Chapter Summaries

Chapter 4: The Social Welfare Function and the Quest for Distributive Justice

The end-results equity question of what is the best or optimal distribution of income is a fundamental problem for the government to consider because it cannot reasonably be assumed away. Society must make a collective judgment about the distribution, which the government would then carry out through tax and transfer programs. Abram Bergson and Paul Samuelson developed an analytical concept called the individualistic social welfare function to solve the distribution question. The chapter begins with a discussion of the properties of the social welfare function, how it solves the distribution question, and its policy implications.

1. *The social welfare function*, $W = W(U^h)$ is called individualistic because it has as its arguments the utility functions of the individuals. It judges social outcomes strictly in terms of how well off each person is in each outcome. It must also honor the Pareto principle: If one person's utility goes up (down), with all other utilities held constant, then social welfare must also go up (down). Everyone counts in the determination of social welfare.
2. The social welfare function represents society's ethical rankings of individuals given by the social welfare indifference curves. The rankings have to provide a complete ordering of possible outcomes: Society has to decide whether it prefers one bundle of utilities to another, or is indifferent between them, and the rankings have to be transitive. In this sense, the social welfare indifference curves and the associated social welfare function are analogous to an individual's indifference curves over goods and services and the associated utility function.
3. The social welfare function determines *the bliss point* on the utility possibilities frontier, the point of tangency between the frontier and one of the social welfare indifference curves. The bliss point maximizes social welfare by selecting the efficient allocation on the frontier that is distributionally the best. Choosing the bliss

point also selects the final allocation of factors of production and goods and services throughout the economy.

4. Society is at the bliss point when the social marginal utilities of income, $SMU_{Y,}$ are equal across all individuals. This is called the *interpersonal equity condition* for a social welfare maximum. The social marginal utility for person h, $SMU_Y = (\partial W/\partial U^h)(\partial U^h/\partial Y_h)$, the product of person h's private marginal utility of income, $\partial U^h/\partial Y_h$, and the marginal social welfare weight, $\partial W/\partial U^h$. $\partial W/\partial U^h$ represents the ethical ranking that society gives to person h and is determined by some kind of political process. The ratio of the marginal social welfare weights for any two people is the marginal rate of substitution along a social welfare indifference curve for those two people.
5. The two sets of conditions necessary to achieve a social welfare maximum at the bliss point are the Pareto-optimal conditions described in Chapter 3 to bring the economy to the utility possibilities frontier and the interpersonal equity to be at the bliss point on the frontier.
6. If the economy is not at the bliss point on the utility possibilities frontier, then the government should redistribute income lump sum until the SMU_Y are equal across all people to bring the economy to the bliss point.
7. A lump-sum tax (transfer) is a tax (transfer) whose value cannot be changed by any subsequent decision individuals or firms might make in response to the tax (transfer). An example is a tax (transfer) based on age. Lump-sum taxes and transfers are nondistorting, meaning, equivalently, that: They keep the economy on the utility possibilities frontier; they allow all the Pareto-optimal conditions to hold; and they allow individuals and firms to face the same prices for all goods and factors.
8. An immediate problem with the policy prescription of using lump-sum taxes and transfers is that for the taxes and transfers to have the appropriate redistributional impact they have to be based on income, consumption, or wealth, in which case they would almost certainly be distorting and not lump sum.

The chapter then turns to various problems associated with the *social welfare function*:

9. It is difficult to know what the social welfare function is for a nation at any given time because it comes from the political process, which is often muddled. The United States has never been able to articulate one particular policy regarding the distribution of income.
10. It is difficult to know what the social welfare function should be. There have been many suggestions, but none that is entirely persuasive. All economists can say is that the reasonable limits are the Benthamite or utilitarian social welfare function and the Rawlsian social welfare function.

11. *Jeremy Bentham*, an 18th century political economist, argued the society's goal should be to maximize aggregate happiness or satisfaction, which implies an additive social welfare function $W = \sum_h U^h$. The social welfare indifference curves are straight lines, implying that society is indifferent to the distribution of well-being.
12. *John Rawls* in 1973 argued that people should view the distribution question through a veil of ignorance in which their current and future positions in the distribution are entirely unknown. If they did, they would be as risk averse as possible and opt for a maximin strategy: Maximize the well-being of the group that is worst off. This implies that the social welfare function is a min function: $W = \min(U^h)$. The social welfare indifference curves are right-angled along the 45 degree line and therefore as egalitarian as possible. A range of choices between indifference to the distribution and complete equality is too broad to be useful as a guide to what the social welfare function should be.
13. *Kenneth Arrow proved, in his General Impossibility Theorem,* that a democratic or a representative political process can not generate consistent social decisions, in general, not about the social welfare function or anything else. His proof was an exercise in cooperative game theory, in which he set down five principles that he assumed people would agree should hold under democratic decision making and then proved that, in general, not all five principles can hold at once. The five principles are:
    1. A complete transitive ordering of social preferences;
    2. All (right-minded) individual preferences over social outcomes are permitted;
    3. The Pareto principle;
    4. The irrelevance of independent alternatives; and
    5. Non dictatorship.

    If principles (2) through (5) hold, then society may not be able to generate a complete transitive ordering over social preferences.

The chapter concludes with the three reactions to Arrow's Theorem:

14. *The technocratic reaction* associated with Paul Samuelson – economists should simply ask public officials what their social welfare function is (their preferences over the distribution) and then economists will help them maximize that function.
15. *The flexible form response* – most mainstream economists decided to retain the social welfare function in their analyses of public sector decisions, but to give it a flexible form with an aversion to inequality parameter that can vary all the way from Benthamite indifference to Rawlsian egalitarianism. They can then test how policy prescriptions are affected by variations in society's aversion to inequality.

16. *The public choice response* – public choice economists are indifferent to the problems associated with the social welfare function because they do not believe people ever think in terms of developing a social welfare function. In their view, the social welfare function does not exist. Furthermore, the motivations behind the government's redistribution programs can be understood without reference to a social welfare function.