care of the elderly that might have made so much sense from the point of view of an individual family, could not work at macroeconomic level. Because the more children were born, the faster the population increased and the more difficult it became for families to accumulate any savings from their income. However, it is especially in times of high population growth that an economy needs substantial savings in order to be able to invest and create new jobs for the following generations! Therefore, the attempt by individual families to secure their old-age pension by having as many children as possible draws the economy as a whole into a poverty trap.

Up till the industrial revolution the problem of population growth was not so acute yet because high child mortality, repeated epidemics and wars kept this growth in check. It was only with the progress in medical care and hygiene that took place from the second half of the 19th century onwards, that population growth began to explode and the deadly vicious circle of poverty, lack of ability to save and abundance of children became evident. In the end this was also the main cause of the intolerable social conditions which still existed in Europe at the time of the industrial revolution.

After statutory social security schemes had been introduced at the end of the 19th century, the role of the family as a solidarity community began to change fundamentally. One of the decisive factors for this in Germany was the social security legislation that was enacted by Chancellor Otto Fürst von Bismarck (1815–1898). The more individual risks were covered by the collective solidarity system, the more children lost their function as guarantors for their parent's old age.

Owing to ever more widespread social protection as well as modern contraception techniques, birth rates began to decline in the 1960s in all Western industrial nations. The slump in the birth rate caused by the pill is clearly evident in all population statistics. At the same time divorce rates increased and the earlier extended family comprising three generations living under the same roof gave way increasingly to the separation of generations and a growing number of one- and two-person households. Even though these developments also had socio-political causes, for instance the changed perception of the role of women, the most important economic driving force was the altered role of the family and especially of children as guarantors of social protection.

Over time, people began to focus increasingly on the burdens of raising children. Families with many children began to envy the standard of living that couples without children enjoyed, in particular if both partners were working. Such couples were soon nicknamed "Dinkis", i.e. double income, no kids. What people regarded

as most unfair, however, was that a working spouse without children was entitled to her own pension whereas a housewife raising children was dependent on the pension of her husband.

Pay-as-You-Go Systems or Capital-Funded Systems?

This argument is even more convincing if we bear in mind that most industrial nations have meanwhile introduced the so-called pay-as-you-go system to finance public pension schemes. In contrast to the previous capital-funded system, pension contributions are not invested on the capital market in the pay-as-you-go system but used immediately to finance today's pensions. This means that in the pay-as-you-go system, the pensions of the future will also have to be paid directly from the contributions of those working then.

As long as population growth remains relatively stable, such a system will cause no problems. However, if the population declines there will be ever fewer workers per pensioner. How under such circumstances can we ensure adequate pensions for the elderly? Do we not urgently have to do something about the birth rate? Clearly, we must give more financial support to those still willing to take on the burdens of raising children.

In fact, policies have gone more and more in this direction. The German government has always paid some compensation to families either in the form of tax breaks for children or statutory child allowance or a combination of both. Moreover, since the 1980s the first three years of a child's upbringing have been included in the qualifying periods for old-age pension of women. Apart from distributive reasons, this measure was justified above all with the argument that otherwise the pay-as-you-go system could no longer be upheld as a result of falling birth rates.

However, upon closer examination, this argument has proven contradictory to say the least. Let us take a look at the situation in the developing countries where population growth is often too high. Obviously, in such countries everything should be done to reduce the birth rate instead of artificially increasing it by paying government benefits. In fact, whether a country should lower or raise its birth rate depends by no means in first place on the pension system. Rather, the decisive factor is how high a population density policy makers are aiming at in the long term and what size of population can be reconciled on a sustainable basis with an adequate and environmentally viable standard of living for everybody.

At a global level it is not a lack of children but rather the increasing over-population that is causing problems, as we have already seen when discussing environmental and resource issues. The question thus poses itself whether an increase in birth rates in the industrial nations would in fact be desirable from a global point of view. It would actually make far more sense to allow labourers from over-populated countries to migrate to the industrial nations. Not only would this reduce the pension problems in the industrial countries but also contribute to alleviating the burdens of the developing countries.

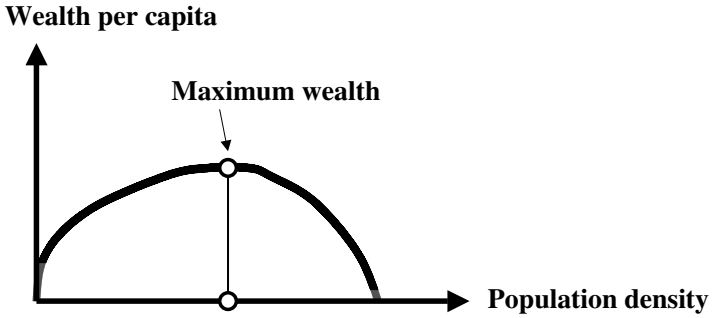
There is, however, another solution to the pension problem and that is switching back to capital-funded pension schemes. Private life insurance companies commonly apply such a system, i.e. they do not immediately pay the pension contributions they receive to current pensioners but invest them instead. Thus, each pensioner lives off the interest of the contributions he paid while he was still working.

From a macroeconomic point of view, this system has the advantage that the pension system contributes to the accumulation of the economy's capital stock, instead of living from the hand into the mouth like in the pay-as-you-go system. Therefore the per-capita national product that is available later is accordingly higher. Moreover, the capital stock accumulated on the basis of the pension system can be dismantled again later, should there suddenly be too many pensioners.

Of course, it is not as if the machinery and buildings, in which this capital was invested, were converted in some way into food or clothing, because obviously that would be impossible. It is more the case that those investments that would normally be conducted to replace run-down buildings and machines do not take place and that consumer goods are produced instead. Obviously, only a certain share of existing capital stocks can be converted each year into consumer goods, depending on how high the rate of wear and tear is. However, as the number of pensioners tends to rise gradually and not suddenly, this limitation does not pose any particular problem.

Even so, people have serious reservations regarding the capital-funded system. Some argue, for instance, that there are not enough possibilities for investment in the industrial nations in order to guarantee adequate payment of interest on capital. In fact, as we know, entrepreneurs will always carry out those investments first that promise the highest yield in interest. Therefore, if entrepreneurs are to be encouraged to accumulate more capital, its profitability has to decline.

However, when people argue in this way against the capital-funded system, they tend to overlook the global dimension of the problem. After all, in the developing



Whether a country should lower or raise its birth rate depends on the density of population that policy makers are aiming at in the long term. If population density is too great this will give rise to environmental problems and increasingly restricted living space, thus ultimately lowering prosperity.

countries as well as in the former Socialist states there is an enormous need for capital. Indeed, the fact that they accumulate more capital is a decisive prerequisite to higher prosperity and additional jobs. Therefore, if the savings of the working population in the industrial nations went to these countries, it would be possible to kill two sparrows with one arrow, similarly as with the migration of workers. On the one hand, pensions in the industrial nations could be paid from the relatively high interest on the accumulated capital and, on the other hand, in the developing countries and the reform countries both employment and living standards would rise.

A combination of these two solutions is also possible. Ideally, jobholders from the over-populated countries should migrate to those countries where birth rates are too low, whilst capital should flow in the opposite direction. In this way, standards of living could be raised in all countries because the industrial nations would have solved their pension problems whilst the developing countries would have a chance to extract themselves from the vicious circle of poverty and population growth.

We do not want to deny that in practice, these solutions would cause considerable problems. Would the industrial nations be able to contend at a socio-political level with the multicultural society that this would create? Are the investment conditions in the over-populated countries adequate enough and above all secure enough for people to take on the risks involved with massive transfers of capital to such countries? We cannot answer these questions finally here. Yet, if we look at today's economic and ecological problems in their context, we will hardly be able to resist the charm of such a solution.

A further objection that is always put forward against capital-funded pension schemes is that in such a system, individual claims to pensions might be destroyed by wars or high inflation. Indeed, this is what people had to witness in the past. For example, during the hyperinflation in Germany of 1923 the capital stock of the pension system suddenly lost its value. This was because this capital had been primarily invested in the form of long-term securities at relatively low interest rates, which of course became entirely worthless at inflation rates of 1000 and more per cent. Moreover, after the two World Wars most physical assets had been destroyed as well so that there was no longer even any real backing for pension claims. This left the Germans with literally no other choice but to switch to the pay-as-you-go system.

Even so, this does not mean that they could not switch back to the capital-funded system again today. After all, private insurance companies work almost exclusively in accordance with this principle. Even though neither World War Three nor another hyperinflation can be ruled out entirely in future, they are nevertheless highly unlikely. And even if the worst came to the worst, it would be possible to adopt the same measures as in 1948 and temporarily revert back to the pay-as-you-go system. Ironically, it is precisely this all-time available option that lowers the risks involved with the capital-funded system! Whatever the case, it would certainly pay to carefully weigh up the remaining risks and difficulties associated with switching back to the capital-funded system against the economic advantages of this system.

Abundance of Children as an Economic Asset

Let us return once more to the problem of the equalization of the burdens of families. Apart from the aim of stabilizing the pay-as-you-go system through an increase in the birth rate, people also put forward arguments of justice in favour of such equalization. It is true that the costs of raising a family can easily add up to a six-digit figure. This is an especially heavy burden if the spouse raising the children has to largely forego any professional activity while doing so. In view of these costs the compensation paid to families seems like a mere drop in the ocean.

However, this relatively common approach to this problem does not go far enough. For if, considering the standard of living in the industrial nations, having large numbers of children were nothing but a burden, why would anybody still want to have any children at all? In reality things are in fact a little different. After all, children are also very rewarding and give a sense of purpose to life, and they even remain an important economic factor for when people reach old age. Because woe betide those who have to rely entirely on state care when they are old! Not only will they suffer from a lack of human affection, but they will also depend entirely on the omnipotence of bureaucrats. If they are even tied to a hospital bed they will probably long with all their hearts for a family to support them and spare them from having to waste away in loneliness and in complete dependence on the charity of the state.

It was above all the American economist, Gary Becker (born 1930), Nobel Prize laureate in 1992, who pointed out the economic benefits of children to their parents in numerous contributions. He has frequently been accused of cynicism because of this, for how could anybody define people's desire to have children in the very narrow terms of a pure cost-benefit-analysis. And yet, when we consider how much birth rates vary depending on the prevailing economic and social framework conditions, we cannot deny how important purely economic considerations are even today in people's decisions to have or not to have children.

If, apart from only the costs, we also consider the private rewards of raising children to their parents, it is questionable, even from the point of view of social justice, whether the state should pay any premium at all to people for raising their own children. Even today, the rewards that a well-raised child will bring will certainly exceed the costs that the child's parents have had to put into this. And whether children who have turned out badly represent a gain for the economy as a whole is questionable too.

However, there is another objection that we could put forward against the complete socialization of the costs of raising children, which is that this would ultimately destroy the family and with it the most important and efficient solidarity community that we know! If society took over all the costs of raising children there would hardly be a reason any longer for people to have a family in the first place. A single mother would not only have her costs of living covered by the state but also her pension. Why would she marry then? In fact, she and the father of her child might both be worse off if they got married because then it would be her husband

who would have to support her instead of the state. It would thus be economically more rational not to marry and to burden the anonymous solidarity community of taxpayers with her costs of living instead.

Under such conditions the state would ultimately have to ensure an adequate standard of living for every elderly citizen, every single mother and every young person leaving the parental home. However, such an extremely individualized claim to government support would be impossible to pay. This is because the more anonymous the community of payers is, the less people will hesitate to assert their claims. It is precisely for this reason that this system threatens to become heartless. For as the government will attempt to keep costs within reasonable limits it will react increasingly bureaucratically and conjure up regulations that will become less and less just in individual cases. For instance, whether a sick grandfather is entitled to a wheelchair or a new blanket for his rheumatism will be decided by civil servants according to strict rules, regardless of individual circumstances or human considerations. On the other hand, in a pure welfare state system it would be almost inevitable that huge sums of money are spent on benefits that are basically not necessary and that are then lacking where they would really be needed.

Subsidiarity Principle or Welfare State Principle?

It is such considerations that drove in particular the socio-political representatives of the Catholic Church to call for the implementation of the so-called principle of subsidiarity in social policy. According to this principle it is always the smaller solidarity community that should be called on first before the larger solidarity community like insurance systems or even the state has to intervene. And even if the state does have to intervene, it should always be to help people help themselves instead of providing some all-round entitlement to support. This is because all-round state support would stunt people's initiative, ultimately making it impossible to finance the system and incapacitating citizens increasingly at the same time.

The idea of the subsidiarity principle had already been formulated by His Holiness, Pope Pius XI in 1931 in his quadragesimo anno, the encyclical on reconstruction of the social order. In Germany this principle was propagated above all by the Jesuit priest, Oswald von Nell Breuning (1890–1991), and for a long time it remained a guiding principle for the social policy of the Catholic Church. More recently, however, even in Church circles this principle has been displaced increasingly by a welfare-state approach, in particular as far as pension policy is concerned.

It is important to distinguish clearly between these two fundamental alternatives of social policy. If we want to keep up the family as an efficient and humane solidarity community we must provide the appropriate incentives to people to do so. In Germany, for instance, one of these incentives includes the splitting of taxes between spouses, which is a tax break granted exclusively to those who support their spouse and thus take this burden off the state. The German pension system

also works according to this principle. A working spouse is not only entitled to his own pension as a result of his pension contributions but, in the event of his death, his widow and possibly his orphans are also entitled to his pension. In addition, family members are included free of charge in the statutory health insurance scheme. These regulations are a strong incentive for people to have a family, not only factually but also juridically with all mutual duties of maintenance involved.

If we set out from the pure principle of individuality, such family benefits obviously represent a breach against the principle of equity. After all, the father of a family will acquire far more claims to state support with his social security contributions than an unmarried person earning a similar amount of money, and the former will even pay lower taxes. However, if we regard the family itself as the object of tax and social security policy there is nothing to be said against the payment of such family benefits – on the contrary, those who take on responsibility to support their spouse and children will relieve the state budget and therefore deserve different treatment from those living out of wedlock and having their so-called patchwork families supported by the state.

An alternative to the family solidarity community is that the state assumes responsibility for every single individual. Those who support this approach would, for instance, advocate independent pension payment to both spouses, even if this amounted to an unnecessary double pension in the event that marriages remain intact. The pension system would be accordingly more difficult to finance. It would also be consistent with this approach that the state provides children as well as their parents when these reach retirement age with independent i.e. guaranteed government support. In practice such an approach would manifest itself in ever increasing payments of child benefits, on the one hand, and a government-guaranteed minimum pension for everybody on the other hand. However then, the family as a juridically binding solidarity community would become obsolete, because it would be the state that would now cover all the costs of mutual protection that the family had covered so far. We do not need much imagination to see what the financial consequences of this would be.

One alternative that would make a lot of sense would be to reinforce the role of the family in social policy. As far as our problems with old-age pensions are concerned, this could imply, for instance, that it would be children who had the primary responsibility for their parents' wellbeing in old age. After all, by what right should a highly-paid attorney expect the state to be responsible for the costs of living of his sick mother? Should he not have every reason to thank his parents for his good education that they enabled him to go through? It is only in the event that the children are not able to support their parents adequately in their old age that the state should have to intervene according to the subsidiarity principle.

There is, incidentally, nothing to be said against defining the family more broadly than has been the case so far. Why should relationships out of wedlock not be recognized as solidarity communities as well? It would be rational for the community of taxpayers to extend the splitting of taxes also to couples just living together provided those concerned were prepared to take on the according mutual duties of

support. Even same-sex relationships need not be exempted from this. From an economic point of view the only important thing is that the community of taxpayers does not have to pay in case of need as a result of people having agreed to these mutual duties of support. The closer pension systems are organized in relation to actual problems, the cheaper they will become.

We do not want to conceal that these issues are highly disputed among economists as well. It should have become clear by now that these issues cannot be approached solely in terms of costs and benefits, at least not in a narrow, financial sense. However, the opposite is true as well, namely that those who conduct social policy without taking into account the economic consequences of their policies will most certainly fail. Especially in the case of what are mostly very long-term consequences of family and pension policy it is not the politicians who were in office when measures were taken that will be affected by these consequences as a rule. For instance, nobody will be held accountable for how the pension qualifying periods that are at present generously being promised to mothers will be financed. On the contrary, it will be the generations of the future who will have to deal with these problems i.e. those who will already be faced with an enormous pension burden in the future.

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Economic Laws and Juridical Thinking

Can Values be Classified Unequivocally?

As in every area of science experts disagree and argue about many matters in economics too. Still, the great ideological battles of the past, for example between the Socialists and the Liberals, were fought out long ago. Apart from a very few exceptions the vast majority of economists now espouse a market economy system. Undeniably, the theoretical arguments in favour of the market and competition as the essential principles of the economic system are overwhelming and our experience from two centuries of modern economic history speaks for itself.

All the same, governments will invariably try to obviate some or even all the laws of economics by intervening with a multitude of measures in the market processes. In most industrial nations the labour market, for instance, is regulated to a greater or lesser degree and the same can be said in many countries of the housing market, the energy market and the agricultural sector. However, even those sectors where governments do not intervene directly are controlled by a tight web of regulations that sometimes considerably restrict the contractual freedom of the various market participants.

This tendency towards interventionism is not least due to the fact that most government legislation is not drawn up by economists but by jurists. Now, in the professional training of a lawyer, economic matters hardly play any role. Conversely, economists do not know much about legal norms and government legislation. It is therefore hardly surprising that the representatives of these two academic disciplines come into little contact with each other, often even talking at cross-purposes at joint conferences.

This was not always the case because initially, economic studies and law studies formed one integrated whole. Somebody studying political sciences during the 19th century learned not only about government legislation but was also able to judge whether this legislation made economic sense and how it could be improved if need be. Even after these subjects had become so specialized that the faculties separated, economists and lawyers still remained in close touch with each other. The fathers of ordoliberalism, for instance, who laid the foundations of the market economy in Germany after the Second World War included two excellent representatives of both academic disciplines, the economist, Walter Eucken on the one hand and the lawyer, Franz Böhm on the other hand.

By contrast, today's legal thinking is strongly characterized by ideas that are often not representative of people's expectations and actions and therefore frequently do not meet economic reality. For instance, lawyers like to think in terms of hierarchies. Thus, the Federal Constitution takes precedence over normal legislation, which in turn takes precedence over government guidelines and regulations. By contrast, the will of those for whom the respective regulations are actually designed only comes last in this order of precedence. It is quite possible, for instance, for the

landlord of an apartment to be in complete agreement with his potential tenant but that no contract is concluded because the apartment does not have the right size of windows required by law.

In industrial law, such cases are very common as well, with everything from adherence to agreed wage rates, permissible working hours and times of rest to the design of the work place being regulated down to the last detail in Germany as one example. Every regulation there is strictly monitored, regardless of whether those concerned find this useful or necessary. Even in their private lives, the state believes that it must protect its citizens from themselves, for instance by obliging them to wear seat belts in cars and by forbidding them to connect their electric stoves to the mains.

One reason for this is that lawyers apply their hierarchical thinking to the value of products themselves. To them health is the most precious thing in life that always takes precedence over other values such as contractual freedom or the free development of personality. That this does not always correspond to the order of values of individuals can be seen from their every-day behaviour. How can we explain otherwise why so many people still smoke despite knowing how dangerous it is, why they drink alcohol, drive fast motor bikes for pure pleasure or race down steep skiing slopes?

We have already encountered one economic theory that explains why people may behave in this way, which is that of Gossen's laws. Gossen's principles can be equally applied to protection from danger to people's health, i.e. the greater this protection, the less people will value any additional gain in this area. In other words, if safety legislation restricts other values too much such as our freedom or simply our pleasure in life, we will begin to judge this protection negatively. We will start disregarding traffic regulations, begin to connect lamps ourselves instead of asking an expensive electrician to do so or we will start buying alcohol on the black market if it may no longer be sold officially.

Even though this behaviour is relatively easy to explain, to the lawyer who has no in-depth knowledge of economics it will always remain strange. One has to say though that the first economists still thought in very much the same way as lawyers did. This applied above all to the economists of the Middle Ages, the scholastics. Since these were men of the Church they believed in a firmly established order of values that was supposed to correspond to the message of God. At the top of the hierarchy was God Himself of course, followed by the angels and saints. Only then came man, followed by animals and plants as God's living creatures. The next stage down in this order of values included material goods such as pots or shoes, whereas money came last of all. In fact, money was often negatively tinged with a reprehensible greed for profit.

Lawyers can therefore refer to a long tradition of thinking in firmly established categories of values that go back as far as Aristotle and Plato. However, such an absolute pretension does not correspond to the way people really behaved. Even in the Middle Ages people were interested in their money and often neglected their worship. Some people may find it regrettable that things are this way and they may even try to convince people how dangerous their actions are. But the attempt by

governments to force people's good fortune upon them is both presumptuous and bound to fail because the order of values that would be necessary for this just does not exist!

This applies even if people endanger not only their own health through their actions but also that of others. Take the example of road traffic. The principle upheld by almost every lawyer that if in doubt, freedom from bodily injury should always take precedence over people's right to personal freedom may sound convincing at first. For this reason almost all countries have introduced more or less stringent speed restrictions, alcohol limits and other regulations in order to keep potential dangers within limits.

However, what does "keeping within limits" mean exactly in this context? If we really gave absolute precedence to health over freedom and if we wanted to be really consistent, we would have to ban cars or any other transportation for that matter altogether. There may even be some extremists who actually advocate this, but surely this would not meet the wishes of the majority of the population. In reality therefore, this is yet another question of proportion, as Gossen's laws tell us. The safer road traffic becomes, the less people will want to increase this safety at the expense of their freedom. Therefore, even though traffic regulations are justified on principle, they will always only be accepted up to a certain degree. Now, a person thinking in rigid categories of values and therefore also uneconomically will have great difficulty accepting this.

Good Intentions and Negative Consequences

Let us come back once more to the problems involved with the protection of tenants and workers. As we have discussed, the legal criteria for decisions in cases of dispute are based, on the one hand, on the concept of choice between conflicting rights and, on the other hand, on the aim of protecting the apparently weaker party. Both criteria seem to make sense at first. After all, is the right to a place to live not more important than the right to conclude an appropriate letting contract? As far as industrial law is concerned, should protection from dismissal for the father of a family not be considered more important than the interest of an employer to put a more efficient worker in his place?

The main problem with such arguments is that they always only apply to individual cases. By contrast, the long-term economic consequences resulting from such jurisdiction are always neglected. However, as a rule these consequences will prove disadvantageous for the very people whom this legislation is supposed to help. This can be demonstrated with both our examples i.e. that of the landlord and his potential tenant and that of industrial law.

Firstly, how will landlords react to legislation that protects tenants to the extent that a landlord is not even permitted to terminate a letting contract if a tenant is in arrears with his payments? Obviously such stipulations make it highly risky for a landlord to conclude a contract with low-income families. Therefore, if in doubt, he

will prefer to rent his housing out to a prosperous bachelor civil servant rather than a working class family of five, even if he is socially-minded. This means, however, that even though those benefiting from the special protection of the legislator have justice on their side, it is precisely for this reason that they will not find anywhere to live!

Industrial law as well often has the same unintended effects. Young women, for instance, will often have problems finding a job. In Germany, for example, they are given special protection if they become pregnant, including long periods of paid leave and permanent status. The employer, on the other hand, does not even have the right, when interviewing a woman, to ask whether she might be expecting a child. Again, the economic consequences are exactly the opposite of what the legislator intended. Women find it far more difficult to find a job than men, and even if they do find one, they will often be paid a lower wage to compensate the employer for his increased risk.

How should we deal with such problems? In the case of severely disabled people who enjoy similar rights, the German legislator has prescribed employment quotas. Such quotas are being discussed for women and apprentices as well, and they could also be considered for older workers, foreigners and other minorities who have particular problems on the labour market. However, the outcome would be a staff policy that is based increasingly on government criteria rather than economic criteria. The actual suitability of a worker would no longer be very important when hiring or dismissing somebody, and this can hardly be the object of the exercise.

There is another alternative to government-enforced employment of people whom companies do not actually want to hire at all. Instead of burdening each individual company with the risks of employing problem groups, the state could carry these risks instead. After all, protecting problem groups is everybody's concern and society as a whole should participate in the costs. It therefore makes no sense that of all firms, it should only be those that are actually prepared to employ such problem groups that are burdened with these costs.

For instance, the periods of leave that women take during pregnancy could be covered by the health insurance system. Even though the working population would then have to pay higher contributions, the costs could be distributed more evenly over all companies, whereas currently, they are concentrated in particular on those companies that employ large numbers of women. Women would have a far better chance of finding a job, which would be desirable not only from a socio-political point of view but also for the economy as a whole because it would be a person's suitability and not his or her gender that determines who gets a particular job.

On the housing market as well, it is possible to find far more economically sound solutions than those that have been developed by lawyers in many countries. The most elegant solution would be that the government pays a housing subsidy to indigent tenants or that it stands surety in potential cases of default. This would considerably improve poorer people's chances of finding somewhere to live, whilst private landlords need not fear that their costs would not be covered; this would encourage them to create more housing and to let it out without discriminating

against particular groups of tenants. It is evident that it is not possible to solve every problem on the housing market by such simple means, but the fact is that it is only when we begin to think things through properly in economic terms that we will come up with solutions that are viable in the long run and have no undesired side-effects.

Sisyphus or Hercules?

The general conclusion we can draw from these deliberations is the following: anybody wishing to pursue social aims in a market economy should try to make the most of market forces instead of constantly trying to fight against them. In this context there is a fine analogy from Greek mythology, that Joachim Starbatty from the University of Tübingen likes to use in his lectures. A negative example is that of Sisyphus. We all know that Sisyphus was condemned for all eternity to roll a heavy boulder to the top of a hill, only to find that it would tumble back down when he had reached the top. The attempts of policy makers in the housing and labour market to push through social concerns against market forces can be compared to Sisyphus' toils.

By contrast, according to Starbatty, there was another hero in Greek mythology who got it right, namely Hercules. One of the twelve labours Hercules was sentenced to perform was to clean out the stables of King Augeas in a single day. Even the super-human powers of which Hercules disposed would not have sufficed to complete this task. However, Hercules was not only strong but also clever and instead of employing a bucket and spade, he diverted two rivers through the stableyard and got the job done without even getting dirty.

In other words, Hercules made use of the forces of nature instead of fighting against them as Sisyphus did. The state should act in exactly the same way when pursuing social aims, because if it creates the right framework conditions, market forces will do most of its work for it.

Economists refer in this context to regulatory policy. By this they mean setting framework conditions and incentives for action by private individuals in such a way that the desired results are achieved with as little intervention as possible. For this it is above all necessary to have a good knowledge of the laws of the market itself. Therefore, regulatory policy should always make a thorough analysis of the market forces as regards their long-term effects and possible undesired side effects. In fact, it is only on this basis that we can conceive of any successful economic policy in the first place.

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The Welfare State and Unemployment

Is Full Employment Possible at All?

In Western industrialized countries continuous unemployment has led to a feeling of resignation among many politicians. Some even talk of the end of the working society, meaning that the amount of available work is limited and no longer suffices to provide the growing population with jobs. Others hold technological progress responsible for this, which they say leads to human labour being supplanted ever more by machines.

We have already dealt with people's fears concerning technological unemployment and come to the conclusion that on the whole these fears are unfounded. On the contrary, technological progress raises our prosperity and our incomes and this in the long term creates more demand and new jobs. It is only in the short run that technological progress may lead to employment problems and even then these problems are generally restricted to individual economic sectors and companies. They are simply the price we have to pay for the dynamics of the market. In fact, we could go even further and say that without technological progress workers' incomes would not increase at all, especially if the population continues to grow.

Indeed, it is not as if people's needs were largely satisfied nowadays and that there was therefore a lack of suitable production possibilities, as some people claim. If this were really the case, it would be hard to explain why the trade unions are still calling for higher wages for their members every year. Moreover, at the global level there are many more unsatisfied needs than we could possibly want, with 800 million people alone still having to go hungry. Even though it is not easy to set in motion a process of economic development in the countries in question that would

transform their needs into actual spending power, the scarcity of goods in these countries clearly refutes the theory that there is no longer enough work for people in this world.

It would therefore be wrong to try to solve the employment problems of the industrialized countries by shortening people's working hours. For this would only lead to unemployment being spread over more people, i.e. instead of one person looking for a full-time job there would now be, for instance, two people seeking a part-time job. However, the latter only makes sense if those concerned want to work part-time in any case, e.g. for family reasons. In this case though there is no need for any legal stipulations or wage agreements, but merely sufficiently flexible working conditions.

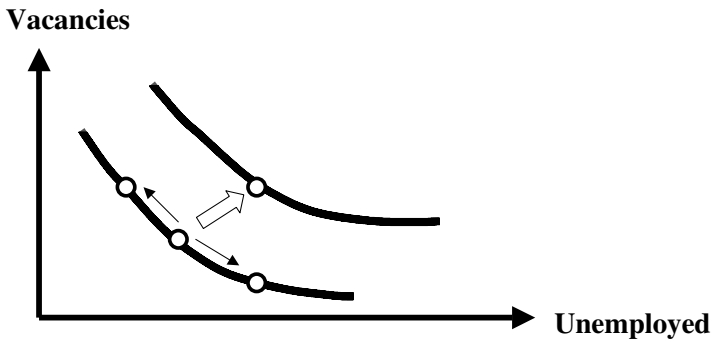
Every measure that boils down to an obligatory shortening of working time is, in fact, nothing but pulling the wool over people's eyes. Even though it may thereby be possible to reduce the statistical number of unemployed people, the actual problem, namely the discrepancy between people's desire to work and the actual volume of available work is not altered at all by these means. Moreover, if this happens without corresponding reductions in wages, problems will only be exacerbated. Shortening the working week will boil down to nothing other than an increase in the price of each working hour, which, in turn, will result in further job cuts.

Natural Unemployment and Mismatch

Now, why is it that unemployment has risen in so many countries since the 1970s? To answer this question we must first of all rid ourselves of the idea that in a market economy, full employment means that every single person of working age is actually in work. This is not possible because structural changes always lead to job losses in some firms and economic sectors whilst new jobs are created in other sectors. Thus, there will always be a certain number of people looking for a job.

This inevitable unemployment is also referred to as frictional unemployment or – like Milton Friedman once said – the natural rate of unemployment. Depending on how smoothly structural changes evolve, the rate of natural unemployment will generally vary between 1 and 3 per cent of the potential labour force. Since an individual worker will be out of work only for a short time and is moreover entitled to unemployment benefits during this period, this type of short-term unemployment no longer presents such serious social problems nowadays.

Things are different in the case of what we call cyclical unemployment. This type of unemployment can take on far more threatening proportions for the economy as a whole, as we have already seen. There is only one effective means to combat this type of unemployment, namely consistent monetary and finance policy measures in order to prevent more serious cyclical fluctuations from developing in the first place.



If the Beveridge curve shifts to the left or to the right this is a sign of cyclical fluctuations. By contrast, if the curve shifts out this indicates that unemployment has become more persistent.

Most employment problems in industrial countries do not go back to such causes. This is already evident from the fact that in Germany, for instance, unemployment has been increasing steadily since the early 1970s throughout every economic cycle. This type of unemployment is referred to as residual unemployment that is impossible to combat with any Keynesian demand-side policy measures. From a social point of view, as well, it presents particularly serious problems because a large proportion of those unemployed remain out of work for longer than one year and some people have even lost all hope of ever getting a job again. In fact, in the late 1990s, long-term job seekers represented approximately 40 per cent of all unemployed people in Germany.

There are three main reasons why residual unemployment is on the rise. One of these has to do with technological progress and the structural changes associated with this. For unfortunately, such structural changes do not always run as smoothly as we would like. How, for instance, is a docker from North Germany, who has recently been made redundant, supposed to take on a job in a South German computer company? Even if he were prepared to move to the South there would still be the problem of his qualifications no longer matching the demands of the labour market.

It is quite possible therefore that the number of job vacancies and the number of job seekers rise simultaneously without either side of the market coming together! This is referred to as structural or mismatch unemployment. That this problem has become increasingly serious over time is demonstrated by the so-called Beveridge curve, named after the English economist and politician, Lord William Henry Beveridge (1879–1963). In many countries this curve, which sets the number of job seekers off against the number of job vacancies, has shifted out during the last ten years. This means that for a given number of job vacancies, the unemployment rate is rising, which is a clear sign that the problem of matching demand and supply on the labour market has intensified.

It is precisely this phenomenon of mismatch unemployment that has prompted so many economists to call for more flexibility on the labour market. This would include a number of measures stemming above all from the arsenal of supply-side economic policy.

For instance, wage differences between regions and economic sectors should take account of the changed conditions on the markets for goods. Wages in the shipping industry should not rise as strongly as in the computer industry. And in East Germany where unemployment is highest, wages should even be a little lower than in West Germany. This would have the following two effects: firstly, workers would be given an incentive to focus on other options early on and not wait until they no longer have a job. Secondly, lower wages attract capital to problem regions and therefore create new job opportunities for people without them having to move their place of residence to obtain these jobs.

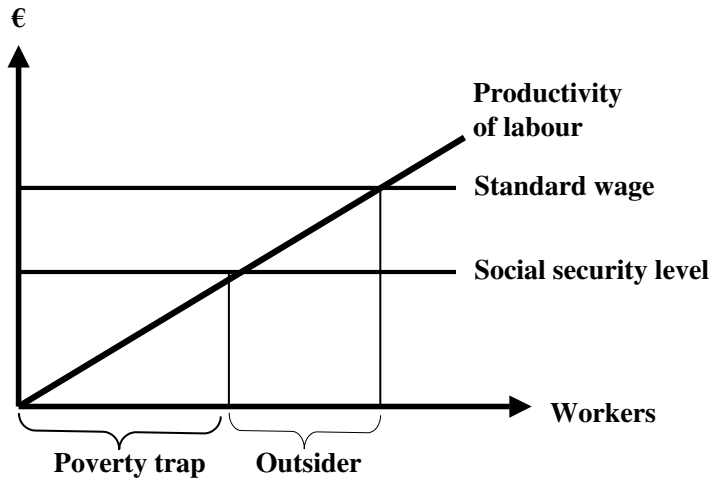
All the same, these measures do not go far enough. Workers should be given sufficient incentives and opportunities to do continuous further training and if necessary even learn a new profession. Needless to say, there has always been some resistance to such measures. In the 19th century, coachmen did not want to make way for the railways and later, highly skilled typesetters had considerable problems getting used to modern computer setting. Luckily, the great ideological battles concerning these issues are long past. Nevertheless, on a smaller scale, thousands of workers are confronted every day with the challenges presented by new fields of work and altered job requirements.

Even though these workers will not be able to avoid such changes, policy makers should and can help them deal with these changes. One of the most important policy areas in this context is what is called active labour market policy, i.e. the qualification and re-integration measures offered by employment offices in most countries. The efficiency of such measures is often doubtful, with those in question frequently falling back into unemployment, but at least as far as the reduction of mismatch unemployment is concerned, active labour market policy seems to be the right approach. Certainly it is far better than simply doling out unemployment benefits.

The Poverty Trap and Wage Autonomy

Let us turn to the other two causes of growing persistent unemployment, which are both linked to the level of wages, albeit in a very different and what may at first seem a very contradictory way.

First of all there is that pool of low-skilled workers who sometimes have no professional qualifications at all. Such people can only be employed to do very simple tasks that will be accordingly badly paid. In the USA, for instance, such people are referred to as the "working poor". Some of them will have several jobs at the same time in order to get by, such as working as a waiter in a restaurant



If people cannot even earn as much as the social security rate they will find themselves in the poverty trap. "Outsiders", as well, remain unemployed because employing them at the current wage rate is too expensive.

and washing cars. Even so, they will certainly not be financially well-off and their social cover against sickness or old age will be extremely poor.

In most continental European countries, people regard such conditions as unacceptable. In Germany, for instance, the income support system guarantees everybody a social minimum standard that is well above the corresponding level in the United States. In principle, this support is even paid regardless of whether somebody has a job or not because the state does not want to punish the children or spouses of people who are unwilling to work. Moreover, some people justify their claim to such support with the argument that there are apparently no suitable jobs available.

Now, that is not quite true. Because of course somebody living on social security in Germany could wash cars as well or supervise parking lots or help the elderly with their daily shopping. The problem is that in most cases people will refuse to do such work because the income they will then earn will be lower than the income support they can claim. What is even worse, their benefits would be cut by the amount that they would be earning on the free market. In these circumstances it is only too understandable that they make no effort to find any gainful employment. They are, as the economists would say, in a poverty trap.

Assume that a person on social security tried to improve his productivity through training and especially hard work so as to extract himself from this poverty trap. Assume it were possible for him to earn a significantly higher income than what he got on social security. Assume he even found an employer willing to employ him, say, at an hourly wage of 10 euros.

This person may now well encounter a new barrier. If the standard wage applied in the company willing to offer him a job were higher than 10 euros, say 12.5 euros,

the company would not be permitted to employ him at an hourly wage of 10 euros. However, at a wage of 12.5 euros his productivity may not yet be high enough and he will therefore remain unemployed.

This brings us to the third possible reason for persistently high unemployment, namely that wage levels are too high. The standard wages negotiated by the trade unions benefit above all what we call the "insiders", i.e. those who already have a job. After all, even if the unemployment rate is as high as 10 %, those in work still represent 90 % of potential trade union members. It is therefore understandable that the trade unions focus primarily on the interests of those in work during their wage negotiations.

As so-called "outsiders", it is those who are not in work, who lose out. This applies above all to those who have low skills or to those whose employment presents a particular risk to any employer due to the long period they have been out of work. This is the reason why many economists demand that if nothing else, starting wages should be relatively low, at least for such problem groups.

Ideally, in order to estimate what share of unemployment was caused by wages that are too high, it would have to be possible to calculate the "right" wage level. However, this would be extremely difficult because the wage level prevailing in times of full employment is a market price that varies depending on the economic sector, profession and region. Therefore, in recent years people have concentrated more on the question in which institutional conditions it is most likely that market-based wage agreements, which also take account of the interests of the unemployed, are negotiated.

The so-called hump-shape hypothesis put forward by the Swedish economist, Lars Calmfors, caused some stir in this context. According to this theory what matters most is whether the wage bargaining system is centralized, i.e. whether bargaining takes place at the industry or national level, or decentralized where different companies negotiate separately. Calmfors believed he had found out that the "success" of wage policy in terms of employment followed a hump-shaped curve, which means that intermediate degrees of centralization are most detrimental to employment. This conclusion is in complete contradiction to the well-known proverb that the truth is often somewhere in the middle, because in this case it is the two extremes that seem to work best!

Nevertheless, this theory is disputed and it is by no means clear how the degree of centralization and the "success" of wage policy can be measured exactly. Most likely, other things play an important role as well, such as the field of application of wage agreements and not least the "culture" of co-operation between the representatives of labour and capital.

In Germany, autonomy in negotiating wage rates almost has constitutional status and the trade unions refuse to tolerate any interference by the government. At the same time, however, they are not prepared in most cases to accept responsibility for the consequences of their wage policy on the labour market. This is a problematic situation, which was even more marked in the UK during the late 1970s. The fact that unemployment has gone down considerably in the UK since then is attributed

by many economists to the radical reforms introduced by Margaret Thatcher, who in the 1980s stripped the trade unions of almost all their powers.

In other countries such as the Netherlands and Switzerland, people have opted for a different solution. Here the trade unions and employer associations have concluded long-term agreements that include to a large degree the abandonment of labour disputes and a moderate wage policy. In the USA, by contrast, the trade unions have never had much power and workers have accordingly few rights. On the other hand, something like wage-induced unemployment is practically unknown there.

Costs of Social Protection and Negative Income Tax

How the trade unions and their claim to autonomy in negotiating wages should be dealt with also depends on the political culture and the historical background of a particular country. The Germans, for instance, after their traumatic experience with National Socialism place a heavy emphasis on the separation of the state and associations. On the other hand, the definition of wages and thus of the price of labour of hundreds of thousands of workers is undoubtedly an exercise of economic power. Basically it boils down to a state-protected cartel that is inherently alien to a market economy. If the wage bargaining parties want to retain their wage autonomy, they would be well advised to show the necessary sense of responsibility.

However, wage costs are not only influenced by the employers and the employed, but also by the state. The taxes and contributions that the state charges drive, as it were, a wedge between the gross income that employers have to pay and the net incomes that employees finally take home. People refer to additional wage costs in this context, meaning above all the statutory social contributions that are charged. It is irrelevant whether these contributions are formally paid by the employer or by the employee because in both cases wage costs exceed the employee's net income by the same amount.

The state could therefore contribute to reducing the costs of labour if it lowered these additional wage costs or at least kept them within limits. Of course it would not suffice simply to replace these costs with accordingly higher taxes because taxes drive just as great a wedge between gross and net incomes as social contributions do. Moreover, in contrast to social contributions, taxes are not even matched with a corresponding claim to social benefits. Thus, if the state financed social benefits from taxes this would most likely increase the incentives for people to evade their burden of contributions, for instance, by "moonlighting".

The only thing that would help in this case would be a real reduction of the costs of the social system. Suitable measures could include increased self-participation in the costs of the health or pension system, for instance. Needless to say, these are highly unpopular measures. We cannot pull the wool over our eyes, however, that a substantial part of these costs are in any case borne by "ordinary people". It is just that these costs are not paid directly but indirectly via taxes and contributions.

Now, as we know, the more easily money flows from social coffers, the less restrained people are in exercising their claim to any benefits. Anybody who has ever shared a flat and covered certain costs from a joint expense account will be able to confirm this. Therefore overall social costs would be lower for everybody if we all had to carry a little more personal responsibility. By contrast, the fully comprehensive cover provided by the modern welfare state increases labour costs and thus exacerbates the employment problem.

In the 1960s, Milton Friedman suggested replacing the vast number of social benefits that people receive as well as all the bureaucratic costs and misleading incentives associated with these benefits with what he called a negative income tax. In fact, the basic idea of such a tax had already been developed during the 1940s by the English economist, Lady Rhys-Williams, within her concept of the so-called "social dividend". In the meantime it has been partially put into effect in the United States in the form of an "income tax credit".

In order to understand the effects of negative income taxation we must come back once more to the poverty trap. Assume an unmarried person were entitled to social security amounting to 500 euros per month. As long as the income he was able earn in gainful employment was below this sum there would be no incentive for him to look for a job. After all, regardless of how high his gross income was, his net income would invariably amount to 500 euros. Only if his gross income exceeded this amount would it become worthwhile for him to no longer claim social security. Even though he would begin to be taxed, his net income would still be above 500 euros.

Things would be different in the case of negative income tax. Again, somebody not working at all would be provided with a basic allowance of, say, 500 euros. However, if this person earned an additional sum of 250 euros, this income would not be deducted entirely from his benefits but only half of it. Thus, he would now have altogether 625 euros, which would obviously give him an incentive to work even at a low wage and thus begin to extract himself from the poverty trap.

In our example, real taxation would only start to come into effect once the worker earned over 1000 euros gross. From this point onwards his entitlement to social security would fall away completely, whereas at a gross income of 1000 euros his net income would be the same. Any further euro earned in excess of this amount would begin to be taxed at the regular rate.

Our example immediately exposes the problems involved with negative income taxation, because the threshold at which the taxation of gross income sets in has suddenly doubled from 500 to 1000 euros! Those earning less than 1000 euros would now not only no longer pay taxes but would also be entitled to supplementary social security. This is the reason why this system is described as a "negative income tax". It is evident that it is associated with high costs and tax losses for the state.

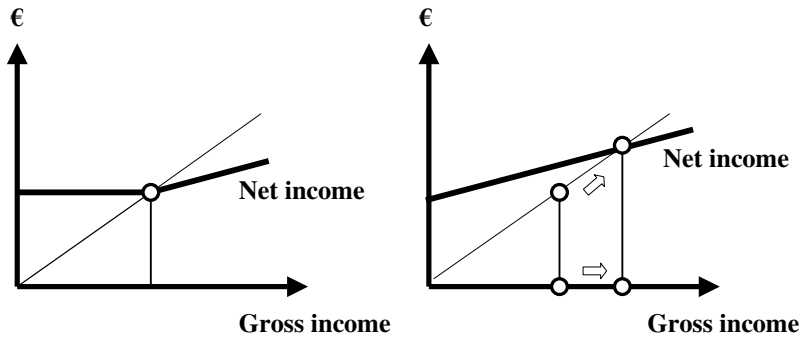
In the USA the only reason why this idea was put into effect at all was because the American system presupposed a very low basic subsistence level of well below 500 euros. In fact, this minimum subsistence level is partially covered only through food stamps. In continental Europe it would be almost impossible to push through such a meagre subsistence level at the political level. Therefore we in Europe have

to choose between two ills. Either we accept the high costs of negative income tax or we remain in the poverty trap.

There is, however, a third way, which we have already discussed when treating the so-called "magic triangle" of social policy. This is that we could retain our present social security system and combine it with more stringent rules to get those people to work who are actually able to work and receive benefits from the tax budget. Such measures may not be particularly popular either, but at least they would result in simple tasks being performed without anybody having to live below an adequate subsistence level. Those in question would receive a type of "combined income", consisting, on the one hand, of their own wages and, on the other hand, of social security payments. In this way they could support themselves at least as much as they are able to do.

This does not mean that we should dismiss the idea of negative income taxation altogether. On the contrary, it could be a highly effective measure to replace the many transfer payments that exist, from housing benefits to child benefits to special health insurance rates, with one single transfer payment that is strictly linked to the neediness of the individual. As we have already explained several times, such a payment, based on individual need, would be infinitely preferable to falsifying market prices for social reasons. Moreover, the costs of bureaucracy associated with many of the social benefits paid today could be lowered as well.

Not least, such a solution would also be more socially just than the system we have at present. Today, nobody really knows any longer who is actually entitled to which benefits and what effects these payments have on the distribution of income. Of all people, it is those receiving the benefits who have the least knowledge of this. As a result they often wander around helplessly in the jungle of authorities and application forms and cannot even take advantage of many of the benefits intended for them. Instead of making them ever more dependent on state care, they should



In a system where social security is paid up to the point where people have reached the taxation threshold, there is no incentive for people to work (left-hand illustration). Negative income tax solves this problem; on the other hand, it also raises the taxation threshold (right-hand illustration).

receive a precisely defined transfer sum in relation to their income, which they could then dispose of as they wish.

Liberal economists have always said that if we take away all responsibility from people for their actions, we will in the long run end up by removing all incentives from them.

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