CHAPTER 3

The reason for collective choice – redistribution

> Political organization is to be understood as that part of social organization which constantly carries on directive restraining functions for public ends. . . .
>
> That the cooperation into which men have gradually risen secures to them benefits which could not be secured while, in their primitive state, they acted singly, and that, as an indispensable means to this cooperation political organization has been, and is, advantageous, we shall see on contrasting the states of men who are not politically organized with the states of men who are politically organized in less or greater degrees.
>
> Herbert Spencer

> As the state arose from the need to keep class antagonisms in check, but also arose in the thick of the fight between the classes, it is normally the state of the most powerful, economically dominant, class which by its means becomes also the politically dominant class and so acquires new means of holding down and exploiting the oppressed class. The ancient state was, above all, the state of the slave owners for holding down the slaves.
>
> Friedrich Engels

> When there is no middle class, and the poor greatly exceed in number, troubles arise, and the state soon becomes to an end.
>
> Aristotle

> A decent provision for the poor is the true test of civilization.
>
> Samuel Johnson

It is easy to envisage government arising out of pristine anarchy to fulfill a collective need of the community (say, protection from a predator) or to coordinate hunting or other food-gathering activity. But it is just as easy to envisage a distributional motivation behind the origin of the state. The best hunter or warrior becomes the chief of the tribe and eventually acquires sufficient authority to extract tribute from his fellow tribesmen. War and police activity begin as the primary activities of "government" but gains from these activities are claimed by the authoritarian leader(s) of the tribe.

Thus, the state can be envisaged as coming into existence either to satisfy the collective needs of *all* members of the community, or to help gratify the wants of

only a part of it. The first explanation corresponds to the achievement of allocative efficiency; the second to redistribution.[1]

The distinction between allocative efficiency and redistribution is fundamental in economics and public choice. In the allocation of private goods, market exchange can guide society "as if by an invisible hand" from points inside the Pareto-possibility frontier to a point upon it. However, this point is chosen blindly. How the gains from trade are distributed is determined arbitrarily, but since this distributional issue is resolved as a by-product of a process benefiting all parties, it need not become a bone of contention.

To obtain Pareto efficiency in the allocation of public goods, a collective choice process that is less anarchic than the market is required. A conscious choice of the quantities of each public good to be produced must be made and along with it the choice of means for paying for them. The issue of the distribution of the gains from collective action is more clearly visible in the allocation of public goods by a political process than it is in the allocation of private goods by a market exchange process. And the possibility arises that this and *other* distributional issues become dominant in the political process.

In this chapter we examine several hypotheses as to why redistribution occurs, after which we shall examine some statistics regarding the actual distribution activities of governments. We begin with four hypotheses of *voluntary* redistribution, hypotheses that predict that collective decisions to redistribute income – like collective decisions to improve allocative efficiency – could in principle be made *unanimously*.

3.1 Redistribution as insurance

At the time individuals emerge from the state of anarchy and form civil society, considerable uncertainty over the consequences of this step is likely. Some people may take great advantage of the secure property rights established in the new constitution and become rich. Others may be less successful. Buchanan and Tullock (1962, ch. 8) argue that this sort of uncertainty at the constitutional stage can lead individuals to include provisions for redistribution into the constitution.

To see what is involved, assume that there will be two income classes in the post-constitutional society, with every member of a given class having the same income, Y_i and $Y_2 > Y_1$. Let r be the number of rich in class 2 and p the number of poor in class 1. An individual uncertain of her future position chooses a tax of T on the rich and a benefit subsidy B to the poor so as to maximize the following objective function:

$$O = \pi_2 U_2(Y_2 - T) + \pi_1 U_1(Y_1 + B), \tag{3.1}$$

where π_2 and π_1 are the probabilities that she will be in classes 2 and 1, respectively

[1] For discussions of how exploitative dictatorship might emerge out of anarchy, see Skaperdas (1992), Usher (1992, ch. 4), Olson (1993), and Chapter 18. It is interesting to note that political anthropologists have engaged in the same debate regarding the origins of the state as modern public choice scholars have regarding its current activities. For an excellent review of the debate in political anthropology, see Haas (1982).

($\pi_2 = r/(r+p), \pi_1 = p/(r+p)$). Assuming zero transaction costs in transferring income,

$$rT = pB. \tag{3.2}$$

Substituting for π_1, π_2, and T into (3.1) and maximizing with respect to B, we obtain

$$\frac{dO}{dB} = \frac{r}{r+p}\frac{dU_2}{dY}\left(-\frac{p}{r}\right) + \frac{p}{r+p}\frac{dU_1}{dY} = 0, \tag{3.3}$$

from which it follows that

$$\frac{dU_2}{dY} = \frac{dU_1}{dY}. \tag{3.4}$$

An individual who maximizes her expected utility given that she is uncertain over whether she will be rich or poor will support redistributive taxes that equate the marginal utilities of representative members of each group. If all individuals have the same utility functions, she chooses taxes and subsidies to equate incomes across all individuals.[2]

In creating institutions to redistribute from the rich to the poor, the uncertain individual insures herself against the possibility that she will be one of the poor. Uncertainty over future position *could* lead to unanimous agreement to include institutions for redistribution in the constitution. In this case the constitution becomes a kind of insurance contract.

The potential benefits from joining insurance contracts are obvious, indeed so obvious that people routinely enter into private contractual relationships to pool risks. To justify state provision of insurance against risks over private contracting, we need some sort of transaction cost or market failure reason to expect that market provision of insurance will be inferior to state provision. Two main reasons have been given.

The amount of risk borne by any single member of an insurance pool declines as the membership of the pool grows. When the risks associated with new members are the same as those attached to existing members, the optimal size of the membership in the pool is infinity. Insurance becomes a sort of "natural monopoly" with the optimal size of the "insurance club" being all members of society (Arrow and Lind, 1970).

The risks of being poor are not the same across all individuals, however. Those who are of below average intelligence or ambition have higher probabilities of being poor than the average person; higher intelligence, more ambitious people have lower probabilities. If it is possible for an individual to determine his own probability of being poor, but it is not possible for a private insurance company to make this determination, the sale of insurance by a private company could lead to an *adverse selection* problem.

To see what is involved consider the decision to purchase disability insurance. Assume now that all healthy individuals have identical incomes and utility functions.

[2] Lerner (1944, pp. 23–40) was the first to demonstrate that an equal distribution of income maximizes the expected utility of an individual uncertain of future position. See also Sen (1973) and Olson (1987).

Let Y_H be the income of a healthy person, and Y_D the income of a disabled person; $Y_D < Y_H$. Everyone is healthy in period 1 and can buy insurance against being disabled in period 2. For the entire population the probability of being disabled is π_D. Ignoring administrative and other transaction costs, a private insurance company would have to charge a premium (tax) of T to offer a benefit to the disabled of B such that $B = T/\pi_D$. Now consider the decision of individual i who is considering buying insurance against becoming disabled, and who has a subjective probability of being disabled of π_i. He wishes to maximize his expected utility over the two periods. Ignoring discounting this implies that he maximizes

$$E(U) = U(Y_H - T) + \pi_i U(Y_L + B) + (1 - \pi_i)U(Y_H). \tag{3.5}$$

Substituting for B and maximizing with respect to T we get

$$\frac{dE(U)}{dT} = -\frac{dU(Y_H - T)}{dY} + \frac{\pi_i}{\pi_D}\frac{dU(Y_L + B)}{dY} = 0 \tag{3.6}$$

or

$$\frac{dU(Y_H - T)}{dY} = \frac{\pi_i}{\pi_D}\frac{dU(Y_L + B)}{dY}. \tag{3.7}$$

When i's subjective probability of becoming disabled equals the population's probability, $\pi_i = \pi_D$, we obtain the same outcome as with (3.4). Individual i purchases an amount of insurance T, such that his marginal utility in the first period when his income is high equals his marginal utility in period 2 if he is disabled. An individual who *knows* or *thinks* he has a smaller chance of becoming disabled than the average person buys an amount such that

$$\frac{dU(Y_H - T)}{dY} < \frac{dU(Y_L + B)}{dY}, \tag{3.8}$$

which implies a smaller purchase of insurance. Individuals with $\pi_i > \pi_D$ buy larger than average amounts. This in turn implies that the average π_i for the insurance pool is greater than π_D. If individuals on average can accurately judge their own π_i, the private insurance company goes bankrupt. The existence of accurate private information about risks induces adverse selection in insurance markets, thereby leading to the disappearance of these markets.[3] Forcing everyone in society to join an insurance program can be a Pareto improvement over this situation.[4]

3.2 Redistribution as a public good

Under the second hypothesis,[5] the rich are seen as transferring income to the poor, not because they are uncertain about whether they might become poor, but out of empathy or similar altruistic motivation. This behavior can be analyzed using a

[3] It may be possible to separate high and low risk individuals and offer separate insurance contracts to each. Such separating equilibria may not exist, however, and when they do, they may promise lower expected utilities than one where all individuals are compelled to buy insurance at the same premium. See Arrow (1963), Akerlof (1970), Pauly (1974), and Rothschild and Stiglitz (1976).

[4] For further discussion see Overbye (1995b).

[5] This hypothesis was first developed by Hochman and Rodgers (1969).

similar framework to that just employed. Each member of the highest income group is envisaged as gaining some satisfaction from the utility gains of members of the lower classes. The highest income group acts as a sort of club that unanimously agrees to transfer income from itself to members of the lower group(s). Assuming three groups, with $Y_3 > Y_2 > Y_1$, then each member of group 3, when voting, can be seen as maximizing an objective function consisting of a weighted sum of the utilities of its own members and those of members of lower-income groups:

$$O = n_3 U_3(Y_3 - T) + \alpha_2 n_2 U_2(Y_2 + B_2) + \alpha_1 n_1 U_1(Y_1 + B_1), \tag{3.9}$$

where n_3, n_2, and n_1 are the numbers of individuals in groups 3, 2, and 1, respectively; T is the tax imposed on the richest group, and B_1 and B_2 are the per capita subsidies to the other two groups. Each member of the richest group places full weight on the utility of each member of its own group, and partial weights ($\alpha_1 \leq 1, \alpha_2 \leq 1$) on the utilities of members of other groups. Substituting from the budget constraint

$$n_3 T = n_2 B_2 + n_1 B_1 \tag{3.10}$$

and maximizing with respect to B_1 and B_2 yields

$$\frac{dO}{dB_1} = n_3 U_3' \left(\frac{n_1}{n_3}\right) + \alpha_1 n_1 U_1' = 0 \tag{3.11}$$

$$n_3 U_3' \left(\frac{n_2}{n_3}\right) + \alpha_2 n_2 U_2' = 0, \tag{3.12}$$

from which it follows that

$$U_3' = \alpha_2 U_2' = \alpha_1 U_1'. \tag{3.13}$$

If a member of the richest class places the same weight on the utilities of members of classes 1 and 2 ($\alpha_1 = \alpha_2$) and assumes that each derives the same utility from income, then (3.13) implies subsidies to members of classes 1 and 2 so as to equate their marginal utilities of income. Since $Y_1 < Y_2$, if the marginal utility of income falls with increasing income, then the incomes of the lowest class must be raised to equality with those of class 2 before any transfers are made to class 2 (von Furstenberg and Mueller, 1971).

A saintly altruist who placed equal weight on her own utility as on that of others ($\alpha_1 = \alpha_2 = 1$) would vote to equate everyone's income. Everyday altruists who place more weight on their own utility than on the utilities of others ($0 < \alpha < 1$) will not favor transfers so large as to bring their own incomes into equality with those to whom they make transfers.

Equation (3.13) could be used to predict the voting behavior of a member of the highest-income group on redistribution or the charitable contributions of such a person. Since charity is a purely voluntary act, whereas government redistribution programs are not, one wonders why, if all the members of group 3 do favor redistribution, reliance is not made on private charities (clubs) for redistribution.

An argument for government intervention relies again on the free-rider problem. If a member of group 3 wishes to see the welfare of all individuals in group 1 raised,

and not just a few whom she knows personally, she cannot achieve her goal alone. If all members of group 3 feel likewise, they can achieve their goal by joint-collective action. But if a voluntary association is employed, free-riding may ensue, and less than the Pareto-optimal amount of redistribution may occur. The Pareto-optimal approach to redistribution sees redistribution through the government occurring as if only the rich voted, and when they did they used the unanimity rule.

3.3 Redistribution to satisfy fairness norms

Under the first two hypotheses to explain redistribution, it is the utility gain to the giver that drives her decision to give. When 2 buys insurance because she is uncertain whether she will become sick at some future date, she effectively agrees to give money to 1, conditional upon 1 becoming sick and she, 2, remaining healthy. Her motive is to avoid her own utility loss should she become sick without having insurance. The fact that 2 is better off, because of the insurance as a result of 1 redistributing some of her income to 2, is incidental to 1's decision to purchase insurance.

Similarly, under Pareto-optimal redistribution it is the utility gain to the giver that accounts for the decision to redistribute. This motivation is most apparent when someone gives money to a beggar out of fear that if she does not, the beggar may harm her.

A third form of voluntary redistribution does not seem to fit either of these first two explanations. This third type has been perhaps most vividly revealed in experiments like the dictator game. In one set of these experiments, Eichenberger and Oberholzer-Gee (1997) selected students to be dictators on the basis of their having scored well on a short test. Dictators were each given seven Swiss francs and instructed that they had been paired with another student who had not been chosen as a dictator. Neither student knew who the other one was, nor would their identities be revealed after the experiment. Dictators were told that they could voluntarily decide to give some or all of their seven francs to the anonymous other student. The choice most consistent with advancing narrow self-interest would be to give nothing, yet on average dictators gave about one third of the seven francs to the unknown students.[6]

These experimental findings cannot be explained as a form of insurance, since the dictator knows she has and can keep the seven francs. There is no risk of her becoming the other student. Since she does not know who the other student is, it is also not clear why she would get utility out of making the other student better off. Note that the explanation put forward originally by Hochman and Rodgers is inapplicable to this situation. There is no reason for the dictator to believe that the anonymous other student is worse off than the dictator – other than by the seven francs.

[6] Similarly, in "gangster" experiments in which students without money were allowed to take up to seven francs from anonymous students who had been awarded this money for their performance on a test, the gangster students took away "only" about three-fourths of the seven francs. Similar outcomes have been reported in other studies (Kahneman, Knetsch, and Thaler, 1986; Davis and Holt, 1993, pp. 263–68).

Eichenberger and Oberholzer-Gee (1997) postulate that the student-givers in the dictator games are following a *fairness norm* when they choose to give some of "their" seven francs to the paired student. They recognize that there was an element of chance in who was chosen dictator and who was not, and thus feel that *fairness dictates* that they share the seven francs.

Eichenberger and Oberholzer-Gee also hypothesize that dictators will be more generous when it "costs them less," and thus that they will *vote* to give away a larger fraction of seven francs when the action is a collective decision, than when they decide the amount unilaterally. When the redistribution choice is made collectively, it is cheaper *to express* a willingness to give, since one's vote has only a probabilistic impact on the outcome.[7] Eichenberger and Oberholzer-Gee predict the most generosity on the part of dictators when it costs them nothing – for example, when they merely respond to a survey question asking what amount dictators ought to give. *Some* of Eichenberger and Oberholzer-Gee's experiments support these predictions.

Notions of fairness seem to figure prominently in many sorts of experiments. One class of experiments that comes very close to the dictator game is the ultimatum game. A single play analogue to the experiment just described would have the first student *propose* a distribution of the seven francs with the second student having the option to reject the proposal. If he does, neither student gets anything. If player 1 proposes $7 - e$ for herself and e for player 2, selfish behavior on the part of 2 would have her accept the proposal so long as $e > 0$. Selfish behavior on the part of player 1 would have her choose a very small e. But ultimatum game experiments typically involve the first players proposing es of 30 percent or so of the sum to be distributed, *and* player 2s *rejecting* es > 0, when they fall substantially below this sort of division. The explanation most frequently given for this seemingly irrational behavior is again the idea of a fairness norm. The offers of many player 1s are constrained by his norm, and when an e is chosen which is so low as to violate a 2's fairness norm, he punishes this player 1 by rejecting her proposal.[8] Given these and other experimental results that document the importance of notions of fairness, these notions cannot be ruled out as an explanation for voluntary redistribution.

Discussion

On the surface, our first three explanations for redistribution seem rather different. Each would seem to be a potential explanation for the state to engage in redistribution once it existed, or perhaps to come into existence in the first place. When one pushes beneath the surface, however, the differences between the three forms of redistribution begin to blur.

Although the existence of true uncertainty over future positions might lead purely self-interested individuals to join insurance contracts that redistribute income once

[7] This argument is a special case of the *expressive voting* hypothesis discussed in Chapter 14.

[8] See Güth, Schmittberger, and Schwarze (1982); Kahneman, Knetsch, and Thaler (1986); and Güth and Tietz (1988, 1990).

Kirchsteiger (1994) demonstrates, however, that envy may also play a role in ultimatum games.

the true states of the world have been revealed, both Harsanyi (1955) and Rawls (1971) develop *normative* theories in which individuals *assume for ethical reasons* that they are uncertain over future positions. Rawls even names his theory *justice as fairness*, and one can think of his depiction of the social contract as a kind insurance contract as just one way of articulating a fairness norm. We shall take up Harsanyi's theory in Chapter 23 and Rawls's theory in Chapter 25.

Perhaps sight of the beggar triggers not fear, but compassion, and one whispers to oneself "there but for the grace of God go I" as one drops the coins into the beggar's palm. This altruistic act of giving now begins to resemble Rawls's normative theory of justice, which in turn is rooted in our intuitive notions of fairness. Although a Swiss university student may not be moved to thank God for being selected the dictator in the dictator game, some recognition of the chance nature of her selection may help explain her generosity.

Short of psychoanalyzing each giver, it may be difficult to determine which of these three explanations for voluntary redistribution is really at work. Indeed, if we wish to go beyond merely accounting for the existence of voluntary redistribution, but wish to try and predict *which persons* are likely to give and how generous they will be, we shall probably want to introduce the kind of psychological-behavioral theories that we discussed in the previous chapter, which can help us to explain cooperation in prisoners' dilemma games, for the two sorts of "irrational behavior" have much in common.[9]

3.4 Redistribution to improve allocative efficiency

The first three theories of redistribution rest on particular assumptions about people's preferences: they are risk averse, altruistic, or conform to certain norms of fairness. The fourth theory makes no special assumption about individual preferences, but instead assumes that there are differences in the productivities of individuals. Under this assumption redistributions of incomes and productive resources can lead to improvements in allocative efficiency that make all members of society better off. The argument is again easiest to see if we start from a state of anarchy.[10]

P and U live in a community that contains a fixed amount of land that can be used to grow corn. P is a productive farmer and if she works all of the land she can grow 100 units of corn. U is a relatively unproductive farmer and if he works all of the land he can grow only 50 units. Figure 3.1 depicts the community's production possibility frontier.

The distribution of land in anarchy is such that P and U could obtain the allocation A if both devoted all of their energy to growing corn. But each can unilaterally obtain still more corn by stealing from the other, and can be expected to devote some time to stealing. Both engage in the unproductive activity of stealing and they wind up at point A' instead of A. As discussed in the previous chapter, one

[9] Wilson (1993) argues, however, that a "moral sense," of which a sense of fairness is a part, is at least in part inherited. Assuming Wilson is correct, then we would expect all people to give voluntarily to a degree, but we would still need other factors to predict which people give more or less.

[10] The following discussion is based on Bös and Kolmar (forthcoming).

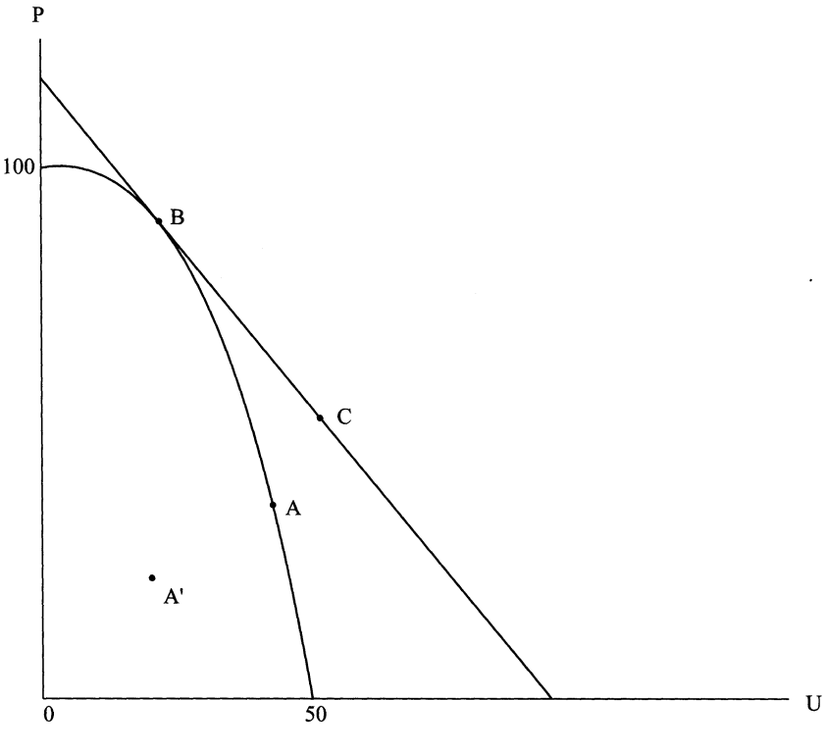

Figure 3.1. Possible production and allocation outcomes for P and U.

rationale for the existence of the state is that this institution can prevent P and U from engaging in predatory activities and allow them to reach point A.

Because of P's greater productivity, the total product of the community would be increased if land were transferred from U to P. U would never agree to such a transfer, however, if predatory actions are prohibited, because any movement to the left along the production-possibilities curve makes U worse off. Such a transfer might be brought about, however, *if* P agreed to share her corn with U. The maximum total production of corn occurs at B. An agreement between P and U that initially transferred land to P and subsequently transferred corn from P to U could allow the community to obtain a point like B, where both parties are better off than they were with the original distribution of land.

If the state already existed and it enforced property rights and contracts while prohibiting theft, the move from A to C could, of course, be achieved through private contracting. P merely *buys* the land from U. Such transfers of resources from less productive to more productive owners is an everyday occurrence in a market economy. If, however, we assume that the state does *not* exist, then such an exchange is impossible. U would never voluntarily transfer land to P, even if P promised to share her corn with him, for in the absence of an institution to enforce this promise, it is not *credible*. Once P was in possession of the land, she would have no incentive to share its fruits with U. The Pareto-improving exchange of land for corn might be brought about by a constitutional agreement between P and U that

both made the more productive P rich in land, and guaranteed that she subsequently shares the product of her labor with the poorer U.

Land is not as important a factor of production today as it once was, and so this example may not seem very relevant as an explanation for redistribution policies today. It can be modified, however, to rationalize other sorts of transfers. For example, Us might be uneducated children of the poor who would, if educated, become highly productive members of the community. State programs that taxed the wealthy and provided free education for the poor could then sufficiently increase the total income of the community so that all of its members are better off.

3.5 Redistribution as taking

All four of the motives for redistribution described so far could in principle lead to government redistribution programs even under the unanimity rule.

Almost no democratic system makes its collective decisions using the unanimity rule.[11] Once government action can be taken despite the opposition of some citizens, redistribution can take on the form of pure involuntary transfers from the losers to the winners under the political process.

Before we can fully understand why and how redistribution takes place, we need to understand how government works. Most of this book is concerned with this question and we shall be discussing redistribution as taking at several places. For now we shall be content with a simple model that largely abstracts from the mechanics of the political process.

Let us assume again two groups, whose members obtain utility from income, and that own *political* resources that they can spend to obtain additional income in the form of government subsidies. Of course, only one group can obtain positive subsidies, so that the other group must use its political resources to reduce its taxes. Let Y_i be the income of a member of the ith group, U_i her utility, and R_i her political resources, $i = 1, 2$. All members of group 1 have the same utility functions $U_1 = U_1(Y_1 + B, R_1)$, where $(\partial U_1/\partial Y_1) > 0$, $(\partial^2 U_1/\partial Y_1^2) < 0$, and $(\partial U_1/\partial R_1) < 0$, and $(\partial^2 U_1/\partial R_1^2) < 0$. Having to utilize political resources to obtain benefits B lowers a group 1 member's utility. For group 2 we have $U_2 = U_2(Y_2 - T, R_2)$, $(\partial U_2/\partial Y_2) > 0$, $(\partial^2 U_2/\partial Y_2^2) < 0$, $(\partial U_2/\partial R_2) < 0$, and $(\partial^2 U_2/\partial R_2^2) < 0$, where T is the per capita tax needed to provide B.

To understand the problem fully we need to know more about the nature of its institutions, the goals of those who are a part of government, and the constraints on their pursuit of these goals. Abstracting from these we can simply define political resources in such a way that $B = B(R_1, R_2)$, $(\partial B/\partial R_1) > 0$, $(\partial^2 B/\partial R_1^2) < 0$, $(\partial B/\partial R_2) < 0$, and $(\partial^2 B/\partial R_2^2) < 0$.

A member of group 1 chooses R_1 so as to maximize

$$O_1 = U_1(Y_1 + B_1, R_1) = U_1(Y_1 + B(R_1, R_2), R_1), \tag{3.14}$$

[11] The "almost" could be dropped were it not for various associations of nations, like the European Union, that employ the unanimity rule for some or all of their collective decisions.

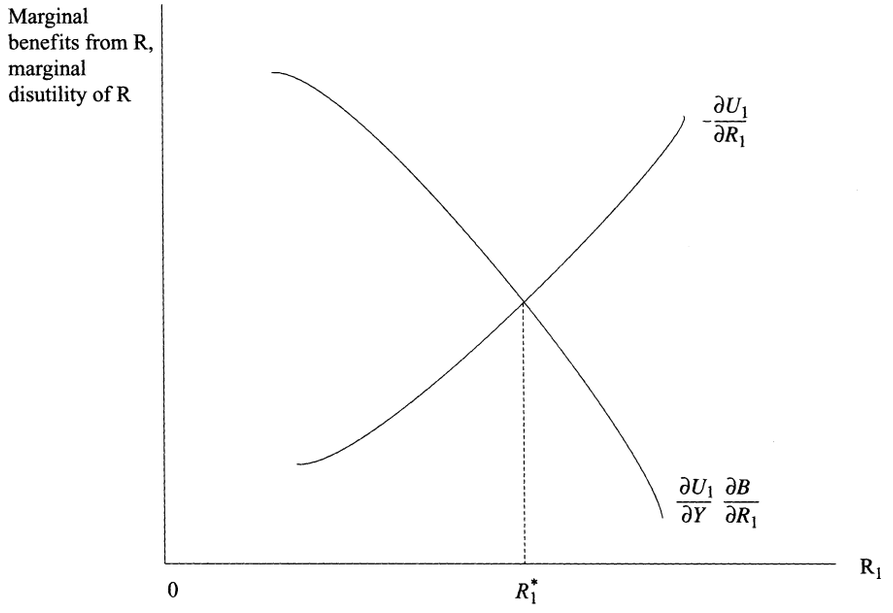

Figure 3.2. The optimal expenditure of political resources.

which yields

$$\frac{\partial O_1}{\partial R_1} = \frac{\partial U_1}{\partial Y}\frac{\partial B}{\partial R_1} + \frac{\partial U_1}{\partial R_1} = 0 \tag{3.15}$$

or

$$\frac{\partial U_1}{\partial Y}\frac{\partial B}{\partial R_1} = -\frac{\partial U_1}{\partial R_1}. \tag{3.16}$$

This condition is illustrated in Figure 3.2. A member of group 1 expends her political resources until the marginal disutility from their loss $[-(\partial U_1/\partial R_1)]$ just equals the marginal utility from the extra subsidy this expenditure yields $[(\partial U_1/\partial Y)(\partial B/\partial R_1)]$. An analogous relationship holds for a member of group 2, with the only difference being that his marginal gain comes from reduced tax payments.

Since B is a function of both R_1 and R_2, one's optimal R_1^* depends on R_2, and the two groups are only in full equilibrium when each has chosen its optimal R^* conditional upon the other group j being at its optimal R_j^*.[12]

Political resources can take many forms. In a democracy there might be effort exerted by a group for one party (handing out leaflets, stuffing envelops, telephoning) to bring about its victory. Here one might expect groups with low opportunity costs of time (unemployed, retired) to do well at winning subsidies.

[12] This is a Nash equilibrium. If we specified functional forms for U_1 and B, then (3.16) could be used to solve for optimal R_1^* as a function of R_2 and the parameters in the U_1 and B functions. This equation would constitute a *reaction function* for a member of group 1. Substituting the reaction function of a member of group 2 into this equation would allow us to solve for R_2^* and R_1^* at the Nash equilibrium.

An aristocratic class may be able to win favors from the government by inviting certain members of the government to become part of the aristocracy. The aristocracy's political resource in this situation is its right to define its membership. The cost of adding members of government to the aristocracy is that it loses some of its exclusivity, and the value of being a member declines.

During the Middle Ages, the Church was able to obtain wealth from the state by using its special relationship to God, and selling places in Heaven and other favors to royalty (Ekelund et al., 1996).

The simplest form of political resource is, of course, money itself. It can be used to win favors by bribing those in government, lobbying them, contributing to their campaigns, and so on. When R_1 is money, then U_1 becomes $U_1(Y_1 + B - R_1)$, and (3.16) becomes

$$\frac{\partial B}{\partial R_1} = 1. \tag{3.17}$$

The optimal expenditure of the political resource money occurs when the last dollar spent to obtain a government benefit yields one dollar in benefit.

Involuntary redistribution must make someone worse off, and can make everyone worse off. We usually think of involuntary redistribution as money flowing from one group to the government and out again to a second group, with the first group being made worse off and the second better off. Such a situation would definitely occur through a pure tax/subsidy scheme if only one group expended resources to win the subsidy. The fact that it was willing to spend its resources would imply that its gross benefits exceed the resources spent.

If both groups expend resources to win subsidies, the end result may be that they are both worse off than they would have been had they each not attempted to obtain a subsidy. To see this assume that both groups spend money lobbying for a subsidy and that their efforts perfectly offset one another. Neither group obtains any benefits from their lobbying, and both are worse off by the amount of resources spent on lobbying. The production-possibility frontier shifts inward by the amount of resources spent on lobbying, and the new equilibrium is at a point interior to that obtainable if the groups did not engage in efforts to bring about involuntary redistribution. (Of course, the lobbyist receives income from the two groups. If we assume that lobbying is a perfectly competitive industry, however, each lobbyist's income just equals her opportunity costs – the income she could earn in another occupation. If we assume that these alternative occupations are, unlike lobbying, socially productive, then society's loss from the efforts by the two groups to get subsidies is the marginal product of the lobbyists in these socially valuable activities.)

The situation becomes worse when we recognize that the taxes and subsidies cannot be levied costlessly. The benefits to group 1 are the total taxes levied on group 2 *less* the transaction costs, c, of bringing the transfer about:

$$n_1 B = n_2 T - c^{13}. \tag{3.18}$$

[13] n_1 and n_2 are the numbers of members in groups 1 and 2.

Included in c are the costs of printing tax and subsidy forms and mailing them out, monitoring to see that all members of group 2 pay their taxes and only bonified group 1 members get subsidies, prosecuting cheaters, and so on. To the social loss from diverting people into unproductive lobbying must be added the social loss from creating a bureaucracy whose only function is to arrange involuntary transfers. Also, to be added to c are the *deadweight losses* that arise because of the adverse incentive effects of the taxes and subsidies. For example, if I is raised by taxing the income of members of group 2, they may work and save less thereby contracting the production possibility frontier still further. Subsidies to group 1 may reduce their work effort. Browning (1987, 1989) calculated that the sum of all of these transaction costs of transferring income can come to *nine times* the value of the income transferred.

To whom do these transfers go? The poor, the rich, the middle class; capitalists, big business, organized labor, the landed aristocracy, the "power elite," "special interests" of all sorts – the number of beneficiaries of government redistribution proposed at one time or another is almost countless. We shall not examine every "theory" about redistribution that has ever been proposed, but we shall take up in later chapters several that have been put forward within the public choice literature. For now, we satisfy ourselves with a look at the patterns of redistribution that exist and how they line up against the hypotheses discussed so far, and at a few tests of specific hypotheses.

3.6 Income transfers in the United States

Our first explanation for redistribution considers it as a form of insurance. The citizen is uncertain about whether he will become unemployed, become ill, grow old, and so on and votes for social insurance to protect against these uncertainties. It is interesting in this regard to recall that the major social insurance programs in the United States were created during the Great Depression, a time when both the actualities and the probabilities of being unemployed or in poverty soared. Although the economic uncertainties of the Great Depression would lead many to favor government-provided insurance programs, they might also have impressed upon individuals the nature and magnitude of the general uncertainties we all face.

The same thing may have happened during World War II. Dryzek and Goodin (1986) remark upon the common risks all Britons experienced during the bombings of Britain in World War II. They argue that these common risks made the British more aware of their ties with their fellow countrymen. The mental experiment of putting oneself in the position of one's neighbor became easier. "Partiality and impartiality [were] fused" and the British voted for expansions in social insurance programs covering not only damages from the war, but also all of the common risks that a society faces. Dryzek and Goodin (1986) present evidence linking the expansion of social insurance programs in Britain to World War II events. They also present cross-national evidence that the social insurance programs in other countries expanded in proportion to the war-related uncertainties a country endured.

Whatever the underlying motivations, social insurance programs constitute the largest fraction of direct transfers in the United States. In 1995 90.4 percent of all

Table 3.1. *Federal, state, and local transfer payments in the United States, 1995 (millions of dollars)*

A. Federal government

	Expenditures		As a percent of all transfers	As a percent of total budget
1. Insurance-like programs, total		630,316	90.4	38.7
a. Retirement	357,286		51.2	
b. Disability	49,430		7.9	
c. Unemployment	21,576		3.1	
d. Medicare	180,214		25.8	
e. Veterans insurance programs	21,810		3.1	
2. Noninsurance transfers		67,271	9.6	4.1
a. Welfare and social services	47,120		6.8	
b. Other	17,981		2.6	
c. Veterans	1,412			
d. Housing	87		<0.1	
e. Agriculture	90		<0.1	
f. Labor training	581		0.1	
3. Total transfers net of interest payments		697,587	100.0	42.8
4. Total federal budget		1,628,419		100.0

B. State and Local

	Expenditures		As a percent of all transfers	As a percent of total budget
1. Insurance-like programs, total		7,369	3.7	
a. Workers' compensation and temporary disability insurance	7,369		3.7	
2. Noninsurance-like programs, total		191,586	96.3	
a. Medicaid	155,017		77.9	
b. Welfare and social services	37,785		19.0	
c. Other	6,153		3.1	
3. Total transfers net of interest payments		198,955	100.0	20.1
4. Total state and local budget		991,271		100.0

Source: *Survey of Current Business*, October 1998, Tables 3.16 and 3.17.

direct transfers at the federal level were in insurance-like programs that were not means-tested (see Table 3.1A). Most of the redistribution at the state and local level is, on the other hand, means-tested (Table 3.1B). This form of redistribution might be broadly consistent with the insurance motive for redistribution if its support were due to uncertainty on the part of the rich that they would some day become poor. The spread of insurance during the Great Depression and following World War II would be consistent with this interpretation. But means-tested redistribution to the poor might also be an example of Pareto-optimal redistribution. As noted above the different types of motives behind redistribution are difficult to disentangle.

One area that seems particularly well suited to explanation by the Pareto-optimal approach to redistribution is in-kind transfers like housing, food, and medical care. Since recipients value in-kind transfers at less than their nominal value, a redistribution program that was based only on the giver's utility from seeing recipients have higher utility levels would consist of cash transfers (Aaron and von Furstenberg, 1971; Giertz, 1982). That some individuals are willing to contribute to the poor in the form of specific consumption items implies that it is the poor's level of housing, food consumption, and medical care that is of interest to the taxpayers. But more direct evidence supporting the Pareto-optimal approach over competing hypotheses is lacking.

3.7 Redistribution and the distribution of income

When most people think of "redistribution" they think of taking money from the rich and transferring it to the poor. But social insurance programs and other governmental redistribution do not necessarily take that form. When Bill Gates retires, he will be entitled to add a monthly social security check from the government to the millions in income he will continue to earn as the founder and former CEO of Microsoft. How much governmental redistribution does go to the poor, and what is its impact on the distribution of income?

Unfortunately these simple and basic questions are very difficult to answer. A full answer would need to consider the incidence of both taxes and transfers, and also the incidence of other government expenditures and regulations. The distributional impact of taxes is easier to gauge than the impact of expenditures, but even here substantial disagreement often exists regarding the incidence of some taxes.[14] For expenditures, things are much worse. Are the benefits that the rich receive from police protection and national defense proportional to their tax payments? Should expenditures on police and defense be thought of as providing any final-consumption social benefits at all, or are they intermediate goods to be netted out when determining the final distribution of benefits and costs from government action (Meerman, 1980)? The distributional effects of governmental regulations are even more difficult to gauge, and to my knowledge have never been estimated. How much income do the shareholders and employees in liquor companies lose as a result of a ban on advertising their products on television? How much money does the taxi driver lose from having to charge a regulated fare set on a meter (or perhaps the taxi's passenger loses)?

The simplest calculations of redistribution take into account only taxes and cash or near-cash transfers. In the United States, these result in a slight rich-to-poor redistribution.[15] Table 3.2 presents estimates for the United States for 1984. Comparing the first and last lines of the table, we see that government policies reduce the share of income received by the highest-income quintile by roughly 15 percent, and raise

[14] See, for example, the survey by Mieszkowski (1969).

[15] A similar conclusion has been reached in several studies that have tried to take into account the benefits from government expenditures. See Gillespie (1965, 1976), Dodge (1975), Reynolds and Smolensky (1977), and Musgrave and Musgrave (1980, p. 276).

Table 3.2. *Corrected family income distribution, 1984 (percent)*

	Share of income received by each quintile of families				
	1st (poorest)	2nd	3rd	4th	5th (richest)
Current population survey definition (pretax, cash only)	4.7	11.0	17.0	24.4	42.9
Current population survey definition less taxes	5.8	12.3	17.8	24.1	40.0
Current population survey definition less taxes plus Medicare, Medicaid, and food stamps	7.2	12.2	17.7	24.3	38.7
Current population survey definition less taxes plus Medicare, Medicaid, food stamps, and employer fringe benefits	6.7	12.3	17.6	24.3	39.1
Line above adjusted for differences in family sizes across quintiles	7.3	13.4	18.1	24.4	36.8

Note: When 1984 census income statistics are corrected for taxes, in-kind government and private benefits, and family size, the family income distribution becomes moderately more equal.
Source: Levy (1987, p. 195).

the share of the lowest quintile by roughly 50 percent. Nevertheless, families in the highest-income quintile receive five times the average income of those in the lowest quintile, even after adjustments for the impact of government.

Table 3.3 compares the primary income distribution for all households in 14 OECD countries to the disposable incomes per adult, where disposable income is obtained from primary income by adding transfers and subtracting taxes. Levy's figure of 4.7 percent of pretax income for the lowest quintile in the United States in 1984 can be compared with the OECD's figure of 4.0 percent in 1986. Levy's net of transfer figure of 7.3 percent can be compared with the OECD's 5.7 percent. (No figures on the primary distribution of income were given for Norway and New Zealand.)

Several things stand out in this table. First, disparities in primary income across countries are dramatic. In Ireland, for example, the bottom 10 percent of the income distribution has virtually no income, and thus the ratio of the income of the top decile to the bottom decile (D90/D10) is a whopping 138 in Ireland when one looks at primary incomes. The distribution of primary income will be largely a function of the earning structure in a country, its level of unemployment, its age distribution, and of course government policies that may affect these variables – like minimum wage laws that affect both the structure of earnings and the level of unemployment.

Tax and transfer policies do flatten the distribution of income and, as in the United States, they do so mainly by raising the incomes of the bottom two deciles. Indeed, in some countries like Belgium and Italy, the top decile's share of disposable income is identical or nearly so to its share of primary income.

Using the ratio of the top to bottom deciles of disposable income shares as an index of distribution, Austria (4.6), Belgium (4.7), and Finland (4.0) come out to be the most egalitarian countries; Switzerland (9.8), Ireland (10.0), and the United States (12.5), the least egalitarian.

Table 3.3. *Primary and disposable income distributions in 16 OECD countries*

Country	Year	Income type	Cumulative decile shares											
			10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Top 10%	D90/D10
Austria[a]	1987	Disposable	4.1	10.1	17.2	25.4	34.4	44.2	54.8	67.2	81.1	91.8	18.9	4.6
Australia	1985	Primary	1.6	6.1	12.1	19.3	27.8	37.6	48.8	61.6	77.0	–	23.0	14.4
		Disposable	2.9	7.7	13.7	21.0	29.4	39.0	50.2	63.0	78.3	87.3	21.7	7.5
Belgium	1988	Primary	3.7	9.1	15.5	23.0	31.8	41.8	53.0	65.5	80.1	–	19.9	5.4
		Disposable	4.2	10.2	17.1	25.0	33.8	43.5	54.3	66.4	80.3	88.4	19.7	4.7
Canada	1987	Primary	1.2	4.7	10.1	17.0	25.4	35.2	46.7	60.0	76.0	–	24.0	20.0
		Disposable	2.8	7.8	14.1	21.5	30.1	39.8	50.7	63.3	78.4	87.5	21.6	7.7
France	1984	Primary	1.7	5.6	10.7	16.9	24.5	33.5	44.1	56.7	72.4	–	27.6	16.2
		Disposable	3.0	8.3	14.6	21.8	29.9	39.1	49.5	61.6	76.3	85.5	23.7	7.9
Germany	1984	Primary	2.2	7.3	13.6	20.9	29.4	39.1	50.1	62.7	77.9	–	22.1	10.0
		Disposable	4.0	9.8	16.6	24.2	32.9	42.5	53.2	65.3	79.4	87.8	21.6	5.4
Ireland	1987	Primary	0.2	3.2	8.0	14.2	21.8	30.8	41.8	55.2	72.4	–	27.6	138.0
		Disposable	2.5	7.1	12.6	19.3	27.1	36.3	47.0	59.6	75.1	84.7	24.9	10.0
Italy	1986	Primary	2.5	7.4	13.5	20.4	28.4	37.6	48.5	61.1	76.2	–	23.8	9.5
		Disposable	3.1	8.0	13.9	20.7	28.7	38.0	48.7	61.2	76.2	85.4	23.8	7.7
Luxembourg	1985	Primary	3.8	9.5	16.1	23.5	32.0	41.5	52.3	64.6	79.5	–	20.5	5.4
		Disposable	4.3	10.2	17.1	24.8	33.5	43.1	53.9	66.0	80.4	88.8	19.6	4.6
Norway	1986	Disposable	3.9	9.8	16.9	24.9	33.9	43.7	54.6	66.7	80.6	88.7	19.4	5.0
Sweden	1987	Primary	0.5	3.3	8.5	15.3	23.8	34.2	46.5	60.5	76.8	–	23.2	46.4
		Disposable	3.3	9.5	16.9	25.3	34.6	44.8	55.9	68.2	81.9	89.7	18.1	5.5
Switzerland	1982	Primary	1.7	6.3	12.4	19.4	27.2	36.1	46.1	57.8	71.9	–	28.1	16.5
		Disposable	2.8	8.0	14.1	21.0	29.0	37.8	47.7	58.9	72.5	81.3	27.5	9.8
United Kingdom	1986	Primary	1.6	5.5	11.2	18.1	26.4	36.1	47.2	60.3	76.4	–	23.6	14.8
		Disposable	2.5	7.5	13.5	20.5	28.7	38.2	49.1	61.8	77.1	86.4	22.9	9.2
United States	1986	Primary	1.0	4.0	8.9	15.3	23.3	32.7	43.8	57.2	74.0	–	26.0	26.0
		Disposable	1.9	5.7	11.2	18.0	26.2	35.7	46.9	60.2	76.3	86.2	23.7	12.5
Finland	1987	Primary	0.6	3.3	8.4	15.1	23.7	33.8	45.6	59.3	75.8	–	24.2	40.3
		Disposable	4.5	10.8	18.1	26.4	35.6	45.6	56.6	68.6	82.2	90.0	17.8	4.0
Netherlands	1987	Primary	2.8	8.1	14.4	21.6	29.7	38.8	49.5	61.9	76.7	–	23.3	8.3
		Disposable	4.1	10.1	16.9	24.5	33.0	42.5	53.2	65.3	79.4	87.8	20.6	5.0
New Zealand	1988	Disposable	3.2	8.5	14.7	21.9	30.2	39.9	51.0	63.9	79.1	–	20.9	6.5

Note: [a] Excludes self-employment income.

Disposable income is per adult equivalent; primary income is for households.

Definitions for three countries at bottom of table differ slightly from those for other countries. See definitions in Atkinson, Rainwater, and Smeeding (1995); data are from Table 4.3, p. 44 and Table 6.6, p. 87.

3.8 Redistribution to special interests

The pattern of income transfers in the United States at the federal level consists mostly of insurance-like redistributions, transfers at state and local levels go mostly to the poor. The net effect of taxes and transfers in major industrialized countries raises the incomes of the lowest deciles of the income distribution relative to the highest. These patterns are broadly consistent with those predicted by the voluntary redistribution hypotheses and it is tempting to conclude that one or more of them must explain these patterns. Such an inference is difficult to confirm, however, and some parts of the pattern directly contradict it.

If government-run pension schemes were true insurance programs, all participants would pay certain fractions of their income during their working lives into a fund. Those who survived to retirement would be paid out of this fund. Redistribution would partly take the form of an *intrapersonal*, intergenerational transfer of income from Ms.X, the worker at time t, to Ms.X, the retiree at the $t + n$, and in part an interpersonal transfer from Ms.Y at time t to Ms.X at $t + n$, resulting from Y's departure prior to $t + n$.

This is *not* how government-run pension schemes in the major developed countries are run, however. Ms.X's pension checks at time $t + n$ are covered directly out of taxes paid by all of the Ys working at $t + n$. The transfers are from the present generation of workers to past generations of workers. This feature of government-pension systems implies that the levels of taxes and transfers that they involve may reflect *involuntary redistribution*. Under a true insurance-pension program, Ms.X and Ms.Y would decide the level of transfers to be made at time $t + n$ and thus the taxes they would pay at t, uncertain of whether they would survive to $t + n$. Under the pay-as-you-go pension systems that actually operate Ms.X *knows* when she votes for higher pension payments at $t + n$ that she will directly benefit from them and that someone else will pay for them. Her motivation for voting for higher pension transfers is fully consistent with the rational egoism postulate, and a theory of redistribution as taking.

The same can be said of other forms of redistribution. When farmer X votes for a candidate who promises higher price supports for farm products and higher transfers to farmers, X knows that he will be a direct beneficiary of these policies. The urban bank clerk must consider the probability of her becoming a farmer as negligible, and if she supports such programs because she has the farmer's welfare in her utility function, she is probably voting for redistribution to someone with a *higher* income than hers. In 1985 two thirds of the $7.7 billion in cash subsidies went to farms with over $100,000 in annual sales – a mere 13.8 percent of all farms. Roughly, one-third of all subsidies went to farms with more than $1 billion in net worth.[16] Agricultural protection policies in Japan helped raise farm household incomes from a rough equality with those of urban workers in 1955 to 32 percent higher than urban worker incomes in 1984.[17]

[16] Gardner (1990, pp. 27–29); Schultze (1972) reports similar figures for the late 1960s.

[17] Adjusting for differences in household size one observes a rise from 77 percent below urban incomes in 1955 to 14 percent above in 1984. See Hayami (1990, p. 206).

Table 3.4. *Costs and benefits of the EU's common agricultural policy in comparison with a free market outcome, 1980 (millions of U.S. dollars)*

Country	Producers	Consumers	Government	Net
EC-9	−30,686	34,580	11,494	15,388
West Germany	−9,045	12,555	3,769	7,279
France	−7,237	7,482	2,836	3,081
Italy	−3,539	5,379	1,253	3,093
Netherlands	−3,081	1,597	697	−787
Belgium/Luxembourg	−1,624	1,440	544	320
United Kingdom	−3,461	5,174	1,995	3,708
Ireland	−965	320	99	−546
Denmark	−1,736	635	302	−799

Note: Negative numbers indicate costs; positive numbers indicate benefits.

Source: Buckwell, A., David R. Harvey, Kenneth J. Thomson, and Kenn A. Parton (1982, pp. 90–134), as presented in Koester and Tangermann (1990, p. 97).

Many of the benefits to farmers from governmental agriculture policies do not come in the form of direct cash subsidies, but rather through price floors and other policies that raise agricultural prices. This means that the costs to the citizen/consumer from this form of redistribution are greater than the budget transfer figures. Table 3.4 presents estimates of the benefits to consumers and taxpayers (positive numbers in nine European Union countries) from abandoning the EU's Common Agricultural Policy (CAP) in favor of a free market in agricultural products. The aggregate costs to farmers from shifting to free markets and dropping all subsidies ($30,686 million) are roughly two thirds of the benefits that consumers ($34,580 million) and taxpayers ($11,494 million) would receive. Each euro added to a European farmer's pocket by the CAP takes €1.50 out of a consumer/taxpayer's pocket.

There are many forms of redistribution in the industrial democracies that benefit middle and upper income groups, and are difficult to reconcile with the various voluntary-redistribution hypotheses discussed at the beginning of this chapter, so many in fact that some scholars regard *all* government activity as selfishly and redistributively motivated (Meltzer and Richard, 1978, 1981, 1983; Peltzman, 1980; Aranson and Ordeshook, 1981). Table 3.5 presents the distribution of governmental transfers across 15 OECD countries. The pattern of transfers for Australia is perhaps what one might expect if redistribution were driven by altruistic-insurance motives. In 1984 40.1 percent of all government transfers went to those in the bottom quintile of the income distribution, while only 8 percent went to the highest quintile. But these figures imply that over 50 percent of all transfers in Australia go to the three middle quintiles, and this holds true for every other country in the table except Switzerland and Norway in 1986. Individuals at all levels of the income distribution receive substantial transfers, with those in the highest quintile receiving a *larger* fraction of transfers in France, Italy, Luxembourg, and Sweden than those in the lowest quintile. In France and Italy the highest quintile of the population actually received a greater share of governmental transfers *than any other quintile*. These patterns of

Table 3.5. *Distribution of transfers by quintile and average transfers as a percent of median equivalent income*

		Bottom	2	3	4	Top	Total	Average transfers as a percent of median equivalent income
Australia	1981	42.8	22.2	13.3	12.5	9.2	100.0	10.8
	1985	40.1	24.6	14.4	12.9	8.0	100.0	11.3
Belgium	1985	22.9	22.5	21.9	16.6	16.1	100.0	33.3
	1988	21.5	23.6	20.1	16.1	18.7	100.0	34.9
Switzerland	1982	38.5	19.2	15.6	13.3	13.3	100.0	7.3
Canada	1981	33.0	22.9	17.9	14.1	12.1	100.0	10.1
	1987	29.5	24.2	19.2	15.0	12.1	100.0	12.4
France	1979	19.7	21.2	18.8	17.7	22.6	100.0	22.2
	1984	17.5	21.8	18.4	17.7	24.7	100.0	25.0
Germany	1984	21.8	22.2	16.7	21.0	18.3	100.0	19.8
Ireland	1987	32.0	21.9	21.3	15.2	9.6	100.0	20.5
Italy	1986	15.6	16.4	19.7	20.7	27.6	100.0	21.4
Luxembourg	1985	17.3	18.3	19.5	22.5	22.4	100.0	23.7
Netherlands	1983	21.8	21.8	18.4	20.4	17.6	100.0	28.5
	1987	24.9	21.3	16.9	17.7	19.2	100.0	28.3
Norway	1979	34.0	20.9	16.4	13.6	15.1	100.0	13.5
	1986	21.5	16.6	14.2	12.2	11.0	100.0	15.1
Sweden	1981	18.0	23.9	19.8	19.5	18.7	100.0	35.0
	1987	15.2	25.8	21.7	19.9	17.4	100.0	35.5
United Kingdom	1979	30.6	20.0	17.4	17.0	15.0	100.0	18.5
	1986	26.7	25.9	19.4	16.1	11.9	100.0	24.3
United States	1979	29.7	21.1	17.4	14.7	17.1	100.0	8.9
	1986	29.2	21.2	17.1	17.5	15.1	100.0	9.4
Finland	1987	25.9	22.6	18.2	15.8	17.6	100.0	27.7

Source: Atkinson, Rainwater, and Smeeding (1995), Table 7.5, p. 107.

redistribution can only be explained by assuming that at least some redistribution is involuntary. Throughout this book, we shall consider several theories that explain how this redistribution can come about.

Bibliographical notes

This chapter benefitted from the surveys of Rodgers (1974) and Oppenheimer (1979).

Levy (1987) has written an interesting account of the changes in income distributional patterns that have occurred in the United States since World War II without focusing on the public choice process, however.

Rae (1981) and associates have pulled together an interesting assortment of the different definitions of equality that underlie discussions of redistribution.

Goodin (1988) analyzes and defends redistribution policies from a normative perspective.