5. Moral Aspects of the Market

Markets which are characterized, at least partly and with differing intensity, by free contracting, flexible prices and by competition perform a decisive instrumental function in a modern monetary economy. They prove to be essential for the coordination of the millions of decisions required in production and consumption, for the allocation of capital, labour and raw materials in a world with an extremely high division of labour. No modern economy can function without having at least some market segments. At the same time experience has shown that 'free' markets when left to themselves are often not a very satisfactory regulator of economic life. They produce results which are regarded as unacceptable for social and economic reasons. In real life therefore we meet only mixed economies where various forms of markets are combined with market regulations, policy interventions, public activities, institutional barriers, etc. These mixtures can assume a great variety of forms which reach from almost 'free' markets to extremely regulated systems.

In contrast to this reality of a range of mixed economies with different institutions and differing mechanisms, we have a traditional theoretical model which analyses the processes and mechanisms of a 'pure' and perfect market economy and take this model as a starting point for further investigations which can then allow for additional influences. This research strategy has enabled economists to reach highly sophisticated insights into the nature and effects of market mechanisms, but it has also created a tendency towards a somewhat dogmatic fixation on market processes which is intensified by seeing them in the ideali-

zed light of neoclassical models of general equilibrium. Markets have thus obtained a certain dominance in the realm of theory. Since in practice markets cannot exist in isolation, however, the question about the *actual* role of markets in the mixed economy – the question of 'how much market' is desirable – cannot be neglected. And since the answers to this question can have serious repercussions on various social and economic interests, it is not surprising that the problem of markets, of their role and their regulation, gives rise to heated discussions with considerable emotional undertones. The interest groups which benefit from market solutions then lend further support to the theoretical market bias. In this process 'the market' has increasingly tended to take on an ideological value of its own which is supported by economic (functional) and non-economic, partly ethical, arguments. A short survey of the main arguments involved are therefore in order when we consider ethical-economic points of contact.

Ever since Adam Smith right up to our day, the basic economic theory has shown a clear bias in favour of markets as a regulator of the economic process. Market mechanisms are not only analysed and explained, they are usually also recommended when a choice has to be made between alternative methods of regulation.[1] Two reasons are particularly responsible for this situation. The first has already been mentioned. The fact that economic theory has chosen perfect, well-functioning markets as a standard model from which reality might deviate but to which it can – hopefully! – be approximated has contributed to a strong positively oriented pro-market perspective. The undisputed capacity of perfect markets to adjust quickly and flexibly to changing circumstances is projected too uncritically to a real world which is pretty far removed from the perfect standards expected in the model. This bias is the more questionable since the 'theory of the second-best' shows that once some of the basic assumptions of a system are not met, it may be advantageous to change some of the

rules which were regarded as optimal in the ideal setting. This means that in imperfect market environments, mere 'market conformity' might not be the best prescription for economic policy and might produce unexpected results.

The second reason for a positive valuation of (perfect) markets is derived from a positive valuation of the allocational effects produced by a market system. Assuming flexible processes, flexible prices, competition and high degrees of information and mobility, it can be shown that the market mechanism leads to a pattern of production which can be regarded as 'efficient' under the perspective of satisfying the final demands (backed by purchasing power) of a population. 'Efficiency' is here defined as Pareto-efficiency.[2] Questions and problems surrounding the idea of Pareto-efficiency will be treated in the following chapter. Here it is sufficient to point out that the idolization of the market system on the basis of its assumed or real efficiency characteristics implies a value judgement, namely the judgement that 'allocative efficiency' should be *the* decisive criterion in policy considerations even though the normal choice problem between different policy alternatives also involves a number of other economic and non-economic (social, political and ethical) targets. These may also be relevant and should be included in valuations and recommendations.

One could, of course, argue that this efficiency-based market bias could be seen as a purely economic 'technocratic' evaluation without any ethical connotations or consequences. But this view cannot be maintained. The decision for a comprehensive market solution also always includes a number of other consequences, among which questions of income distribution are particularly relevant, and certainly involves highly sensitive problems of ethics and justice (as we shall see in Chapter 9). Depending on the initial conditions (wealth, education, etc.) of market participants, market processes can lead to very different income distributions which may all be Pareto-efficient but

may vary widely under considerations of justice (however defined). The 'purely' economic recommendation for the market can therefore only have limited relevance. Economists who recognize that the efficiency postulate cannot stand by itself as a comprehensive value principle argue that it should be supplemented or modified through a consideration of other values, in particular social and ethical ones. This can lead to modified policy recommendations which suggest interventions in the market process and/or changes in the initial conditions. Such reformist ideas still accept the market as an efficient standard, but point to a need for modifications. As examples of such views one can mention the models of a 'Soziale Marktwirtschaft' (social market economy, A. Müller-Armack), or of a socialist market economy (O. Lange).

A rather extreme economic point of view in favour of markets which used to be prominent 100 years ago but has lost importance since then defends markets, not only on allocational, but also on distributional and ethical grounds. Building on marginal utility and marginal productivity theory, market results are declared to be 'just' and 'morally right' because everybody is paid 'according to his [economic] contribution' and such a system of payment corresponds to moral principles.[3] Marginal productivity theory serves as a basis because it shows that in perfect competitive markets every factor of production would obtain in its own market (goods, labour, capital) a payment which corresponds exactly to its marginal product, the marginal product being that product which one unit of this factor (the 'last' or marginal unit) adds to total output.

Yet even if we were prepared to accept the assumption that real factor markets correspond to perfect markets – an assumption which is patently wrong! – such a moral justification of market results rests on very shaky foundations. Already the preliminary postulate that people's incomes and living conditions should be proportional to their economic performance is anything but a *self-evident* moral or just principle (as we shall see in Chapter 9). But we can let it pass as one possible principle among several which will appear plausible and acceptable to many persons. Particularly when we are faced with relatively simple and transparent conditions and similar starting points for all individuals, it can provide a useful 'ethical' standard. Take for instance a number of people who are given permission to gather apples in an orchard during one day. It is not difficult to regard as 'just' the proposal that at the end of the day everybody should be entitled to take home the apples which he himself has collected.

But the situation becomes far more problematic when we turn to a highly differentiated social economy. Quite apart from fundamental objections which point out the very unequal starting positions or the neglect of important non-market activities (domestic work, social services, etc.), the marginal product as such is not a suitable category for distributional judgements. Marginal products of capital, labour, raw materials and other inputs can serve as a basis for an efficient allocation of factors of production in different applications provided the technology permits sufficient substitution between factors. But the social output as a whole is the result of the common application of all factors. Neither is it possible to isolate the social contribution of one factor category alone; nor does the marginal product tell us anything about the 'effort' or 'sacrifice' of single factor units. Though in an extreme case the *marginal* product of labour may fall to zero in a given branch of the economy when the labour supply increases, it still remains true that the contribution of labour as a whole is positive and a *sine qua non* for obtaining any output. Moreover in the economy as a whole (as opposed to single branches) the concept of marginal productivity of generalized factors of production ('labour', 'capital', etc.) tends to become rather vague and abstract because of the extreme heterogeneity of the factors, the products and the technological processes used. If, on the other hand, distribution is based

on the more concrete marginal products of individual branches, then incomes will no longer depend solely on the efforts a person undertakes to contribute to the common welfare (which could form an acceptable ethical criterion), but to a large extent on exogenous influences such as the quantity of the factor under consideration, the quantity of complementary factors, the development of technological and demand conditions, etc. Although these influences are relevant as indicators for efficient reallocations of factors of production, the income patterns they produce have little to do with personal endeavours and distributional justice. And last but not least the pertinent question remains whether incomes from the factor capital, such as incomes from (partly inherited) wealth, should – from a moral point of view – be regarded as equivalent to incomes from personal effort.

The idealizations of the market mentioned so far are all connected more or less directly with standard economic theory, with its efficiency and distributional aspects. But there are also other authors presenting the market as a positive value in itself who do not base their arguments on the instrumental qualities of markets but start directly from political-ethical premises. A prominent position in this camp is held by representatives of classical liberalism. Economists like F. von Hayek and M. Friedman, the 'Chicago School' and others regard the market not only as an instrument for economic efficiency, but also as a political-moral institution for the maintenance of individual freedom. Freedom of personal choice and freedom of contracts in competitive markets are meant to protect the individual from undue regulation or interference from the government and other public authorities. 'Free markets', 'deregulation' and 'privatization' become in this perspective absolute norms which are not derived (solely) from their economic usefulness, but are ethical demands in the interests of individual freedom.

It can easily be seen that this advocacy of the market as a 'moral institution' rests on the old liberal idea of 'freedom *from* the state'. But it does not deal with the problem of 'freedom *in* the state'. Or in other words, if we distinguish between passive and active freedom (where the first refers to freedom from interference by third persons while the second deals with the opportunities for achieving one's aims), then we can say that the market postulate of the liberals is restricted to the problem of passive freedom. One of the problems of markets in general and of monopolistic and oligopolistic markets in particular is, however, that they lead to very uneven distributions of active freedom both in economic and in non-economic spheres (since money is a basis for power). If active freedom is to be included in the ethical 'portfolio' then market dogma and the maxim of non-interventionism of the liberal school lose their moral credentials.

Of a quite different nature is a philosophical defence of unrestricted markets on conservative juridical-ethical grounds advanced by R. Nozick. In his approach, economic arguments become completely irrelevant. The unfettered market with all its effects – be they desirable or undesirable – is to be morally accepted because it represents the historical development of a framework in which 'entitlements' (property and transaction rights) are lawfully acquired and transmitted. Preservation of rights is seen as the highest moral principle which must not be disturbed by any interference into market processes where such entitlements are acquired and exchanged. Here obvious ethical problems arise with regard to the absolute nature of the rule that rights are supreme without regard to any 'losses' or disadvantages which its application may produce. This is a complete negation of consequential ethics. In the context of free market operations it means that the drug trade, starvation wages, even the sale of oneself into slavery all become ethically irrelevant or at least are not allowed to encourage market interference. This is a principle which

comes into conflict with quite a number of competing ethical systems.

In contrast to the views propounding the virtues of markets which we have discussed so far, there are others which take a more disillusioned or critical view of the market as a dominant institution. Approaches which start from a closer observation of real markets than from an idealized market model are generally concerned with their actual performance and their qualities in relation to various economic desiderata like allocational efficiency, economic growth, stability and distribution. In this perspective 'free' markets appear as an institution which in many respects can serve as a useful instrument, but which at the same time is open to disturbances with serious negative effects. Depending on the situation and the problem, more or less market, more or less intervention, may seem advisable. The market loses its special priority position. Keynesian, institutional and radical theories tend to view the market from such a perspective.

Even further removed from market advocates than these 'illusion-free' approaches are critical views which adopt a hostile attitude to the market as a dominant system on moral grounds of a different vintage. Three variants of such views can serve as examples. The first one is as old as the capitalist market economy and rests on a moral rejection of the wide income differences which the market produces. This leads to a demand for intervention which will – *ex ante* or *ex post* – correct these distributional tendencies. A more fundamental criticism which condemns competitive markets as such deplores the fact that competition, the drive for profits and personal advantage destroy valuable ethical human qualities like sympathy, solidarity and compassion. Alternative social and economic relations are desired even if this causes a certain loss in 'efficiency'. And finally we find more recent scepticism concerning unrestricted market mechanisms in connection with a greater awareness of the growing ecological and generational problematique. This awareness, which partly rests on ethical roots, warns that the failure of markets to give sufficient weight to external effects represents a growing danger in a world of dwindling resources and accelerating technological uncertainties. These problems should get higher priority in place of the traditional belief in the equilibrating and corrective forces of free markets.

Notes

1. The contemporary debates about ecological problems show this very clearly. When for instance questions of air pollution are discussed, it is conspicuous how economists tend to prefer marketable 'pollution certificates' to other solutions (e.g. general limits, prohibitions, etc.) without giving much thought to the socio-political and institutional framework and the way it may influence the enforcement and effectiveness of various measures.
2. Pareto-efficiency is a state of affairs where it is impossible to improve the (economic) position of any individual without causing a deterioration in the position of some other individual.
3. J. B. Clark's *The Distribution of Wealth* (1899) was an outstanding example of this line of reasoning.

6. Welfare Economics

The decision to become an economic theorist can originate from different motives. Leaving aside the cases where chance was at work or where this activity was chosen as one of many equally attractive career opportunities, we are left with two important motives. One may be attracted to a theoretical study of economic processes on 'purely' scientific grounds in order to throw light on the complex relationships in this sphere. Or the impulse may come from a social motivation to improve the economic lot of some or possibly all persons. Theoretical work is then seen as a contribution to our capacity to shape economic processes for social ends.

These two motives are not mutually exclusive and may both be at work in one and the same person. Since both refer to the same object – the economy – they also overlap in their theoretical analysis. Differences appear when it comes to questions posed and problems treated and are also reflected in the form in which research results are presented. Where 'pure scientific' interests prevail, the theoretical work will tend to be concentrated on complex mechanisms and relationships and the results will normally be presented free from any emotions and valuations. This approach comes nearest to the strict postulates of 'Wertfreiheit' which we discussed earlier. Where social motivation is the driving force, the centre of interest normally lies in a socio-economically relevant problem (economic growth, poverty, etc.) which is analysed with the intention of finding a 'solution' to the problem. Valuations and recommendations for 'improvements' are typical in these approaches. As we have argued in Chapter 3, this need

not be regarded as a violation of scientific principles as long as the chosen values are openly declared and are not permitted to falsify the analytical framework. But the fact remains that in this second ('social') case, open or hidden ethical elements and valuations will normally play a bigger role than in 'purely scientific' approaches.

On the whole it is true to say that in the course of time economists and economic theories have *in principle* shown a strong tendency in favour of a 'scientific-positive' analysis, with valuations and normative statements being banished and relegated to special branches like 'applied economics' or 'economic policy'. While throughout the 19th century it was still a fairly universal practice to include and mix ethical and factual considerations in theoretical studies, the 20th century and particularly the inter-war period saw the rise of a changed attitude which advocated a sharper division between positive 'scientific' theory on the one hand and normative statements on the other.

Yet notwithstanding this new methodological outlook, the fundamental motive to give economic advice not just as an ordinary citizen but also and particularly as an economic expert could not so easily be deflected. That such a coexistence of theory and recommendations can be accepted practice would seem to be proved by medical research or in the work of engineers. Doctors have no inhibitions whatsoever in investigating the toxic characteristics of a foodstuff and insisting at the same time that its sale should be prohibited. Similarly, an engineer who has constructed a new machine will not hesitate to recommend its use because of its greater efficiency. But the value judgements involved in these cases have one important quality: they rest on valuations which are supported by a very broad social consensus. That health is preferable to illness and that productive efficiency should be increased are ideas so widely accepted that their combination with theoretical statements hardly creates any problems.

In the case of macroeconomics and other social sciences,

we are normally faced with a more complicated situation. Valuations and recommendations, whether connected with theoretical ideas or not, usually lead to a complex system of results which can affect the interests of different persons and groups in very different ways. There are no such simple and clear targets like 'health' which can command general acceptance. This applies also to the value which is so near to the heart of economists – 'allocative efficiency' – which is a *partial* target competing with other values, in particular with distribution problems. Normative statements in economics therefore do not only involve ethical and other value systems; they are necessarily burdened with conflicts between values and aims. Normative statements in social science are therefore not as 'innocent' as those in medical examples. They require a sceptical investigation with regard to their explicit or implicit ethical assumptions.

The conflict between the wish to overcome theoretical sterility and to give 'theoretically grounded' advice on the one hand and the fact that there cannot be any simple, unequivocal link between theoretical results and policy recommendations on the other has given rise to a special branch of economic theory – welfare economics – which tries to overcome this conflict. The development of welfare economics offers an instructive picture of the aforementioned tendency towards a stricter 'scientification' of economic theory, towards a clearer segregation of 'is' and 'ought' statements.

The development of welfare economics can be divided into two clearly distinguishable phases: those of 'Old Welfare Economics' and 'New Welfare Economics', with the late 1930s as the dividing line. Though we shall be mainly concerned with the New Welfare Economics in this chapter, both because it is the ruling version and because in it the theory-ethics dilemma is particularly visible, we shall first say a few words about the older version. This is useful partly because the problems and traditions of the Old Welfare Economics are still present and valid, and partly

because looking at the past will help us to bring the ideas and problems of the New Welfare Economics more clearly into focus.

The Old Welfare Economics, which reached its climax in A. Pigou's grand opus *The Economics of Welfare* (1920), developed round about the turn of the century. This was a time when tendencies were growing to get away from the rather naive mixture of positive and normative elements in economic theory which had been the rule in the work of the classics. Welfare economics had its roots in the desire of many economists to maintain contact between theoretical analysis and socially relevant themes. The task of economic studies should certainly be to explain and analyse economic relationships, but this should also be done with an eye on questions of general material welfare and a growth of 'general utility'. This perspective influenced the structure of the analysis (production-distribution-consumption) and then led quite naturally to more far-reaching considerations in which theoretical insights were discussed in the light of their relevance and usefulness as contributions to general welfare. A welfare economics was born.

A typical characteristic of the Old Welfare Economics was the ethical belief that higher material welfare and particularly a better provision of essential goods are desirable targets, even though it was usually acknowledged that material welfare and utility cannot be equated with general welfare or 'happiness'. Analytical and empirical studies relevant to such a perspective were regarded as particularly important. It was regarded as desirable that the usual scientific methods (analysis, empirical studies, etc.) should be fully mobilized in the treatment of these subjects. But when these methods were not applicable to some urgent questions, one should not hesitate to supplement them with 'softer' considerations like plausibility, common sense or introspection in order to keep in touch with the welfare problem.

In following such a strategy the Old Welfare Economics

was prepared to work with rather simple and robust assumptions about utility and utility effects so as to be able to come to realistic welfare statements. Though aware that no simple objective method existed to compare the subjective utility levels of different persons, one did not hesitate to make assumptions about relative utility gains and losses in connection with alternative policy proposals. This was made easier and more plausible because such comparisons of utility did not normally refer to single individuals but to *groups* of persons (such as rich and poor) where one could assume that *on average* significant and typical differences existed. This reasoning was further supported by the generally accepted economic 'law' of diminishing marginal utility (for goods and money) which was regarded as valid for all individuals. On the basis of such considerations – ethical, psychological and economic – it was not a big step to recommend, for instance, a certain income transfer from the rich to the poor. In terms of utilitarian ideas this would lead to an increase in the 'sum of utilities'. In the case where a higher living standard also improved the productivity of the poor, even total output could rise leading to further general utility effects.

The 'scenario' of the previous paragraph is merely meant to indicate the motivations and research strategies of the Old Welfare Economics. Its approach found a reflection in many themes and played a pioneering role in some other fields (external effects, market failure). There is no need to go into these ramifications here. The important point to note is the general approach of the Old Welfare Economics which was characterized by a combination of an ethical commitment *vis-à-vis* improvements in material welfare with solid theoretical analysis, supplemented – where necessary – by 'robust' general observations and assumptions[1] in order to arrive at a basis for realistic and (in principle) realizable recommendations and policies.

For more than 50 years now this earlier phase has been replaced by New Welfare Economics as the ruling para-

digm. Born from a strengthened trend for a clearer 'scientific' delineation of economic theory and from a changed emphasis in defining economics, welfare economics took on a very different appearance. The change in accent had already begun in the 1870s with the triumphant advance of marginal utility theories when interest switched increasingly from the 'wealth of nations' (Adam Smith), with its emphasis on the social division of labour and the exchange of goods as sources of material plenty, to an investigation of individual choice and action in the market. Individual utility in production and consumption and its satisfaction as a driving force for action (which is constrained by a scarcity of resources) became the central problem in economic theory; at the same time, the investigation of 'allocative efficiency' as a choice process became a decisive research subject. This change in emphasis found clear expression in Lionel Robbins's famous and widely-used definition of 1932 that 'economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses'.[2]

Behind this change, however, the old utilitarian tradition remained alive insofar as most economists still adhere – explicitly or implicitly – to the idea that increases in utility or utility maximization are desirable aims. But the perspective has shifted from some general utility for society as a whole to the separate utilities of single individuals which cannot be aggregated into a societal sum-total. This individualized perspective, which corresponds to the methodological individualism of the new 'subjective' theories, was fortified by a positivistic methodology which stressed the impossibility of obtaining reliable observations for utility levels and interpersonal comparisons of utility. Statements on total utility and similar matters should therefore be avoided in scientific research since they are bare of 'scientific content'.

Thus, the Old Welfare Economics was dethroned. But the old dilemma of economists persisted; they still wanted

and still want to be able to give 'theoretically valid' advice which is not just an expression of their personal value preferences (which they are 'permitted' to promote in non-scientific conversation). It was this dilemma and the attempt to overcome it which prepared the ground for the New Welfare Economics whose principles were laid down about 1940 by John Hicks, Nicholas Kaldor and Tibor Scitovsky. It will be obvious that the task of building a bridge between a narrowly-defined notion of science and science-based normative statements would not be an easy one. And in fact, as we shall see, it could only be achieved by some ingenious and to some extent questionable 'tricks'.

This brings us now to a more detailed treatment of the New Welfare Economics or simply 'welfare economics' in what follows. This subject, with its problem of bridging the gap between a positive economic theory and normative statements, belongs – together with income distribution problems (Chapter 9) – at the core of the theory-ethics complex.

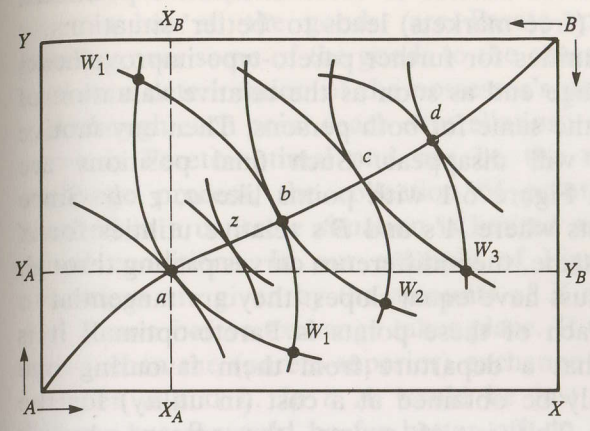
Two elements occupy a central place in modern welfare economics: the notion of Pareto-optimality and the role of perfect markets in connection with Pareto-optimality. Building on these elements, a superstructure of further ideas and results can be erected which keeps the welfare-theoretical discussion going. The notion of the Pareto-optimum – named after earlier ideas of the Italian economist and sociologist Vilfredo Pareto – has gained importance because it opens an escape (though a narrow one!) from the difficulty of evaluating and comparing macro-situations on a utility principle even when interpersonal utility comparisons are not admitted. While the Old Welfare Economics had no difficulty in stating that situation Y was 'better' than situation X because the utility gains of the winners from a change to Y were 'obviously' greater than the utility losses of the losers, this argumentation was closed to the New Welfare economists. Interpersonal utility comparisons were now regarded as impossible and mean-

ingless. A change in a multi-person situation should only be regarded as an unequivocal improvement if some people were better off in the new situation and no person worse off than before. This is the basic idea of Pareto.

If a situation Y represents such an improvement in comparison with situation X, then we say that Y is pareto-superior to X, and X pareto-inferior to Y. If for instance I prefer apples to oranges but have only oranges in my possession while somebody else prefers oranges but possesses apples, then a change of apples against oranges will obviously lead to a pareto-superior situation: both of us will be better off. But if I just take the other person's apples, this cannot be regarded as an 'improvement' even if these apples save me from starvation and the other person is only slightly irritated by the loss of some apples. Pareto-*optimality* is then a situation where no further opportunity exists to find a pareto-superior solution; in other words the lot of no person can then be improved without reducing somebody else's utility.

A noteworthy and in theory not unimportant characteristic of Pareto-optimality is that there exists a close relationship between this notion and the theoretical model of 'free' and perfect markets. This can be illustrated in a simplified way by looking at the exchange of (two) goods between two persons with the aid of a so-called Edgeworth-Box. In Figure 6.1 we have a 'Box' where quantities of the good X can be read off in horizontal directions and quantities of good Y in vertical directions. The quantities of X and Y are given and equal to the dimensions of the box. Each point within the box depicts a certain distribution of X and Y between two persons A and B, with the quantities belonging to A measured from point A and those belonging to B measured from point B. Thus the point a refers to a situation where A possesses the combination AX_A of X and AY_A of Y and B is consequently in control of BX_B and BY_B. The curves within the box represent a few of A's and B's indifference curves indicating

Figure 6.1 Edgworth Box and Pareto-optimality



their preferences for different combinations of X and Y. The curves which are convex from below (seen from point A) are the indifference curves of A and conversely for B. The greater the distance from A (or B), the greater the amount of goods and the utility of the person concerned.

We start with an initial situation where the distribution of the goods X and Y between A and B is given by W_1. As the slope of an indifference curve indicates the relative marginal utilities of the two goods, we see that in W_1 the relative utilities of X and Y are not the same for A and B. A is prepared to give up quite a number of X units for additional Y without loss of utility, while the converse is true for B. If 'free' exchange prevails (with nobody forced to exchange and nobody prevented from it), then both A and B will find it advantageous to exchange goods. Starting from W_1 A will transfer X to B and obtain Y. In this way they will move to distribution situations which lie between the two indifference curves W_1 W_1' passing through point

W_1. In this area both A and B are on a higher indifference curve than in W_1, therefore their utility increases. W_1 is thus clearly pareto-inferior to these alternative positions: free exchange (free markets) leads to 'better' situations.

The opportunities for further pareto-type improvements through exchange end as soon as the relative valuation of X versus Y is the same for both persons. Then any motive for exchange will disappear. Such final positions are exemplified in Figure 6.1 with points like a, z, b. Since these are points where A's and B's relative utilities for X and Y are the same, the indifference curves passing through these points must have equal slopes: they are tangential to each other. Each of these points is Pareto-optimal; it is easy to see that a departure from them favouring one person can only be obtained at a cost (in utility) for the other person. This is, of course, the reason why an exchange favouring both parties is no longer possible. Since in a general equilibrium of perfect markets (with complete market clearing), the relative marginal utilities for all market participants and over the whole range of goods are the same (which causes exchange acts to come to a rest in the equilibrium position), we can conclude that (perfect) market equilibria are Pareto-optimal. This does not only apply to a pure exchange model, but also to models including production as long as the strict assumptions of perfect markets (perfect competition, flexibility, information) are extended from the goods markets to the factor markets.

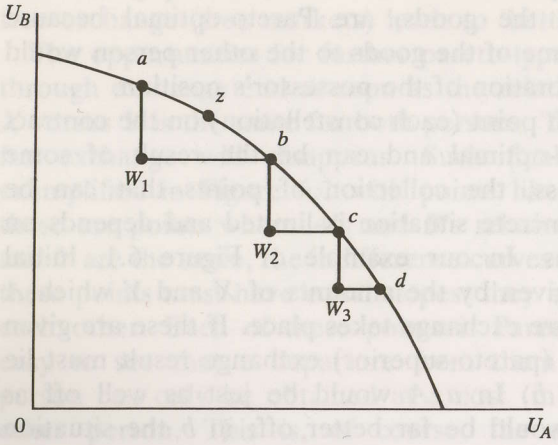
Let us return to Figure 6.1. When we draw a line through all the tangency-points of A's and B's indifference curves (a, b, c, d . . . z) we obtain the curve AB which is called the 'contract curve'. It is the locus of all possible Pareto-optimal distributions of the given amounts of X and Y. Every other distribution is pareto-inferior insofar as it permits 'improvements' (through free exchange or otherwise) which will benefit both persons. But no valuation or ordering is possible *between* points on the contract curve as long as interpersonal comparisons of utility are not permitted.

There is no room for setting the gains of one person against the losses of the other in order to reach an aggregate net balance. Even points like A and B, where one of the persons has all the goods, are Pareto-optimal because handing over some of the goods to the other person would lead to a deterioration of the possessor's position.

Although each point (each constellation) on the contract curve is Pareto-optimal and can be the result of some exchange process, the collection of points that can be reached in a concrete situation is limited and depends on initial conditions. In our example of Figure 6.1, initial conditions are given by the amounts of X and Y which A and B own before exchange takes place. If these are given by W_1 then the (pareto-superior) exchange result must lie between a and b. In a A would be just as well off as before, but B would be far better off; in b the situation would be the other way round. In between these two situations all points on the contract curve would yield utility gains for both partners. Combinations to the south–west of a or to the north–east of b are irrelevant because in these situations one of the partners would be worse off than in W_1 and would therefore refuse to enter into such a transaction. The range a–b is called the 'core' of the 'solution' for W_1 as the initial condition; it covers all possible Pareto-optimal positions which can be reached in a process of free exchange.[3] In an analogous way we obtain as core for W_2 the range b–c, for W_3 c–d and so on.

The connection between initial conditions and core can be pictured more directly with the aid of a utility possibility curve as given in Figure 6.2 (where we assume that the utility levels of the two persons A and B can be presented by indices which, however, need not be comparable). The axes in the diagram 6.2 contain the utility scale of A (U_A) and of B (U_B) respectively. The curve connecting the two axes contains all the utility combinations of A and B along the contract curve of Figure 6.1. The highest point of the possibility curve on the ordinate corresponds to the situ-

Figure 6.2 Utility possibility curve



ation where B obtains all the goods and A nothing. Consequently B reaches his maximum possible utility while A's utility is zero. Other distributions of X and Y lead to different (shared) utility combinations. The negative slope of the curve expresses Pareto-optimality; in each situation an increase in the utility of one person can only be achieved at the cost of a utility loss of the other. The concavity of the curve (*vis-à-vis* the origin) takes account of the assumption of diminishing marginal utility. Points above the possibility curve cannot be reached because the amounts of X and Y are limited; points below the curve represent pareto-inferior positions which can be rectified through exchange.

As before, we denote alternative initial conditions with W_1, W_2 and W_3. It can easily be seen that from each of these points only a limited number of positions on the possibility curve can be reached as 'core' solutions where no person would suffer a loss of utility. Thus, as in Figure 6.1, the core for W_1 is limited to the range a–b. Exactly

where within this range the exchange process will ultimately arrive (i.e. how the utility gains will be distributed between A and B) cannot be determined in this two-person example. It will depend on the bargaining skills and strategies of the two partners and on chance influences. It can be shown, however, that with a growing number of market participants the core (for a given initial position) gets narrower and narrower until it is reduced to a single position on the possibility curve when the number of persons becomes very large. This is the position of the Pareto-optimal perfect market equilibrium.

This simplified model, which can be expanded to a comprehensive system of (perfect) competitive markets (with production, exchange and money), provides the basis for two fundamental theorems of welfare economics which lead to a normative bias in favour of market solutions. The first theorem ('direct theorem') tells us that under the assumption that individuals aim at utility maximization, free exchange (in perfect markets) will guarantee that a Pareto-optimal situation on the possibility curve (contract curve) will be reached. This we have already shown. The second theorem ('converse theorem') points out that every specific pareto-optimal position on the possibility (contract) curve is – in the case of atomistic competition – uniquely bound up with a certain initial condition. Thus with W_1 as an initial condition and large numbers of market participants, only one equilibrium condition would be reached, say z in Figures 6.1 and 6.2; conversely, z can be reached exactly by making W_1 the starting point for the exchange process.

Thus, starting from a rather simple basis, we have already obtained two rudimentary 'theoretically founded' normative welfare economic statements: (1) the 'scientific' denial that interpersonal comparisons of utility are possible and (2) the partly psychological, partly 'ethical' idea that additional material wealth will increase individual utility and that increases in utility are a desirable target. These stipulations, connected with the basic assumptions of gen-

eral equilibrium theories, provide the basis for a normative pro-market stance. Though this framework does not permit an 'objective' decision as to *which* of the many Pareto-optimal situations deserves priority (since this would require interpersonal utility comparisons), it can still be said that 'free' competitive markets are a precondition for an optimal solution. Whatever concrete solution is desired – chosen under various political and ethical aspects – it should correspond to *some* market equilibrium. All other situations ought to be rejected because they are not Pareto-optimal.

If a particular Pareto-optimal situation is selected (for whatever reasons) as the desired target, it can be reached in two different ways. Let us assume that under the conditions depicted in Figures 6.1 and 6.2 a consensus exists that the position z is a desirable distribution. Let the initial (pareto-inferior) position be given by W_2. The distribution z does not belong to the core of W_2. To get to z one can use one of two possible paths. Either one permits the market (exchange) process to move from W_2 to a point within the W_2 core (i.e. from b to c) and then gets to z via a redistribution policy; or one starts off with an adjustment of initial conditions, substituting W_1 for W_2 and then lets the market move to z which is the core corresponding to W_1, assuming there are many market participants. The first strategy mirrors the 'direct theorem'; the second the 'converse theorem'.

Though these rudimentary 'theoretical' rules of welfare economics concerning competitive markets are plausible and can indeed be helpful on an abstract analytical plane, they become questionable as instruments as soon as we leave the idealized assumptions of general equilibrium models, as we must when we are concerned with recommendations for the *real* world. In this case we have to look at them more critically. In doing this we shall for the moment continue to accept the – by no means self-evident – normative background that an increase in individual utility levels of market participants (without interpersonal comparisons) is a sufficient ethical basis for (economic) priorities and recommendations. Aspects of this question will be taken up later on.

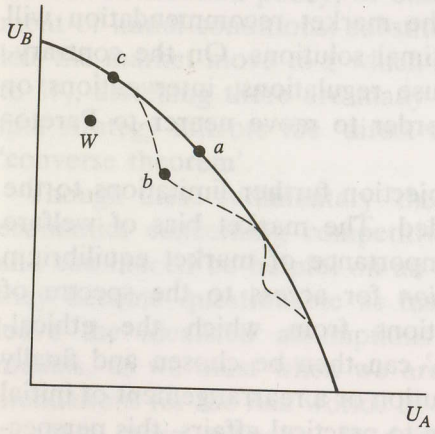
The close link between welfare economic aspirations and the characteristics of 'free markets' rests decisively on the elements ascribed to the 'perfect market' model. It begins to lose force and credibility as soon as the discrepancies between real markets and the model are taken into account. To ensure that all the processes and results under real conditions conform approximately to those of the model, it would first of all be necessary that most or all production and consumption transactions take place on markets characterized by a high degree of competition and information. But historical, institutional and practical influences are responsible for considerable deviations from such a situation. This is most clearly though by no means exclusively demonstrated on the 'labour market' with its enormous heterogeneity and institutional peculiarities. As soon as considerable sectors of the economy do not conform – even approximately – to the assumptions of equilibrium models of the neoclassical type, however, it is no longer guaranteed that the market recommendation will always lead to Pareto-optimal solutions. On the contrary, it may be necessary to use regulations, interventions or countervailing power in order to move nearer to Pareto-optimal situations.

To this fundamental objection further limitations to the 'market rule' can be added. The market bias of welfare economics stresses the importance of market equilibrium as an *essential precondition* for access to the spectre of Pareto-optimal constellations from which the ethical-political desired 'solution' can then be chosen and finally reached through redistribution or a rearrangement of initial conditions. But in relation to practical affairs, this perspective overlooks the fact that not only market processes but political and sociological processes as well are subjected to

certain 'laws' which cannot be manipulated *ad libitum*. Redistributions of income and, even more, readjustments of initial conditions (wealth, access to education, etc.) are costly and meet with considerable economic and political resistance which cannot always be overcome. Different economic strategies will affect different interests and power positions and will influence the framework within which political action can become effective. Initial and market conditions by themselves cannot be linked directly and uniquely with specific final results. These will also depend on the instruments which are available and can be used to obtain readjustments; they are 'path-dependent'.

Consequences of these considerations for the argumentation of welfare economics can be illustrated with the aid of our simple model. In Figure 6.3 the continuous curve again represents all the possible Pareto-optimal utility combinations of A and B corresponding to various market

Figure 6.3 The utility possibility curve and the utility feasibility curve



equilibria. But as a consequence of such factors as market imperfections, market failures and political barriers, not all of these constellations may be attainable. In addition to the utility possibility curve which could be reached under 'ideal' conditions, we get a second set of constellations which can actually be reached. They are shown (in 6.3) by the dotted curve, which can be called a 'utility feasibility frontier'.[4] The feasibility curve can coincide with the possibility curve but can also lie below it. Thus institutional or market restrictions may prevent a movement from b to a because of credit restrictions, price rigidities, etc. Let us now assume that we have initial conditions W and that a desired final distribution would be represented by a. An 'orthodox' recommendation would be to move through free exchange (markets) from W to c (the corresponding market equilibrium) and then move to a via a redistribution of incomes. But it may turn out that such a redistribution is politically not possible or too costly. It might, however, be possible to rearrange matters so that one gets from W directly to b. Since b lies on the feasibility frontier this is a terminal point; there is no path to the possibility curve. Thus we are faced with a situation that, starting from W, a market process would result in a Pareto-optimal equilibrium (c). However, it may be preferable to move to the sub-optimal feasible situation b which – though sub-optimal *vis-à-vis* the unattainable optimum a – may be preferred to c. The rule that *every* desired utilitarian solution must always and necessarily also be a Pareto-optimal market equilibrium loses its simple force once the influence of real world complexities are taken into account.

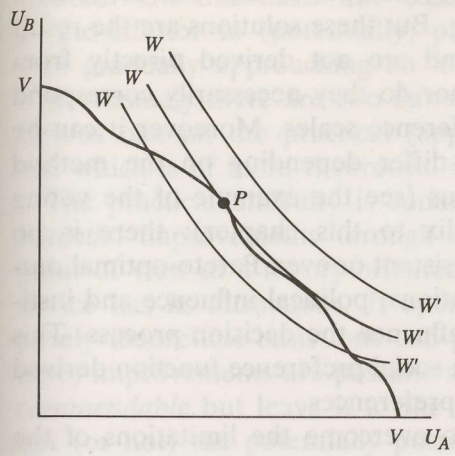
After these remarks, which should prevent us from accepting too uncritically pro-market norms purely on the basis of welfare economic arguments, we can now turn to other and more specific aspects of the New Welfare Economics. In doing this we continue to adhere to the basic principles of welfare economics – the utilitarian idea of 'more is better' and the pareto-optimum as a standard

in view of the negation of interpersonal comparisons of utility. But we need no longer feel bound to assume perfect markets or any other market hypothesis.

One of the main weaknesses of a welfare economics whose ultimate aim is to be able to produce usable recommendations for economic policy is the fact that one can usually reject a number of constellations quite easily because of their pareto-inferiority, but that the Pareto-principle does not offer any criterion as to which of the several possible Pareto-optimal situations should be preferred. This problem of finding an 'optimum optimorum', a 'best' Pareto-optimal situation, did not exist for the Old Welfare Economics. There it was permitted to compare the probable utilities to be gained or lost by different groups in different optimal situations and then to choose the one which promised to deliver the highest aggregate utility. This path was closed to the New Welfare economists who rejected the comparison or summation of utilities. A way out of this difficulty was needed and towards the end of the 1930s two alternative 'solutions' were developed. One was proposed by Abram Bergson[5] who suggested the construction of a determinate and unique social preference function to be derived from all individual preferences which would allow a generally acceptable ordering of different pareto-optimal constellations to obtain. Figure 6.4 is an illustration of Bergson's idea. As before the diagram contains the utility combinations of *A* and *B*. The curve *VV* represents all Pareto-optimal situations which can be effectively obtained. The *WW'* curves are part of the social preference or welfare function. Each *WW'* curve contains constellations which are equally acceptable to the community, curves higher up indicating a higher preference. In the diagram the position *P*, where a social indifference curve touches the utility possibility curve *VV*, is the 'optimum optimorum': it is the Pareto-optimal position which yields the highest possible socially accepted satisfaction.

In theory (disregarding practical difficulties in application), Bergson's method would seem to offer a satisfactory compromise for deriving more definite decisions within the chosen 'scientific-normative' framework of welfare economics. But his proposal is undermined by weaknesses in the concept of a social preference function. Since with other economists Bergson rejects the possibility of adding up individual utilities in order to obtain aggregate utilities, some other method has to be found which would allow such an aggregate social function to be constructed which could take account of all individual preferences. Yet Kenneth Arrow has shown in his famous 'impossibility theorem' that – given some plausible minimal requirements regarding consistency and correspondence with individual preferences – no definite and unique social preference function can be derived except under very special conditions (such as when all individual preference functions are identical).[6] Of course, this does not mean that in practice it might not be possible to arrive at a social consensus in

Figure 6.4 A social preference function



policy matters. Discussions, institutional arrangements and judicial processes can all help to approach 'solutions' which are more or less generally acceptable and can serve as a basis for decision-making. But these solutions are the result of a political process and are not derived directly from individual preferences, nor do they necessarily correspond to all the individual preference scales. Moreover it can be shown that results will differ depending on the method used to reach a consensus (see the example of the voting paradox in the Appendix to this chapter): there is no guarantee of unique, consistent or even Pareto-optimal outcomes. Ethical considerations, political influence and institutional constraints all influence the decision process. This is not the same thing as a social preference function derived directly from individual preferences.

The second attempt to overcome the limitations of the New Welfare Economics without endangering its basic assumptions appeared one year after Bergson's proposal in two papers by Kaldor and Hicks.[7] Since the main weakness of the New Welfare Economics was that it permitted recommendations only in cases where no person would be harmed – a constellation which is rather exceptional in practice – Kaldor and Hicks proposed an extension of the welfare criterion. It should be applicable to all situations in which a pareto-superior improvement could be achieved *in principle* even if not executed in practice. Accordingly a situation Y is to be regarded as 'better' than X even when some persons in Y are worse off than before as long as the gains of the winning groups are big enough to compensate fully all the losers and still leave some surplus to the winners. If the compensation actually takes place, a pareto-type improvement has obviously been achieved: the losers are now not worse off than before and the others have reached a higher level of utility.

With this extension, welfare economics is obviously given a much wider scope for practical relevance. Its normative recommendations are now no longer restricted to situations

which yield a general improvement *directly* for all persons; it suffices that room for *potential* general improvement is created. On this basis one could hope to march from pareto-inferior to (potentially) pareto-superior situations, thus gradually approaching an 'optimal' Pareto-optimum. Unfortunately there are two flaws in this 'solution': a very serious one on the practical (applied) side and a formal one which is of more theoretical interest.

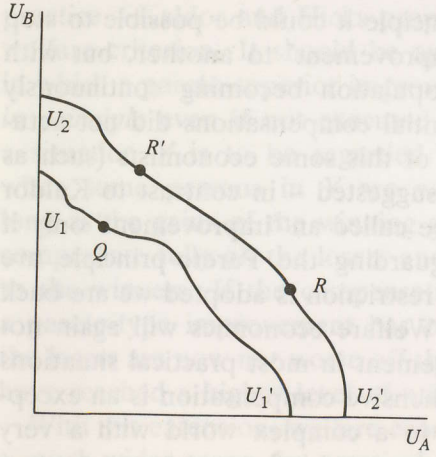
The practical difficulty is connected with the notion of *potential* improvements through compensation. From the point of view of a theory-oriented welfare economics, this device has its attractions. It opens the chance that 'on a purely theoretical basis' one can point out where (pareto-type) improvements are possible and therefore *in principle commendable* but leave it to the political process to carry out (or not) the potentially possible compensation. Since such compensation is often not undertaken and since the political possibilities of achieving it are not totally independent from chosen economic policies, it becomes doubtful whether the compensation principle in this form of an *abstract possibility* is really a great step forward in making 'pure' welfare economics more relevant in terms of realistic scenarios. Under this principle it could be possible to step continually from one 'improvement' to another, but with some sections of the population becoming continuously poorer because the potential compensations did not actually take place. Because of this some economists (such as Pareto and Little) have suggested – in contrast to Kaldor – that a change should be called an 'improvement' only if the compensations safeguarding the Pareto-principle are actually paid. But if this restriction is adopted we are back where we were before. Welfare economics will again not be able to pass any judgement in most practical situations because full and comprehensive compensation is an exception rather than a rule in a complex world with a very uneven distribution of power and influence.

A formal difficulty connected with the compensation

principle was brought up in a paper by Scitovsky[8] who pointed out that, quite apart from the practical question raised in the previous paragraph, in some circumstances the Kaldor solution cannot deliver a clear decision. The essence of Scitovsky's argument can be presented in the following simplified form. Let us deal with a situation where new technological or institutional conditions permit a shift in the utility possibility curve: the question arises whether a possible change should be carried out. In the terms of welfare economics the question is whether the (market-determined) pareto-optimum under the changed circumstances is pareto-superior to the Pareto-optimum in present circumstances, in which case the change should be 'recommended'. If this is not the case, it should be 'rejected'.

We start off with a situation where the Kaldor-principle does not cause any problems. In Figure 6.5 we have a utility possibility curve U_1U_1' in the initial situation which

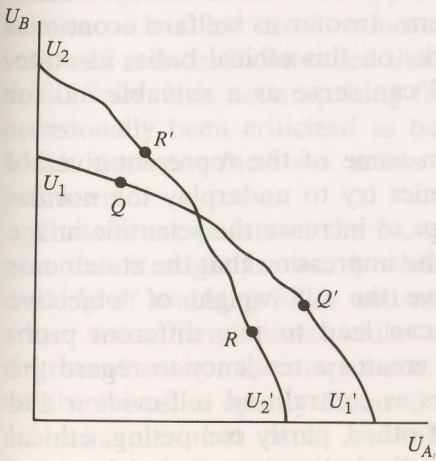
Figure 6.5 The compensation principle



could be shifted – through new economic arrangements – to U_2U_2'. In the initial condition we have an equilibrium in Q; after the change a new equilibrium would be established (through the market or otherwise) in R. Both positions are Pareto-optimal. The question is: is R preferable to Q and should the change be effected? According to the compensation principle the answer is quite clearly 'yes'. It is true that the actual change will cause a loss of utility for B, but a potential redistribution (compensation) could shift the situation from R to R' which represents an improvement for both persons.

Let us now assume a situation as given in Figure 6.6. As before U_1U_1' and Q represent the initial condition, and U_2U_2' are the new possibilities under discussion. A change-over to the new situation would result in R. As before we could regard this as an improvement since A could compensate B in such a way that R' is reached where both A and B are better off than in Q. But once the change to

Figure 6.6 Compensation and the Scitovsky problem



R has taken place it can be seen that, *from this perspective*, Q is now preferable to R. For if we change 'back' (from U_2U_2' to U_1U_1') A will at first be disadvantaged. But through compensation from B to A we can move from Q to Q' where both A and B are better off than in R. Thus depending on the situation from which we start, a different Pareto-optimal situation will appear as preferable. No unequivocal result emerges.[9]

We can conclude that the ambition of the New Welfare Economics to provide a sound and effective 'scientific' basis for normative-ethical statements which are firmly rooted in economic theory has not and most likely cannot be fulfilled. No stratagem, however clever, can build a solid bridge between positive and normative statements.

Welfare economics, including the 'New Welfare Economics', can only survive on the open or tacit ethical presumption that a greater amount of material goods means higher individual utility and that an increase in individual utility is a desirable aim. Since this utilitarian heritage can be found in and is accepted by a wide spectrum of psychological and ethical beliefs, it provides a useful and fruitful basis for normative discussions and for the attainment of consensus decisions. Insofar as welfare economics openly admits that it works on this ethical basis, its statements are acceptable and can serve as a valuable aid for socio-political discussions.

The trouble starts when some of the representatives of the New Welfare Economics try to underplay the normative elements in an attempt to increase the scientific image of the theory and to give the impression that the statements of welfare economics have the full weight of 'objective expert' knowledge. This can lead to two different problems. On the one hand it creates a tendency to regard the embodied ethical elements as central and self-evident and to neglect the existence of other, partly competing, ethical and ideological desiderata (including non-material, extra-market values). A proper consideration of these could lead

to a modification of welfare economic prescriptions and could rob them of their commanding character. The second problem is a consequence of the steady – but finally futile – endeavour to cut out all social facts, no matter how relevant they may be, which cannot be submitted to rigid scientific methods of analysis and testing. Understandable as such a tendency is when adherence to the scientific-theoretical image is predominant, it nevertheless undermines the *raison d'être* of a welfare economics. The fact that some important elements cannot be treated as 'theoretically' as one would like does not preclude discussion of them in a reasonable way so that they are not neglected when it comes to reaching practical decisions.

A telling example of this refusal to consider 'soft' facts is the strict abstinence of New Welfare Economics with regard to all aspects concerning interpersonal comparisons of utility. Quite apart from the fact that such a strict adherence to methodological purity is not the general rule in the practice of social science,[10] it becomes particularly problematic in a branch which is bent on obtaining normative judgements for the real world. The fear of transgressing scientific boundaries – so typical of New Welfare Economics – has led to a remoteness from reality which seriously reduces its intended theoretical influence on practical affairs. It is not surprising that welfare economics has occasionally been criticized as being a 'nirvana' approach which does not facilitate access to the treatment of real problems.

These weak points of the New Welfare Economics suggest that it might be worth while to look for approaches capable of reaching fuller and more specific aids for concrete recommendations while still maintaining a high degree of economic competence. These approaches could still be based on openly declared utilitarian (or other) ethical principles, but could be enriched through additional non-economic considerations. Two possibilities will be discussed in the two following chapters. In Chapter 7 the

question is raised whether it might not be possible to arrive at meaningful interpersonal comparisons of utility. If this were possible one could return to more significant statements such as were typical in the Old Welfare Economics without perpetuating its mistakes of treating certain value statements as self-evident truths or of presenting them in semi-factual forms. Chapter 8 deals with aspects of cost-benefit analysis which can be seen as a different attempt to combine economic and ethical-political elements in a suitable form for decision-making by foregoing the strict and demanding methodological requirements of welfare economics.

Appendix: a note on the impossibility theorem

This note is meant to present the main ideas of Arrow's impossibility theorem which has been mentioned above. Arrow put the question of whether it is possible to derive a 'democratic' aggregate social welfare function (or social preference function) from individual preferences which would consistently conform to the usual requirements of utility functions. Cardinal measurement is not required; all that is necessary is to be able to distinguish clearly three possibilities whenever a choice between alternatives has to be made. If x and y are two alternatives, the three possibilities are $x > y$ or $y > x$ or $x = y$ where $>$ stands for 'preferred over' and $=$ stands for 'indifferent to'.

Arrow lists four conditions which in his opinion have to be met if the social preference function is to be regarded as a 'true' (consistent) transformation of individual preferences. These four conditions are:

1. **Collective rationality:** The social preference function must display all the 'rational' characteristics of individual preference functions; that is, it must be unequivocal, complete and transitive. This means that all existing alternatives can be ordered and transitivity is assured. In other words, when $x > y$ and $y > z$ we must also get $x > z$.
2. **Pareto principle:** This very plausible principle merely postulates that when $x > y$ is true for all individuals, $x > y$ should also be true for the social preference function.
3. **Independence of irrelevant alternatives:** The ordering between *given* alternatives x and y should only depend on individual preferences between these two alternatives and not be influenced by a changed context. Let us say we are concerned with the preference ordering between beer (B), white wine (W) and red wine (R). At a reception beer and red wine may be offered as drinks and one chooses red wine because one regards it as 'healthier' than beer: $R > B$. At another occasion one is invited to a meal and one is asked to choose between white and red wine. With an eye on the meal one chooses white wine: $W > R$. Following the transitivity rule we should conclude that $W > B$. However this does not follow. $B > W$ is just as possible when these two are presented in isolation (or in other special contexts).
4. **Non-dictatorship:** There is no individual whose preferences are automatically society's preferences independent of the preferences of all other individuals.

It can be shown that these four postulates can only be met under extremely unlikely conditions (for instance, when all individuals have identical utility functions). This means that normally a social preference function cannot be constructed. It can, of course, be objected that Arrow's four conditions present too high a standard in postulating that there should be a *direct* connection and correspondence between *all* individual preferences and the social preference function. However, this high standard finds justification insofar as it is in line with the methodological premises of the New Welfare Economics which 'prohibit' the recom-

mendation of changes if they have negative effects on even a single person.

But even when we are prepared to take a more modest course than Arrow and to accept as aggregated social preference a function which can be obtained in a democratic process of decision-making, we have not got rid of all the difficulties of obtaining unique and consistent results. This is so because the preference ordering emerging from a democratic voting procedure is not independent of the circumstances under which the voting takes place. This can be shown by the following two examples.

In the first example, the so-called 'voting paradox', we assume that there are three alternatives under discussion, x, y and z, and that the population is divided into three groups of equal size, A, B and C, whose preferences are as follows:

$$\begin{aligned} A&: \quad x > y > z \\ B&: \quad y > z > x \\ C&: \quad z > x > y \end{aligned}$$

Let us assume that only one of two alternatives is to be selected. If the choice is between x and y, a majority will vote for x ($A + C$): we obtain $x > y$; if y and z come up $A + B$ will give priority to y: $y > z$; finally if x and z are compared the votes of $B + C$ lead to $z > x$. However this result is a contradiction of the 'rational' transitivity rule which implies that if $x > y > z$ is valid, we should obtain $x > z$.

The second example shows that 'wrong' results can occur through manipulation. We start again with persons in three equally-sized groups, A, B and C, but take a situation where one out of four alternatives, w, x, y and z, is to be chosen. The voters can order their preferences by giving four points to their most preferred alternative, three points to the second best and so on. The alternative which obtains the highest number of points is to be accepted. The following table contains the preference patterns of the three groups:

	Points			
	4	3	2	1
A	w	x	y	z
B	x	w	y	z
C	z	w	x	y

In a normal voting process in line with these 'true' preferences, w would obtain ten points and would be the winning alternative. But suppose now that the B-group knows the preferences of the two other groups ('transparence'). It can then manipulate the result in its own favour by giving false information about its own preferences. By exchanging w with z in its voting paper, it can make x (with nine points) the winning alternative in place of w.

Of course the impossibility theorem and voting paradoxes do not imply that it is impossible to achieve workable political and ethical compromises when alternative policies are discussed. They only show that these 'solutions' cannot be obtained through 'theoretically' derived social welfare functions or other 'strictly theoretic' approaches to an optimum optimorum.

Notes

1. The two following quotations can be seen as examples of such 'robust' statements: 'As human nature is constituted, man rapidly degenerates unless he has some hard work to do' (A. Marshall); 'All human enjoyments tend to pall rapidly when repeated' (F. Taussig). These two examples are taken from a paper by R. Cooter and P. Rappoport (1984), 'Were the ordinalists wrong about welfare economics?', *Journal of Economic Literature*, **22** (2), June. After mentioning the above quotations the two authors continue: 'Such passages are relics of the prose style of 19th century British classics, which modern economists can find embarrassing, like a photograph from adolescence' (p. 520).

2. L. Robbins (1932), *An Essay on the Nature and Significance of Economic Science*, London: Macmillan.
3. Alternatively the 'core' can be defined as that set of Pareto-optimal constellations in which no person or coalition of persons can improve their position through independence (refusal to participate in the exchange process).
4. See J. de V. Graaf (1957), *Theoretical Welfare Economics*, London: Cambridge University Press.
5. A. Bergson (1938), 'A reformulation of certain aspects of welfare economics', *Quarterly Journal of Economics*, **52** (1), February.
6. K. J. Arrow (1951/1963), *Social Choice and Individual Values*, New York: Wiley. A short description of the impossibility theorem is given in the Appendix to this chapter.
7. N. Kaldor (1939), 'Welfare propositions in economics and interpersonal comparisons of utility', *Economic Journal*, **49** (3), September; J. R. Hicks (1939), 'The foundations of welfare economics', *Economic Journal*, **49** (4), December.
8. T. Scitovsky (1941), 'A note on welfare propositions in economics', *Review of Economic Studies*, **9** (1), November.
9. The impossibility of deriving definite priorities between Q and R in Figure 6.6 corresponds to the difficulties which can arise in welfare comparisons on the basis of revealed expenditure changes when market prices and quantities have changed. Writing P for price and Q for quantity indices, using subscripts 1 and 2 for two different periods and assuming that the total budget is spent on consumption, then a comparison of the two periods can yield one of the following four alternative constellations:

   1. $\Sigma P_2Q_2 > \Sigma P_2Q_1$
      $\Sigma P_1Q_1 < \Sigma P_1Q_2$
   2. $\Sigma P_1Q_1 > \Sigma P_1Q_2$
      $\Sigma P_2Q_2 < \Sigma P_2Q_1$
   3. $\Sigma P_2Q_2 < \Sigma P_2Q_1$
      $\Sigma P_1Q_1 < \Sigma P_1Q_2$
   4. $\Sigma P_2Q_2 > \Sigma P_2Q_1$
      $\Sigma P_1Q_1 > \Sigma P_1Q_2$

   In case (1) the person or group concerned prefers to buy basket Q_2 in period 2 although it could also have afforded at ruling prices (P_2) to buy the basket of period 1 (Q_1). At the same time we see that they were not able at the prices ruling in the previous period (P_1) to buy Q_2. If preferences are taken as given, this indicates an increase in welfare in period 2: preference for Q_2 is revealed and this preference could only be satisfied in the second period. Case (2) presents the exact opposite: Q_1 which was preferred to Q_2 in period 1 (when both baskets were within reach) can no longer be afforded in period 2. The switch to Q_2 therefore represents a reduction in welfare. Case (3) corresponds to the Scitovsky case. The prices in period 1 permit the purchase of Q_1 but not that of Q_2 and vice versa in period 2 when only Q_2 but not Q_1 can be afforded. No preference is revealed and no ordering between the two periods is possible. Case (4) where different baskets are bought in the two periods, although a purchase of the alternative basket is also possible in both situations, is an expression of either a change in preferences or of spontaneous, 'irrational' purchasing behaviour.
10. D. McCloskey (*The Rhetoric of Economics*, Brighton: Wheatsheaf, 1985) has shown that economic theory has always supplemented strict analysis by other methods including *ad hoc* assumptions, plausibility arguments, conviction, etc.