Appendix

Situation 1:

A small society has received a certain amount of money which can be used either to provide some help and assistance for a seriously handicapped person or to further the education of a highly intelligent child. The child could receive a good education in languages and in natural sciences, let's say. Let the disabled person be person 1; if the sum of money were used for her support (alternative x), she would be able to learn some very basic things, so that at least in certain areas of daily life she would no longer be totally dependent on assistance from other people. Let the intelligent child be person 2; the investment into its education represents alternative y. The interpersonal welfare ranking reads:

$$(y, 2)(x, 2)(x, 1)(y, 1)$$

Which alternative should be realized in your view, x or y?

(a) Imagine that the sum of money which could be used to help the handicapped person, is so large that, on the other hand, this amount would suffice for the education of not only person 2 but also a second child (person 3) who is even somewhat more intelligent than person 2. Person 3 would, therefore, benefit even a bit more from the education so that the following interpersonal welfare ranking can be assumed:

$$(y, 3)(y, 2)(x, 3)(x, 2)(x, 1)(y, 1)$$

Would you choose x or y under these conditions?

(b) Imagine that if the money were used to finance alternative y it would be possible to educate still another child (person 4). The reason may simply be "economies of scale" or the fact that a talented teacher will be able to provide a good education for several

children simultanously. Let us assume that all the other characteristics of the situation remain as before. The interpersonal welfare ranking now reads:

$$(y,4)(y,3)(y,2)(x,4)(x,3)(x,2)(x,1)(y,1)$$

Which alternative should be picked in your view, x or y?

(c) Add another child to the situation (person 5), who could also receive an instruction in languages and the natural sciences out of the given budget. Everything else remains the same and the interpersonal welfare ranking reads:

$$(y,5)(y,4)(y,3)(y,2)(x,5)(x,4)(x,3)(x,2)(x,1)(y,1)$$

Would you want x or y to be realized?

Situation 2:

Imagine that due to an unexpectedly large profit of the Bundesbank (or an unexpectedly large budgetary surplus, if you prefer), Government has the possibility to spend several billion marks (DM) either on environmental protection within its own territory (alternative y) or to spend that amount of money to finance an aid program against hunger in various countries of Subsaharan Africa (alternative x). Given the available amount of money, the environmental program would aim at improving the current situation of the North Sea. This would primarily benefit the fishing industry and, perhaps to a somewhat lesser degree, the people who spend their vacation along the North Sea. Henceforth, these two groups are called "person 2". Those who suffer from famine in Subsaharan Africa are "person 1". Undoubtedly, both the fishermen and the vacationers in this country are, in terms of welfare, better off than the starving people in Africa, independent of whether alternative x or alternative y will be realized. Which alternative should be chosen according to your view, if the following interpersonal welfare ranking is true:

$$(y,2)(x,2)(x,1)(y,1)$$

(a) Imagine now that the profit of the Bundesbank (or the budgetary surplus) has turned out to be higher than anticipated originally. On the one hand, the fight against hunger could now be intensified, on the other the environmental program could be extended. The proposal is to improve the quality of the air in the neighbourhood of coal power plants. The group benefiting from this measure will be called "person 3". We shall assume that this group will always be better off than groups 2 and 1 with respect to alternative y, and be definitely better off than group 1 with respect to alternative x. We are postulating the following interpersonal welfare ranking, where y again stands for environmental protection and x stands for relief of hunger (both programs would, of course, now be larger due to the higher level of financial resources):

$$(y,3)(y,2)(x,3)(x,2)(x,1)(y,1)$$

(b) Assume that it has become clear that "economies of scale" would occur in the environmental program, once alternative y should be realized. We postulate that a program for cleaner water in rivers should also be feasible which would benefit primarily those citizens of the country (group 4) who live close to the rivers (it seems obvious that cleaner water in rivers would, among other things, increase the stock of fish). In other words, not only would groups 2 and 3 benefit from the environmental program but also an additional group. We want to postulate the following interpersonal welfare ranking, where y again stands for the environmental program and x stand for the aid program for Subsaharan Africa:

$$(y,4)(y,3)(y,2)(x,4)(x,3)(x,2)(x,1)(y,1)$$

Which alternative should now be realized, x or y?

(c) Imagine that, given the financial resources, a further enlargement of the environmental program appears realistic. It has, for example, been found out that an additional program aiming at a reduction of traffic noise along the highways would be financially feasible. Through this investment, still another group of people (group 5) would experience an increase in its living conditions. We assume that group 5 is better off than all the other groups under alternative y and that it is at least better off than group 1 under alternative x. We postulate the following interpersonal welfare ranking:

$$(y,5)(y,4)(y,3)(y,2)(x,5)(x,4)(x,3)(x,2)(x,1)(y,1)$$

Which alternative should now be realized according to your view, x or y?

Situation 3:

Imagine a country which has a severe shortage of western currencies. The governing body of this country has the possibility to purchase on the world market either a certain number of badly needed dialysis machines (alternative x) that cannot be produced within the country, or a certain quantity of vitamin pills as well as tropical fruit (alternative y). This quantity would only be enough to satisfy the urgent needs of a relatively small group of persons. The realization of both alternatives together or a combination of both alternatives to some extent is assumed to be infeasible. The group of people suffering from kidney problems is group 1, the group of people benefiting from the import of vitamins and fruits is group 2. There is unanimous agreement in the country that all pregnant women should make up group 2. Since the persons with kidney trouble are clearly worse off than the expectant mothers, the following interpersonal welfare ordering appears to be justified:

$$(y,2)(x,2)(x,1)(y,1)$$

Which alternative should be realized in your view, x or y?

(a) Imagine now that the world market price for vitamin pills and tropical fruit has fallen. If alternative y were realized it would be possible to provide not only the expectant mothers, but also all the country's babies and toddlers (group 3) with the needed vitamins. The price of dialysis machines is assumed to rest unchanged, however. The welfare levels of groups 2 and 3 are clearly higher than the level of group 1 both under y and under x so that the following interpersonal ordering for the three groups appears plausible:

$$(y, 3)(y, 2)(x, 3)(x, 2)(x, 1)(y, 1)$$

Would you choose alternative x or alternative y?

(b) Let us imagine that there is a further decline in the world market price for vitamin pills and tropical fruit so that it turns out that under the given amount of western currencies the country's adolescents (group 4) could also be provided with vitamins if alternative y were chosen. We then postulate the following interpersonal welfare ordering:

$$(y, 4)(y, 3)(y, 2)(x, 4)(x, 3)(x, 2)(x, 1)(y, 1)$$

Which alternative should be chosen, x or y?

(c) The world market price of vitamin pills and tropical fruit declines once more so that under alternative y the given amount of western currencies would now suffice to provide those workers of the country who are engaged in physical labour (group 5) with the needed vitamins. We postulate the following interpersonal welfare ordering:

$$(y, 5)(y, 4)(y, 3)(y, 2)(x, 4)(x, 3)(x, 2)(x, 5)(x, 1)(y, 1)$$

Which of the two alternatives, x or y, should now be chosen?

Situation 4:

Imagine a country which has a severe shortage of western currencies. The governing body of this country has the possibility to purchase on the world market either a certain number of badly needed dialysis machines (alternative x) that cannot be produced within the country, or a certain quantity of expensive wines from the Bordeaux region that are desired by certain segments of the society. The realization of both alternatives together or a combination of both alternatives to some extent is assumed to be infeasible. It is hypothesized that the wines from Bordeaux have such a high price that they could only be purchased by a small group of relatively well–off citizens (group 2). The group of people suffering from kidney problems is group 1. It goes without saying that due to their illness, the dialysis patients are worse off than the potential buyers of expensive French wines so that the following interpersonal welfare ordering seems to be justified, where x refers to the import of dialysis machines and y refers to the import of wines from Bordeaux:

$$(y, 2)(x, 2)(x, 1)(y, 1)$$

Which of the two alternatives should be chosen according to your view, x or y?

(a) Imagine that the price of Bordeaux wines has fallen so that a second group within society (group 3) would be able to purchase these wines if alternative y were realized. Clearly, the quantity of imported wines could be increased due to the lower market price. The price of dialysis machines is supposed to remain constant. The welfare ordering now reads:

$$(y, 2)(y, 3)(x, 2)(x, 3)(x, 1)(y, 1)$$

Which alternative should be selected now, x or y?

(b) Let us assume that a further decrease in price of the Bordeaux wines has occurred so that under the given amount of western

currencies an even larger quantity of wines could be imported now. Therefore, due to the lower price per bottle, yet another group within society (group 4) could become a buyer of those wines. We assume the following interpersonal welfare ordering:

$$(y, 2)(y, 3)(y, 4)(x, 2)(x, 3)(x, 4)(x, 1)(y, 1)$$

Which alternative should be realized, x or y?

(c) The price of wines from Bordeaux is supposed to fall once more so that, again, another group within society (group 5) would be put in a position to purchase these wines if alternative y were realized. Therefore, the following welfare ordering appears plausible:

$$(y, 2)(y, 3)(y, 4)(y, 5)(x, 2)(x, 3)(x, 4)(x, 5)(x, 1)(y, 1)$$

Would you choose x or y in this situation?

Situation 5:

Once again, imagine a country with a severe shortage of western currencies. The governing body of this country has the possibility either to purchase on the world market a certain amount of inexpensive clothing (alternative x) which would allow the more needy segments of society (group 1) to significantly improve its welfare level, or to import a certain quantity of expensive wines from the Bordeaux region (alternative y) that a small group of rather well–to–do citizens of the country (group 2) would like to acquire. The realization of both alternatives together or a combination of both alternatives to some extent is assumed to be infeasible. We postulate the following interpersonal welfare ordering:

$$(y, 2)(x, 2)(x, 1)(y, 1)$$

Which alternative should be chosen according to your view, x or y?

(a) Imagine that the price of Bordeaux wines has fallen so that a second group within society (group 3) wold be able to purchase these wines if alternative y were realized. This additional group 3 is supposed to be better off in terms of welfare than group 1. We assume that the price of inexpensive clothing remains the same so that the quantity of imports would not change, should x be realized. The interpersonal welfare ordering now is:

$$(y, 2)(y, 3)(x, 2)(x, 3)(x, 1)(y, 1)$$

Should x or y be chosen?

(b) Let us assume that a further decrease in price of the Bordeaux wines has occurred so that with the given amount of western currencies an even larger quantity of wines could be imported now. Therefore, due to the lower price per bottle, yet another group within society (group 4) could become a buyer of these wines. We postulate the following interpersonal welfare ordering:

$$(y, 2)(y, 3)(y, 4)(x, 2)(x, 3)(x, 4)(x, 1)(y, 1)$$

Which of the alternatives x or y should now be realized?

(c) The price of wines from Bordeaux is supposed to fall once more so that, again, another group within society (group 5) would be put in a position to purchase these wines if alternative y were realized. Therefore, the following welfare ordering appears plausible:

$$(y, 2)(y, 3)(y, 4)(y, 5)(x, 2)(x, 3)(x, 4)(x, 5)(x, 1)(y, 1)$$

Would you choose x or y in this situation?

Situation 6:

Imagine a country which had been totally run down economically by a long-lasting dictatorship. Finally, the country could get rid of

this dictatorship. Furthermore, imagine that an international bank group is offering a rather large loan (under very favourable conditions of repayment) to this country for economic reconstruction (alternative y). However, the consortium declares that the prerequisite for this loan should be that the employees in the country be granted neither a right to strike nor the free choice of occupation. This precondition would remain valid for the foreseeable future. If the new Government were unwilling to enforce this curtailment of individual rights, no loan would be offered, and, therefore, the country would have to pull itself up by its bootstraps (alternative x). In that case, the country would, of course, have the option to reinstall the right to strike and other basic rights, a measure which had been promised to the citizens of the country after the fall of the dictatorship. If the bank loan were granted, the large enterprises (group 2) would be the first to experience an economic recovery. The workers and employees in the firms (group 1) would be hard hit by the restriction of basic rights. The interpersonal welfare ranking, therefore, reads:

$$(y, 2)(x, 2)(x, 1)(y, 1)$$

What should the country do in your view, should it decide in favour of y or x?

(a) Imagine that the initial situation were to undergo the following modification: The loan which is offered would have such a large volume that an additional group of the population, the self-employed persons with a small or middle-sized business activity, let's say, would benefit from the financial aid (group 3). Let this alternative again be denoted by y. Alternative x remains as before. The following welfare ranking is now postulated:

$$(y, 2)(y, 3)(x, 2)(x, 3)(x, 1)(y, 1)$$

Should the country choose x or y?

(b) Imagine again a change of the initial situation: The bank loan offered is so large that under alternative y still another group of the population, the civil servants, let's say, would realize larger economic benefits (group 4). Alternative x remains unchanged. The interpersonal welfare ranking now reads:

$$(y, 2)(y, 3)(y, 4)(x, 2)(x, 3)(x, 4)(x, 1)(y, 1)$$

Which alternative should now be picked by the country?

(c) A further variation: we shall assume that still another group within the population, the retired members of society (group 5), would experience an improvement of their economic situation under alternative y. Alternative x remains unchanged. The following welfare ranking is now postulated:

$$(y, 2)(y, 3)(y, 4)(y, 5)(x, 2)(x, 3)(x, 4)(x, 5)(x, 1)(y, 1)$$

Which alternative should now be chosen according to your view, x or y?