Public Finance

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Chapter One: Introduction

1. This book is about the taxing and spending activity of government, a subject usually called public finance. This term is something of a misnomer, because the fundamental issues are not financial (that is, relating to money). Rather, **the key problems relate to the use real resources**. P4
2. Our focus is on **the microeconomic functions of government**; the way government affects the allocation of resources and the distribution of income. P4
3. Views of how government should function in the economic sphere are influenced by ideological views concerning the relationship between the individual and the state:
    a. **Organic view of government**: Society is conceived of as a natural organism. Each individual is a part of this organism, and the government can be thought of as its heart. The individual has significance only as part of the community, and the good of the individual is defined with respect to the good of the whole. **Thus the community is stressed above the individual**. The goals of the society are set by the state, which leads society toward their realization. The choice of goals differs considerably. (Plato's, Hitler's and Lenin's) P4-5
    b. **Mechanistic view**: government is not an organic part society. Rather, it is a contrivance created by individuals to better achieve their individual goals. **The individual rather than the group is at center stage.**
        I. **Libertarians**, who **believe in a very limited government**, argue against any further economic role for the government. In Smith's words, "Every man, as long as he does not violate the laws of justice, is left perfectly free to pursue his own interest his own way". Libertarians are extremely skeptical about the ability of governments to improve social welfare. P6
        II. **Social democrats**: believe that **substantial government intervention is required for the good of individuals**. P6
4. **Individuals and their wants are the main focus in mainstream economics**, a view reflected in this text.
5. **Federal Government**: Article 1, Section 8, of the Constitution empowers Congress "to pay the Debts and provide for the common Defense and general Welfare of the United States." **The Constitution does not limit the size of federal expenditure, either absolutely or relative to the size of the economy**. Bills to appropriate expenditures can originate in either house of Congress. All Bills for raising Revenue shall originate in the House of Representatives. P7-8
6. According to the 10th Amendment, "the powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people." Thus, **explicit authorization for states to spend**

and tax is not required. However, **international economic policy is in the hands of the federal government**. P9

7. All the expenditures of government is about 28.3% of GDP in 1999. Composition of federal expenditures (52%): Social Security, defense, income security, Medicare, net interest, health, other.
8. composition of state (21%) and local (27%) expenditures: other, education, public welfare and highways.
9. much of the budget consists of **so-called entitlement programs** --- programs with cost determined not by fixed dollar amounts but by the number of people who qualify. The laws governing social security, many public welfare programs, farm price supports, and so forth include rules that determine who is entitled to benefits and their magnitude. **Expenditures on entitlement programs** are, therefore, **out of the hands of the current government**, unless it changes the rules. Similarly, debt payments are determined by interest rates and previous deficits, again mostly out of the control of current decision makers. **About three-quarters of the federal budget is relatively uncontrollable**. P14.
10. Federal Revenue(1999): personal income taxation (48%), social insurance (more than 1/3, payroll tax collections used to finance social security and Medicare), corporate income tax (10%). Federal government collects about two-thirds of all revenues. P14
11. Changes in the real value of the debt may be an important source of revenue.
12. **All common measures of the size of government** – employees, expenditures, revenues, etc. – involve some deficiency. They **miss the impact of regulatory costs**. Nonetheless, there is strong evidence that the impact of the government on the allocation of national resources has increased over time. P16

Chapter Two: Tools of Positive Analysis

1. Because economists generally cannot perform controlled experiments with the economy, the effects of economic policy are difficult to determine. P29
2. Empirical research attempts to measure both the direction and size of the effect of government policy changes on behavior. Interview studies, social and laboratory experiments, and econometric analysis. P29

Chapter Three: Tools of Normative Analysis (Welfare economics)

1. **First Fundamental Theorem of Welfare Economics**: a Pareto-efficient allocation of resources emerges under assumptions: a. all producers and consumers act as perfect competitors; b. a market exists for each and every commodity (see "market failure" discussion below). The theorem indicates that a properly working competitive system leads to some allocation on the utility possibilities curve. There is no reason, that it is the particular point that maximizes social welfare. So **even if the economy generates a Pareto efficient allocation of resources, government intervention may be necessary to achieve a "fair" distribution of utility**.

2. **Second Fundamental Theorem of Welfare Economics**: society can attain any Pareto-efficient allocation of resources by making a suitable assignment of initial endowments and then letting people freely trade with each other. It is important because of its implication that, **at least in theory, the issues of efficiency and distributional fairness can be separated**. If society determines that the current distribution of resources is unfair, it need not interfere with market prices and impair efficiency. Rather, society need only transfer resources among people in a way deemed to be fair. P43
3. if conditions for first theorem are not satisfied, the free market allocation of resources may be inefficient as well as unfair (solved by second theorem).
4. Market failure: market power, nonexistence of markets (asymmetric information, externality, public goods)
5. The fact that the market-generated allocation of resources is imperfect does not mean the government is capable of doing better.
6. **the problems with welfare economics**:
    a. the underlying outlook is highly individualistic, with a focus on people's utilities and how to maximize them(social welfare function). The basic view expressed in the function is that a good society is one whose members are happy. However, other societal goals are possible. Musgrave developed the concept of merit goods to describe commodities that ought to be provided even if the members of society do not demand them.
    b. Its framework is its concern with results. Situations are evaluated in terms of the allocation of resources, and not of how the allocation was determined. Perhaps a society should be judged by the processes used to arrive at the allocation, not the actual results.
7. the great **advantage of welfare economics** is that it provides a coherent framework for assessing public policy.

Chapter 4: Public goods

1. Consumption is **nonrival**: once it is provided, the additional resource cost of another person consuming the good is zero. P56
2. Consumption is **nonexcludable:** to prevent anyone from consuming the good is either very expensive or impossible. P56
3. **Each person consumes the same amount, but not necessarily the preferred amount**, of the public good and this consumption need not be valued equally by all. P56
4. Classification as a public good is not an absolute; it depends on market conditions and the state of technology. In many cases, it makes sense to think of "**publicness" as a matter of degree.** Consumption of an impure public good is to some extent rival or excludable. P56
5. Many things that are not conventionally thought of as commodities have public good characteristics. Thurow argues the **income distribution is a public good**. P57
6. **Public goods can be provided privately** (in USA, about 37% of fire protection services are contracted out to private firms; 23% for libraries and 48% for public

transit), and private goods can be provided publicly (publicly provided private goods, eg. medical service and housing).

7. **Efficiency** requires that provision of a public good be expanded until reaching the level at which the sum of each person's marginal valuation on the last unit just equals the marginal cost.
8. For a public good, the group willingness to pay is found by vertical summation of the individual demand curves. With a private good, everyone has the same MRS, but people can consume different quantities. Therefore, demands are summed horizontally over the differing quantities. For public goods, everyone consumes the same quantity, but people can have different MRSs. So, **for standard private goods, everyone sees the same price and then people decide what quantity they want. For public goods, everyone sees the same quantity and people decide what price they are willing to pay.**
9. For a pure public good, the sum of the marginal rates of substitution must equal the marginal rate of transformation.

$MAR^{Adam}_{ra} + MAR^{Eve}_{ra} = MRT_{ra}$ ------ P62

Adam's marginal rate of substitution of Rocket for apple + Eve's marginal rate of substitution of Rocket for apple = Marginal rate of transformation of Rocket for apple.

How to get market demand of private good if we know individual's private demand of the good? How to get market demand of public good?

Suppose Adam's demand of a good called G is known, which is a function of market price:

$dd^A = f_1(P)$ ---- I ;

Eve's demand of G is also known, which is also a function of market price:

$dd^E = f_2(P)$ ---- II;

Then**, if the good G is private good**, the total market demand dd must be:

dd = ddA + ddE = f1(P) + f2(P);

The reasoning is simple: at every price P, the total market demand is exactly $f_1(P) + f_2(P)$, which is the sum of demand of Adam and demand of Eve.

However, **if the good G is public good**, the relation between market demand and price is different, because the market demand = Adam's demand = Eve's demand, and market price = the sum of marginal rate of substitution of Adam and Eve.

We should slightly transform equation I & II to get market price:

Based on equation I, we can write price as a function of demand:

$P^A = g(dd^A)$;

From equation II, we can get:

$P^E = g(dd^E)$;

Then, if the good G is public good, the market price must be:

P = PA + PE = g(ddA) + g(ddE)

10. The incentive to let other people pay while you enjoy the benefits is know as the **free rider problem**. The market may fall short of providing the efficient amount of the public good.
11. Studies show that people do not fully exploit free riding possibilities. Nonetheless, in certain cases, free riding is a significant problem.
12. in deciding public provision or private provision: P66

a. **Relative wage and material costs**. Which is cheaper?
b. **Administrative costs**: under public provision, any fixed administrative costs can be spread over a large group of people. The larger the community, the greater the advantage to being able to spread these costs.
c. **Diversity of tastes**: to the extend such diversity is present, private provision is more efficient because people can tailor their consumption on their own tastes. The benefits to allowing for diversity must be weighed against any possible increases in administrative costs.
d. **Distributional issues**: fairness, "commodity egalitarianism"

13. Public or private production: a key determining factor as to which will be more efficient is the market environment. Another important question is the extent to which complete contracts can be written with private sector service providers.
14. Although education is generally publicly provided, it is not clear that education is a public good. Moreover, statistical research suggests that the link between spending and educational outcomes is tenuous.
15. Although general increases in educational expenditure to reduce classroom size seem unlikely to enhance educational performance, some targeted spending programs seem to be quite effective. In particular, well-designed early interventions appear to raise both future test scores and earnings.
16. some economists are convinced that public schools would improve if they were subjected to competition. One proposal in that direction is a voucher system, under which financial support for education goes to the family of the student, not directly to the school. The voucher could be redeemed at whatever qualified school was preferred by the family.

Chapter 5: Externalities

1. The fact that the behavior of some people affects the welfare of others does not necessarily cause market failure. As long as the effects are transmitted via prices, markets are efficient. **Effects on welfare that are transmitted via prices are part of the normal functioning of the market**. P79-80
2. When the activity of one entity directly affects the welfare of another in a way that is outside the market mechanism, that effect is called **externality**. P80
3. The nature of externalities: Externalities can be produced by consumers as well as firms. They are reciprocal in nature. As an alternative to fishing, using the river for waste disposal is not obviously worse from a social point of view. It depends on the costs of alternatives for each of these two activities. **Public goods can be viewed as a special kind of externality.** P81

How to correct externalities?

1. Coase Theorem:

Assumption 1: the costs to the parties of bargaining are low;
Assumption 2: the owners of resources can identify the source of damages to their property and legally prevent damages.

Once property rights are established, no government intervention is required to deal with externalities.

The Theorem is most relevant for cases in which only a few parties are involved and the sources of the externality are well defined. P88.
Applications: a. wildlife preservation; b. assign property rights to rivers.

2. **Internalize externality** by combining the involved parties. P88
3. **Pigouvian Tax**: a tax levied on each unit of a polluter's output in an amount just equal to the marginal damage it inflicts at the efficient level of output. P90-2
    a. Tax revenue would be used to compensate Lisa. However, if it becomes known that anyone who fishes along the river receives a payment, then some people may choose to fish there who otherwise would not have done so. The result is an inefficiently large amount of fishing done in the river. The key point is that compensation to the victim of the pollution is not necessary to achieve efficiency.
    b. Practical problems: it is difficult in estimating the marginal damage function. So finding the correct tax rate is bound to be hard;
    c. The tax approach assumes it is known who is doing the polluting and in what quantities. In many cases, these questions are very hard to answer.
4. **Subsidies**: the efficient level of production can be obtained by paying the polluter not to pollute. **A subsidy for not polluting is simply another method of raising the polluter's effective production cost**. However, subsidies can lead to much production, are administratively difficult, and are regarded by some as ethically unappealing. P92-3
5. **Creating a market**: the inefficiencies associated with externalities can be linked to the absence of a market for the relevant resource**: pollution permits**. The fee charged is that which clears the market, so the amount of pollution equals the level set by the government. The price paid for permission to pollute measures the value to producers of being able to pollute. The scheme also works if, instead of auctioning off the pollution rights**, the government assigns them to various firms that are then free to sell them to other firms**. With the auction, the money goes to the government; with the other scheme, the money goes to the firms that were lucky enough to be assigned the pollution rights. Cropper and Oates argue that the permit has some practical advantages over the tax scheme. One is that the permit reduces uncertainty about the ultimate level of pollution. Moreover, when the economy is experiencing inflation, the market price of pollution rights would be expected to keep pace automatically, while change the tax rate could require a lengthy administrative procedure. P93-4
6. **Regulation**: It is likely to be inefficient when there are multiple firms that differ from each other. In general, each firm's appropriate reduction in output depends on the shapes of its marginal benefit and marginal private cost curves. Hence, a regulation that mandates all firms to cut back by equal amounts (either in absolute or proportional terms) leads to some firms producing too much and others too little. Most economists prefer market-oriented solutions. When very toxic substances are involved, regulation might be the best solution. But in general, the regulatory approach is probably the source of much of the failure in environmental policy. P95-8

Implications for income distribution:

1. Some of **the polluters' former workers** may suffer unemployment in the short run and be forced to work at lower wages in the long run. If these workers have low incomes, environmental cleanup increases income inequality. P99
2. **Buyers of these commodities** are generally made worse off. If the commodities so affected are consumed primarily by high-income groups, the distribution of real income becomes more equal, other things being the same. Thus, we also need to know the demand patterns of the goods produced by polluting companies. P99

Chapter 6: political economy

1. This chapter applies economic principles to the understanding of political decision making, a field known as political economy. Political economy models assume that **individuals view government as a mechanism for maximizing their self-interest**. This chapter examines political economy issues in both direct and representative democracy. P106

2. **Direct democracy**:

2.1 Lindahl pricing results in a unanimous decision to provide an efficient quantity of public goods. Two main problems: a. it relies on honest revelation of preferences. b. in many cases, it is impossible to make a unanimous decision. P107-8

2.2 Majority voting rule may lead to inconsistent decisions regarding public goods if some people's preferences are not single peaked. P110-2

2.21 **Peak**: a peak in an individual's preferences is a point at which all the neighboring points are lower. P110-2

2.2.1.1 A voter has single-peaked preferences if, as she moves away from her most preferred outcome in any and all directions, her utility consistently falls.

2.2.1.2 A voter has double-peaked preferences if, as she moves away from her most preferred outcome in any and all directions, her utility goes down, but then goes up.

2.2.1.3 When there are private substitutes for a publicly provided good, or when issues cannot be ranked along a single dimension, multipeaked preferences are a serious possibility.

2.22 The **Median voter theorem**: as long as all preferences are single peaked, the outcome of majority voting reflects the preferences of the median voter. However, when some voter's preferences are multi-picked, a voting paradox can emerge. P112-3

2.3 Logrolling: simple majority voting does not allow people to register how strongly they feel about the issues. Logrolling systems allow people to trade votes and hence register how strongly they feel about various issues. P113-5

2.31 **Logrolling is controversial**. Its **proponents** argue that trading votes leads to efficient provision of public goods, just as trading commodities leads to efficient provision of private goods. Proponents also emphasize its potential for revealing the intensity of preferences and establishing a stable equilibrium. P113

2.32 **Opponents** of logrolling stress that it is likely to result in special-interest gains not sufficient to outweigh general losses. P114

2.33 While logrolling can sometimes improve on the results from simple majority voting, this is not necessarily the case. Minority gains may come at the expense of greater general losses.

2.34 **An interesting case** (may not be relevant) (learned from my friend in Michigan): MBA Students in University of Michigan are given the same numbers of points (quota) in job applications. It functions like this: when a company comes to Michigan to recruit or plan to recruit MBA students, all the students have to bid the right to submit their resumes to the company by using their allocated points. For example, 100 students with highest points gain the rights to submit resumes. But because the quota is fixed, if you put more points in several companies, which help you submit your resumes successfully, you may have no enough points to bid for other opportunities. This method can make students focus on the companies they are really interested in (revelation of their preferences). The situation that every student throws their resumes at every company won't happen.

2.4 Arrow's impossibility theorem: In general, it is impossible to find a decision-making rule that simultaneously satisfies a number of apparently reasonable criteria. **The implication is that democracies are inherently prone to make inconsistent decisions**. P134

3. Representative democracy:

3.1 **Under restrictive assumptions** (single-peaked preferences along the spectrum of political views; voters cast ballots to maximize their own utility; and candidates seek to maximize the number of votes received**), the actions of elected officials mimic the wishes of the median voter**. Two implications: P117-9

3.1.1 Two-party systems tend to be stable in the sense that both parties stake out positions near the "center".

3.1.2 The replacement of direct referenda by a representative system has no effect on the outcome. Both simply mirror the preferences of the median voter.

3.1.3 Real ranking of preferences, ideology, personality, leadership, costs of vote, and free-riding problems make also be important.

3.2 **Public employees**:

3.2.1 Bureaucrats provide valuable technical expertise in the design and execution of programs. The fact that their tenures in office often exceed those of elected officials provides a vital "institutional memory." P121

3.2.2 One theory predicts that bureaucrats attempt to maximize the size of their agencies' budgets, resulting in oversupply of the service

3.3 **Special interests**:

3.3.1 People with common interests can exercise disproportionate power by acting together. The source of the group's power might be that its members tend to have higher voter participation rates than the population as a whole.

3.3.2 Interest groups can form on the basis of income source, income size, industry, region, or personal characteristics.

3.3.3 The probability that a group will actually form increases when the number of individuals is small and it is possible to levy sanctions against no joiners. The debate over the public funding of abortion illustrates the influence of ideology and emotion on the decision to join a group. (I ever tried to use "Marslow's hierarchy of needs theory" to solve free-riding problem and explain the formation of interest groups. You can also try!)

3.3.4 Studies of the distribution of income in developed countries indicate that **the driving force behind inequality in total income is the inequality in labor income**.

3.3.5 **Iron triangle**: the three-sided relationship between interest groups, bureaucrats and elected representatives. Well-organized and concentrated interest groups and bureaucrats can benefit from legislations at the cost of ordinary people, who are relatively diffused and less-organized.

3.4 **Explaining Government Growth** P126-9

3.4.1 **Citizen preferences**: Based upon median voter theorem, suppose the median voter's demand for public goods and service (G) is a function of the relative price of public good and income:

$G = f(P,I)$

If the income elasticity of demand is greater than one, or if the price elasticity of demand for G is less than one, then income increase or price increase can lead to an ever-increasing share of income going to the public sector.

The hypothesis that government services rise at a faster rate than income is often called "**Wagner's Law**"

3.4.2 **Marxist View**: the rise of state expenditure as inherent to the political-economic system.

3.4.3 **Chance events**(such as wars) increase the growth of government, while inertia prevents a return to previous levels (displacement effect).

3.4.4 **Changes in Social attitudes**: popular discussions sometimes suggest that social trends encouraging personal self-assertiveness lead people to make extravagant demands on the political system.

3.4.5 Certain groups use the government to redistribute income to them.

Director's Law: public expenditures are made for the benefit primarily of the middle classes, and financed by taxes which are borne in considerable part by the poor and the rich.

3.5 Proposals to control the growth in government include encouraging private sector competition, reforming the budget process, and constitutional amendments. P134

3.6 Most economists believe a balanced budget amendment is an ill-conceived idea for several reasons:

3.6.1 First, adopting a statement of outlays and revenues requires making forecasts about how the economy will perform. It is very difficult to forecast.

3.6.2 Second the amendment fail to define "outlays" and "receipts". The government could simple create various agencies and corporations that were authorized to make expenditures and borrow. Such off-budget activity is already an important way of concealing the actual size of the budget.

3.6.3 Finally, when various deadlines stated in the law were missed, nothing happened. And when the consequences of complying with the law seemed worse than ignoring the law, the law was ignored.

Chapter 7: Income Redistribution: Conceptual Issues

This chapter presents a framework for thinking about the normative and positive aspects of government income redistribution policy. P136

4. **Distribution of income**:

1.1 Data shows that inequality has increased over time (P137). (It is not always true. Kuznets argued that inequality first increases then decreases with the growth of income[1])

1.2 Gini Coefficient (or Index of Concentration):

It is a measure of the income (or some other distributional) inequality in a society. It measures the degree to which two frequency (percentage) distributions correspond. The Gini coefficient is a number between 0 and 100 (or 0 and 1), where 0 means perfect equality (exact correspondence, e.g. everyone has the same income) and 100 (or 1) means perfect inequality (one person has all the income, everyone else earns nothing). The Gini coefficient can be illustrated by and derived from the Lorenz curve (developed by Max O. Lorenz): the Gini coefficient is the ratio of two areas, namely the area between the line of perfect equality and the Lorenz curve and the total area (the right-angled triangle) of the graph below or above the line of equality.
The Gini coefficient was first suggested by the Italian statistician Corrado Gini (http://faculty.washington.edu/krumme/gloss/g.html).

1.3 Many economists believe that the key factor driving the increase in inequality in recent years is an increase in the **financial returns to education**. P138-9

1.4 Interpreting distributional data:

1.4.1 Census income consists only of the **family's cash receipts**. However, in fact, a family's income also includes in-kind transfers – payments to individuals in commodities or services as opposed to cash. One major form of in-kind income is the value of time adults devote to their households. In-kind income is also provided by durable goods.

1.4.2 The official figures **ignore taxes**. P139-40

1.4.3 Income is measured annually. Lifetime income ("permanent income") would be ideal, but it is hard to estimate. It has been estimated that using a longer-run measure of welfare than annual income would reduce the proportion of households in poverty by several percentage points. P140

[1] Kuznets, Simon (1955). "Economic Growth and Income Inequality". *American Economic Review* 45: 1–28.

1.4.4 There are problems in defining the unit of observation: main problem: household structure changes over time. P140-1

5. **Rationales for Income redistribution**

2.1 **Utilitarian social welfare function**:

$W = F(U1, U2,\ldots, Un)$

Social welfare W, is some function F() of individual's utilities. P141

2.2 **additive social welfare function**:

$W = U1 + U2 + \ldots + Un$

If (1) individuals have identical utility functions that depend only on their incomes; (2) there is decreasing marginal utility of income; and (3) the total amount of income is fixed; then, to maximize W, income should be equally distributed. These are strong assumptions and weakening them gives radically different results. P154

2.3 **Maximin Criterion**: the objective of the society is to maximize the utility of the person with the minimum utility. It suggests that the income distribution should be perfectly equal, except for the (very real) possibility that some departures from equality have the effect of increasing the welfare of the worst-off person (while increasing the welfare of others even more).

2.4 **Pareto Efficient income redistribution**: if each individual's utility depends only on his own income, redistribution will never be a Pareto improvement--- it will leave at least one person worse off. However, if high-income individuals are altruistic, so their utilities depend not only on their own incomes but those of the poor as well, redistribution may actually be a Pareto improvement. Then, the income distribution is just like a public good--- everyone derives utility from the fact that income is equitably distributed, but government coercion is needed to accomplish redistribution. P146

2.5 **Commodity Egalitarianism**: Tobin suggested that only special commodities should be distributed equally, e.g. voting rights, the consumption of certain essential foodstuffs during times of war. P147

2.6 some argue that a just distribution of income is defined by the process that generated it. Hence, if the process generating income is fair, there is no scope for government-sponsored income redistribution. Another argument against redistribution policies is that, with sufficient social mobility, the distribution of income is of no particular ethical interest.

6. **Expenditure Incidence**

3.1 a government program can change relative prices, creating losses and gains for various individuals. For example, suppose, the government subsidizes the consumption of low-incoming housing, then landlords may reap part of the gain because the demand for housing increases; wages of workers in the building trades increase, as do prices of construction materials... It is difficult to trace all of the price changes, so economists generally focus only on the prices in the markets directly affected. P149

3.2 Because people do not reveal how they value public goods, it is difficult to determine how these goods affect real incomes.

3.3 **In-kind transfers**: Cash equivalent is at least as good as in-kind transfer from the recipient's point of view. In-kind transfer programs also entail substantial administrative costs. The prevalence of in-kind transfer programs may be due to

paternalism, commodity egalitarianism, administrative feasibility (can help curb welfare fraud.), or political attractiveness. P150-3

Chapter 8: Expenditure Programs for the Poor

This chapter uses the framework set up in chapter 7 to analyze major government programs for maintaining the incomes of **the poor**. P136

1. "Welfare" in US is a patchwork of more than 80 programs that provide benefits primarily to low-income individuals. Those programs are **means-tested** --- they transfer income to people whose resources fall below a certain level. In 1998, government means-tested assistance accounted for about **4.6% of GDP**. Most of the growth in those programs has been in the form of in-kind assistance. Now, cash assistance is only about 24% of the total. P156

2. Major means-tested programs: medical care, cash aid, food benefits, housing benefits, education, services, jobs/training, and energy aid. P157

3. AFDC & TANF (after 1996):

3.1 The US welfare system was overhauled in 1996. Prior to that time, the most important program for cash assistance to the poor was **Aid to Families with Dependent Children (AFDC)**. AFDC in effect created a 100% tax on earnings. Theory and empirical research showed that this would discourage work. P176

3.2 **TANF (Temporary Aid for Needy Families)** ended AFDC and this cash entitlement. Cash benefits are now available only on a temporary and provisional basis. In general, individuals cannot receive cash benefits for more than 5 years. Any able-bodied adult who has been receiving payments for two years must take part in some activity whose purpose is to allow him or her to become self-supporting. P158

3.3 AFDC was run jointly by the federal government and the states. Under TANF, states have virtually total control over the structure of their welfare systems. Welfare recipients' earnings are now subjected to a wide variety of policies. P158-9

4. Issues in the design of welfare programs:

Any income maintenance system must deal with several issues, including the conflict between adequate support and good work incentives, welfare dependence, work requirements, and state versus federal administration. P176

5. The Earned Income Tax Credit(EITC): P166-7

EITC, which subsidizes the wages of the **working poor**, is the largest program for making cash transfers to low-income individuals. The phase-out of the EITC after earnings exceed a certain threshold imposes an implicit marginal tax rate on earnings. Research shows that the EITC accounted for at least some for the dramatic rise in labor force participation.

6. Supplemental Security Income (SSI):P167-8

6.1 SSI, is a federal program that provides a basic monthly benefit for the **aged, blind, or disabled.** SSI payments have reduced the poverty rate by about 1%.

6.2 Contrasts between SSI and other programs available to those who are not blind, aged or disabled:

6.2.1 there is a uniform minimum federal guarantee for SSI and none for other programs;
6.2.2 SSI benefits are considerably higher than the average in other programs.
6.2.3 Work incentives under SSI are better than in many of the states. The implicit tax rate on additional earnings under SSI is only 50%.
6.2.4 There is no work mandate under SSI.

7. Medicaid: P168-9

7.1 Medicaid, the largest spending program for the poor, provides certain medical services at no charge.
7.2 Medicaid tends to "**crowd out" private insurance** --- people who had private insurance before they become eligible for Medicaid are less likely to have it after, because they drop the policies.
7.3 Medicaid is administered by the states and funded by both the federal government and the states.
7.4 Medicaid has increased the access of the poor to health care.

8. Food Stamps and Child Nutrition: P170-1

8.1 a food stamp is a government-issued voucher that can be used **only** for the purchase of food.
8.2 Only about 70% of eligible households actually participate. Why?
8.2.1 one possibility is that individuals are unaware they are eligible.
8.2.2 The process of participation per se causes some reduction in utility. If enrolling in the program embarrasses people, then they may be less likely to participate.

9. Housing Assistance: In the past, housing assistance in US focused on the creation of public housing for the poor. The section 8 program now provides a small number of recipients with housing vouchers to pay the rent on dwellings of their choice.

10. programs to enhance Earnings:

10.1 the goal of education and job-training programs is to enhance the ability of the poor to support themselves in the future. The efficacy of job-training programs does not appear to be very substantial P176
10.2 Head Start Program: provides preschool activities for four- and five-year-old children from disadvantaged backgrounds. The idea is to assure that by the time they start kindergarten, they can achieve at the same level as children from more affluent families. P172

11. Overview: one way to evaluate the welfare system is to examine its impact on poverty rates. The various cash, food, and housing transfer programs reduce the poverty rate by about 50%. The effects on work incentives of those programs are not so clear. P173-5

Chapter 9: Social Insurance I: Social Security and Unemployment Insurance

1. Characteristics of Social Insurance: P178

1.1 Participation is **compulsory**;
1.2 Eligibility and benefit levels depend, in part, on past contributions made by the worker;

1.3 Benefit payments begin with some identifiable occurrence such as unemployment, illness, or retirement;

1.4 The programs are **not means-tested** --- financial distress need not be established to receive benefits.

2. Social insurance programs are: **social security (OASDI), Medicare, Unemployment insurance, and Veterans' Medical Care**. The total as percent of federal expenditure is 35.9%. Total as **percent of GDP is 6.6%.** P179

3. Social insurance may be justified on grounds of adverse selection, decision-making costs, income distribution, or paternalism. P198

4. Structure of Social Security:

4.1 social security--- officially, Old Age, Survivors, and Disability Insurance (OASDI) --- is the **largest single domestic spending program**.

4.2 The system works as follows: During their working lives, members of the system and their employers make contributions via a tax on payrolls. On retirement, members are eligible for payments based in part on their contributions. By providing a fixed annual benefit for as long as one lives, Social Security in effect provides insurance against the possibility that one will live longer than expected and hence prematurely use up all the assets one has accumulated for retirement. P181

4.3 For current retirees, **the system is pay-as-you-go**. Their benefits are paid almost entirely by taxes from current workers. **For future retirees,** some of the benefits will be paid by the then current workers and some out of the Social Security Trust Fund. We call this a **partially funded system**. P182

4.4 Explicit Transfers: Social security not only provides insurance but it also transfers income among individuals.

4.5 Social Security Benefits: are calculated in two steps: **Average indexed monthly earnings (AIME**) are derived from the workers' earnings history and AIME is used to determine the **primary insurance amount (PIA).**

4.6 Actual benefit depends not only on the PIA but also on two factors: P183

4.6.1 **Age**: currently, a worker can retire as early as age 62, but doing so reduces benefits. If retirement is delayed past 65, benefits are increased.. There will be gradual increases in the age at which retirees can receive full benefits, reaching 67 by 2022.

4.6.2 **Family status**: a worker with a dependent wife, husband, or child receives an additional 50% of the PIA.

4.6.3 The purchasing power of the benefit is maintained through annual cost-of-living increases based on the increase in prices as measured by the CPI.

4.7 The payroll tax is a flat percentage of an employee's annual gross wages up to a certain ceiling. Half the tax is paid by employers and half by employees. The current tax rate is 6.2%; this rate is assessed on both employer and employee.

5. The Social Security system **redistributes incomes** from high- to low-income individuals, from men to women, and from young to old. Married people with uncovered spouses gain more than single people. One-earner couples gain more than two-earner couples. P187

6. Effects on Economic Behavior:

6.1 Saving behavior: three effects P188-9

6.1.1 **Wealth substitution effect (-)**: if people view Social security taxes as a means of "saving" for future benefits, they will tend to save less on their own. With a partially funded system, the increase in public saving is less than the decrease in private saving, which means a reduction in the total amount of capital accumulation.

6.1.2 **Retirement effect (+):** social security may induce people to retire earlier. So people have to save more today to prepare for longer retirement years.

6.1.3 **Bequest effect (+):** people increase their saving to undo the impact of social security on their children's incomes.

6.1.4 An empirical result shows that saving has been reduced, but by how much is not clear.

6.2 The percentage of retired older workers has increased dramatically since the introduction of social security. This is at least partially the result of work disincentives in the system. P198

7. Long-Term Stresses on Social Security:

7.1 **T = (Nb/Nw) * (B/w);**

7.2 The first term on the RHS is the **dependency ratio**, the ratio of the number of retirees to the number of workers. The second term is the **replacement ratio**, the ratio of average benefits to average wages. The problem is the **dependency ratio is increasing over time in US**.

8. Social security Reform:

8.1 The social security trust fund is projected to run out of money by the year 2034. One possible response is to **privatize the system** --- allow individuals to invest some or all of their contributions as they see it. However, unless a given proposal leads to increased saving in the present, it will not help ease the burden of providing for the elderly in the future.

8.2 The current system has two distinct goals: to force individuals to insure themselves by reallocating income from their working years to their retirements, and to distribute income to those elderly citizens who would otherwise lack a "socially adequate" level of support. Many of the problems with social security stem from the fact that it attempts to meet both objectives through a single structure of benefits and taxes; in most privatization schemes these two objectives are dealt with separately. P194

9. Unemployment Insurance (UI):

9.1 in most states, the benefit formula is designed so that the **gross replacement rate** --- the proportion of pretax earnings replaced by UI --- **is about 50%.** Benefits are generally payable for a maximum of 26 weeks.

9.2 UI is financed by a payroll tax. In most states, this tax is paid by employers only.

9.3 This tax t differs across employers because UI is experience rated --- t depends on the firm's layoff experience. If a worker is laid off, generally the increased costs to the employer due to the higher value of t are less than the UI benefits received by the worker. So the experience rating system is described as "imperfect".

Chapter 10: Social Insurance II: Health Care

1. Health markets may be inefficient: P200-3

1.1 poor information: when you are ill, you may not have a very good sense of what medical procedures are appropriate. The person on whom you are likely to rely for advice, you physician, is also the person who is selling you the commodity. P201

1.2 Adverse selection: the average buyer of insurance may have a higher risk than the average person in his class. This may cause the collapse of a market.

1.3 Moral hazard: people may act more carelessly than as if they had no insurance. And consumers do not confront the full marginal costs of their health care, which leads to over-consumption.

1.4 Paternalism: People may not understand how insurance worked, or they may lack the foresight to purchase it. People should be forced into t a medical insurance system for their own good.

2. The US health care market: the health care industry employs about 10 million people and accounts for about 13.5% of GDP. Consumers pay about 17% of health expenses out of pocket. The rest is paid for by "third parties" --- private health insurance pays for 35%; the government pays for 45%; and the remainder is from philanthropy and other sources.

Private insurance:

2.1 Employer-provided insurance: almost 90% of private insurance is provided through employers as a benefit to their employees.

2.2 Diversity in provision: P204-5

a. Cost-based reimbursement: until the early 1980s, most insurance policies provided for payments to health care providers on the basis of the actual costs of treating a patient. This system provides little incentive to economize on methods for delivering health care.

b. Capitation-based reimbursement: health care providers receive annual payments for each patient in their care, regardless of the services actually used by that patient. This system creates incentives for health care providers to skimp on the quality of care.

c. Health maintenance organizations (HMOs), which offer comprehensive health care from an established panel of providers, often use capitation-based reimbursement.

3. The role of government: three key programs: Medicaid (for certain low-income individuals), Medicare, and the implicit subsidy for private insurance embodied in the federal income tax system.

3.1 Medicare: provides health insurance for people aged 65 and older and the disabled. Medicare in 2000 was $216 billion. It is the second largest domestic spending program. It covers nearly the entire population aged 65 and older. It is not means-tested.

3.1.1 the structure of Medicare: P206-9

a. Benefits: the Medicare program is divided into three parts. Part A is hospital insurance (HI). HI is compulsory. Part B is supplementary medical insurance (SMI), which is voluntary. 99% of the eligible population chooses to enroll in SMI (premium is $46 per month currently). Part C, referred to as Medicare + Choice, allows individuals to enroll in coordinated care plans, such as HMOs.

b. Financing: HI is financed by a payroll tax (1.45% on employers and employees each) on the earnings of current workers. SMI relies on general revenues for financing, not on a payroll tax. Currently, about 75% of SMI financing is from general revenues and 25% from premiums.
c. Possible policies for restraining the growth of Medicare expenditures include placing more of the burden on current beneficiaries, price controls, and managed care, greater use of hospice and home health care, and Medical Savings Accounts. It is not clear that any of these would be successful in the long run. P218

3.2 The implicit Subsidy for health insurance: under federal tax law, employer-provided health insurance is not subject to taxation. This provides an implicit subsidy for health insurance. P 218. The subsidy lowers the price to consumers below its marginal cost and induces them to consume insurance in more than efficient amounts. Many analysts believe that this has contributed to the increase in medical costs and that employer-provided health benefits should be subject to taxation. P 210.

4. the twin issues: access and cost: P210-3

4.1 Access: about 18% of Americans under the age of 65 are uninsured. This percentage has been growing over time. Cost is the key factor. However, the absence of health insurance and the absence of health care are not the same thing. Some people pay for their health care out-of-pocket, and some receive it free, primarily through hospital.[2]

4.2 Health care costs have been increasing at a rapid rate. Possible reasons include the aging of the population, growth in income, the prevalence of third-party payments, and technological change (the main reason).

5. Should government's role in health care increase? P218

5. 1 a number of prototypes fro changing the health care system has been proposed:

a. Individual mandates would require all people to purchase health insurance.
b. Single-player systems would have all insurance provided by the government and financed by tax revenues.
c. Managed competition bands people into large organizations that purchase insurance on their behalf.

5.2 Any attempts to increase access to health care to the currently uninsured are likely to involve both increased costs and increased government intervention in the health care market.

Chapter 11: Cost-Benefit Analysis

1. Cost-benefit analysis allows policymakers to attempt to do what well-functioning markets do automatically – allocate resources to a project as long as the marginal social benefit exceeds the marginal social cost. It is the practical use of welfare economics to evaluate potential projects. P220 & 245.
2. Present Value: to make net benefits from different years comparable, their present value must be computed.

[2] I am currently receiving free care from a hospital because of the limited coverage provided by our student health insurance.

2.1 When inflation is anticipated, we obtain the same answer whether real or nominal magnitudes are used. It is crucial, however, that dollar magnitudes and discount rates be measured consistently. If real (nominal) values are used for the Rs. The discount rate must also be measured in real (nominal) terms.P223-4

3. Private Sector project evaluation:

3.1 present value criteria for project evaluation are that: P225

i. A project is admissible only if its present value is positive;
ii. When two projects are mutually exclusive, the preferred project is the one with the higher present value;

3.2 Other methods – internal rate of return, benefit-cost ratio – can lead to incorrect decisions.

3.3 Internal Rate of Return: is the discount rate that would make the present value of the project just equal to zero. P226

3.4 Benefit –cost ratio: present value of benefits (B)/present value of costs(C). If B/C is greater than 1, the project is admissible. However, the b/c ratio is virtually useless while comparing admissible projects because benefits can always be counted as 'negative costs' and vice versa. Thus, by judicious classification of benefits and costs, any admissible project's benefit-ratio can be made arbitrarily high. P227

4. Discount rate for government projects:

4.1 Rates based on returns in the private sector: if the government project is at the cost of private investment, the before-tax rate of return, which measures the value of output that the funds would have generated for society, is appropriate. If it comes at the expense of consumption, the after-tax rate of return, which measures what an individual loses when consumption is reduced, can be applied. Because funds for the public sector reduce both private sector consumption and investment, a natural solution is to use a weighted average of the before- and after-tax rates of return. P228

4.2 Social discount rate: which measures the valuation society places on consumption that is sacrificed in the present. It may be lower for several reasons: concern for future generations, paternalism and market inefficiency. P228-9

4.3 Choosing among them (before tax, weighted average and social discount rate) depends on the type of private activity displaced – investment or consumption – and the extent to which private markets reflect society's preferences. P245

4.4 It would be difficult to argue very strongly against any public rate of discount in a range between the before and after-tax rates of return in the private sector. One practical procedure is to evaluate the present value of a project over a range of discount rates and see whether or not the present value stays positive for all reasonable values of r --- sensitivity analysis. P229-30

5. valuing public benefits and costs:

5.1 Market prices: market prices serve well if there is no strong reason to believe they depart from social marginal costs.

5.2 Adjusted market prices: the shadow price of a good traded in imperfect markets is its underlying social marginal cost. If labor is currently unemployed and will remain so for the duration of the project, the opportunity cost is small. P232

5.3 If large government projects change equilibrium prices, consumer surplus can be used to measure benefits. P232

5.4 Inferences from economic behavior: if the good is not explicitly traded, no market price exists.

5.4.1 The value of time: a reasonable estimate of the effective cost of traveling time is about 50% of the before-tax wage rate. P235

5.4.2 The value of life:

a. Lost earnings: the value of life is the present value of the individual's net earnings over a lifetime. However, taken literally, this approach means that society would suffer no loss if the aged, infirm, or severely handicapped were summarily executed. This method is rejected by most economists. P235

b. Probability of death: most projects do not actually affect with certainty a given individual's prospects for living. Rather, it is more typical for a change in the probability of a person's death to be involved. Even if people view their life as having infinite value, they continually accept increases in the probability of death from finite amounts of money. Another way that people reveal their risk preferences is by their occupational choices. Researches show that the value of a life is between $3 million and $5 million, and not more than $10 million. P235-5

5.5 Valuing intangibles (national prestige, say): P237

a. Intangibles can subvert the entire cost-benefit exercise. By claiming that they are large enough, any project can be made admissible.

b. The tools of cost-benefit analysis can sometimes be used to force planners to reveal limits on how they value intangibles.

c. There may be alternative methods of attaining intangibles. Thus, cost-effectiveness analysis (systematic study of the costs of the various alternatives) should be applied.

6. Games cost-benefit analysts play: cost-benefit analyses sometimes fall prey to several pitfalls: P237-9

6.1 Chain-reaction game: secondary benefits are included to make a proposal appear more favorable, without including the corresponding secondary costs.

6.2 Labor game: the argument that some project should be implemented because of all the employment it "creates". Essentially, the wages of the workers employed are viewed as benefits of the project. This is absurd, because wages belong on the cost, not the benefit side.

6.3 Double-counting game: benefits are erroneously counted twice. For instance, the benefits of land irrigation are computed as the sum of the increase in land value and the present value of the net income from farming it.

7. Distributional considerations: whether it belongs in cost-benefit analysis is controversial. Some analysts count dollars equally for all persons, while others apply weights that favor projects for selected population groups. 239-40

7.1 Hicks-Kaldor criterion: if the present value of a project is positive, it should be undertaken regardless of who gains and loses. This is because as long as the

present value is positive, the gainers could compensate the losers and still enjoy a net increase in utility.

7.2 However, if one believes the goal of government is to maximize social welfare (not profit), the distributional implications of a project should be taken into account.

7.3 A Potential hazard of introducing distributional considerations is that political concerns may come to dominate the cost-benefit exercise. (Remember "interest groups" and other theories in public choice?). Depending on how weights are chosen, any project can generate a positive present value; regardless of how inefficient it is (a dollar to a poor person is counted 50 times as much as a dollar to a rich person, for example).

7.4 Incorporating distributional considerations substantially increases the information requirements of cost-benefit analysis. They analyst needs to estimate not only benefits and costs but also how they are distributed across the population.

8. Uncertainty: in uncertain situations, individuals favor less risky projects, other things being the same. In general, the costs and benefits of uncertain projects must be converted to certainty equivalents --- the amount of certain income the individual would be willing to trade for the set of uncertain outcomes generated by the project.[3] P240
9. Although cost-benefit analysis is surely an imperfect took, it is the only analytical framework available for making consistent decisions. However, researches show that only small fraction of government projects quantified net benefits. P244.

Chapter 12 Taxation and Income Distribution

a. Statutory incidence is the legal liability for a tax, while economic incidence is the actual burden of the tax. Knowing the legal incidence usually tells us little about economic incidence. P254

b. General Remarks: P254-8

2.1. People bear taxes. A corporation cannot.

2.2. Functional distribution of income: how the tax system changes the distribution of income among capitalists, laborers, and landlords. However, the same person can be a capitalist, labor and landlord at the same time. Therefore,

2.3. Size distribution of income: how taxes affect the way in which total income is distributed among people.

2.4. Economic incidence is determined by the price changes induced by a tax, and depends on both individuals' sources and uses of income.

2.5. Average tax rate: the ratio of taxes paid to income;
Marginal tax rate: the change in taxes paid with respect to a change in income.

2.5.1.1 Progressive (regressive): if the average (marginal) tax rate increases (decreases) with income. The book assumes progressiveness is defined in terms of average tax rate.

2.5.1.2 How progressive a tax system is:

[3] Advanced students may study "prospect theory": the main features of this theory are: utility is defined over gains and losses rather than over final wealth positions; people are risk averse over gains and risk-seeking over losses. Kahneman, a physiologist of Princeton, won the Nobel Prize last year for this theory.

a. The greater the increase in average tax rates as income increases, the more progressive the system.

b. One tax system is more progressive than another if its elasticity of tax revenues with respect to income is higher.

c. Partial Equilibrium Models: P258-71

3.1 partial equilibrium analysis is most appropriate when the market for the taxed commodity is relatively small compared to the economy as a whole.

3.2 Unit tax: is levied as a fixed amount per unit of a commodity sold.

a. The incidence of a unit tax is independent of whether it is levied on consumers or producers.

b. The incidence of a unit tax depends on the elasticities of supply and demand: the more elastic the demand (supply) curve, the less the tax borne by consumers (producers), ceteris paribus.

The analysis of other taxes is similar to that of unit taxes.

3.3 Ad Valoren Taxes: a tax with a rate given as a proportion of the price.

3.4 taxes on factors:

a. Payroll tax: statutory distinction between workers and bosses is irrelevant. Nothing about the incidence of a tax can be known without information on the relevant behavioral elasticities.

b. Capital taxation in a global economy: policymakers who ignore globalization will tend to overestimate their ability to place the burden of taxation on owners of capital (the elasticity of capital supply is pretty high in a global economy).

3.5 The same approaches can be used to study incidence in a monopolized market. For oligopoly, however, there is no single accepted framework for tax analysis.

3.6 Economic profits: the return to owners of the firm in excess of the opportunity costs of the factors used in production. For profit-maximizing firms, a tax on economic profits cannot be shifted ----- it is borne only by the owners of the firm.

3.7 Due to capitalization, the burden of future taxes may be borne by current owners of an inelastically supplied durable commodity such as land.

d. General Equilibrium Models:

4.1. General equilibrium incidence analysis often employs a two-sector (F and M), two-factor model (K and L). This framework allows for nine possible taxes. Certain combinations of these taxes are equivalent to other.

Under six assumptions made in the book: P274

4.2. A tax on the output of a particular sector (F) induces a decline in the relative price of the input used intensively in that sector. People who consumed proportionally large amounts of food would tend to bear relatively larger burdens.

4.3. An income tax is borne in proportion to people's initial incomes.

4.4. A general tax on labor: labor must bear the entire burden.

4.5. A partial factor tax: when capital used in M sector only is taxed, two initial effects:

a. output effect. The price of M rises, which decreases the quantity demanded by consumers. If M is labor (capital) intensive, relative price of capital (labor) rises.

b. Factor substitution effect: as capital becomes more expensive in M, producers there use less capital and more labor.

4.6. Applied tax incidence studies indicate that the federal tax system is quite progressive. But such studies rest upon possibly problematic assumptions.

Chapter 13: Taxation and Efficiency

i. Taxes generally impose an excess burden (welfare loss) --- a loss beyond the tax revenue collected.

ii. Excess burden defined:

2.1 Equivalent variation: measures the loss inflicted by the tax as the size of the reduction in income that would cause the same decrease in utility as the tax. P285

2.2 as long as the indifference curves have the usual shape, a tax that changes relative prices generates an excess burden. P286

2.3 Lump sum taxes do not distort behavior but are unattractive as policy tools.

However, they are an important standard against which to compare the excess

burdens of other taxes.

2.4 if income were fixed, an income tax would be a lump sum tax. When people's choices affect their incomes, an income tax is not generally equivalent to a lump sum tax. P288

2.5 A compensated demand curve shows how the quantity demanded changes when price changes and simultaneously income is compensated so that the individual's commodity bundle stays on the same indifference curve. P290

2.6 Excess burden depends on movements along the compensated rather than the ordinary demand curve. Excess burden may result even if observed behavior is unaffected, because it is the compensated response to a tax that determines its excess burden.

iii. Excess burden measurement: P290-7

3.1 When a single tax is imposed, the excess burden is proportional to the compensated elasticity of demand, to the initial expenditure on the taxed commodity, and to the square of the tax rate.

3.2 Excess burden calculations typically assume no other distortions. If other distortions exist, the incremental excess burden of a new tax depends on its effects in other markets.

3.3 A subsidy is just a negative tax, and like a tax, it is associated with an excess burden because they encourage people to consume goods valued less than the marginal social cost of production.

iv. Differential taxation of inputs:

In general, whenever a factor is taxed differently in different uses, it leads to a misallocation of factor between sectors and hence an excess burden. P 301

Chapter 14 Efficient and Equitable Taxation

1. Optimal commodity Taxation:

1.1 A tax at the same rate on all commodities, including leisure, is equivalent to a lump sum tax and has no excess burden. P307

1.2 To tax all the commodities (not including leisure) at the same rate – neutral taxation. In general, neutral taxation is not efficient. P307

1.3 To minimize overall excess burden, the marginal excess burden of the last dollar of revenue raised from each commodity must be the same. P308

1.4 Ramsey rule: to minimize total excess burden, tax rates should be set so that the percentage reduction in the quantity demanded of each commodity is the same. It also holds even for cases when two goods are related – substitutes or complements. ($dX/X = dY/Y$)

1.5 Inverse elasticity rule: as long as goods are unrelated in consumption, tax rates should be inversely proportional to elasticities. Efficiency does not require that all rates be set uniformly. P310

1.6 The Corlett – Hague Rule: when there are two commodities, efficient taxation requires taxing the commodity that is complementary to leisure at a relatively high rate.

1.7 Vertical equity: a tax system should distribute burdens fairly across people with different abilities to pay.

2. Optimal user fees:

2.1 User fee – a price paid by users of a good or service provided by the government. Government production may be appropriate when there exists a natural monopoly.

2.2 Dilemma: if let natural monopoly set the price freely, price is greater than marginal cost – not efficient; if government sets the price equal marginal cost, the operation cannot cover its costs. Several solutions:

a. average cost pricing: still not efficient;
b. marginal cost pricing with lump sum taxes: however, lump sum taxes are generally unavailable; secondly, it violates benefits-received principle.
c. A Ramsey solution

In reality, average cost pricing is chosen.

3. Optimal income taxation:

Edgeworth's early study of optimal income taxes indicated that after-tax incomes should be equal. However, when the excess burden of distorting the leisure-income trade-off is included, marginal tax rates of far less than 100% are optimal.

4. Politics and the Time Inconsistency Problem:

Government cannot credibly commit itself to the prestated policies. When future time actually arrives, it is optimal for the government to renege on its promises. People can successfully expect this inconsistency and thus change their behavior accordingly. Time inconsistency problem is a problem both in fiscal policy and monetary policy.

5. Other Criteria for Tax Design:

5.1 In the context of optimal tax theory, a fair tax is one that guarantees a socially desirable distribution of the tax burden; an efficient tax is one with a small excess burden. In public discussion, a fair tax is often one that imposes equal liabilities on people who have the same ability to pay, and an efficient tax system is one that keeps down administrative and compliance expenses. P321

5.2 Tax systems may be evaluated by standards other than those of optimal tax theory. Horizontal equity, the costs of administration, incentives for tax evasion, and political constraints all affect the design of tax systems. P331

5.3 Horizontal equity: people in equal positions should be treated equally. P321

5.4 The utility definition of horizontal equity: P322

a. if two individuals would be equally well off (have the same utility level) in the absence of taxation, they should also be equally well off is there is taxation;
b. Taxes should not alter the utility ordering – if A is better than B before taxation, he should be better off after.

However, as long as tastes for leisure differ, any income tax violates the utility definition of horizontal equity.

5.5 The utility definition is more precise, but has radically different policy implications and contains an inherent bias toward the pretax status quo. Other definitions of horizontal equity focus on the rules by which taxes are chosen. P331

5.6 Tax avoidance: change your behavior so as to reduce your tax liability.

5.7 Tax evasion: is failing to pay legally due taxes. People have to compare expected marginal benefit and expected marginal cost of cheating (the product of the penalty rate and the probability of detection) when they evade taxation.

Chapter 15 The Personal Income Tax

1. Basic structure: P335-6

Steps of calculating tax liability:

Step 1: compute adjusted gross income (AGI) – total income from all taxable sources less certain expenses incurred in earning that income.

Step 2: convert AGI to taxable income – the amount of income subject to tax. This is done by subtracting various amounts called exemptions and deductions from AGI.

Final step: calculate the amount of tax due.

2. Defining income:

2.1 **Haig – Simons (H-S) definition of income**: income is the money value of the net increase in an individual's power to consume during a period. This is equal to the amount actually consumed during the period plus net additions to wealth. Net additions to wealth – saving – must be included in income because they represent an increase in **potential** consumption.

2.2 The following unconventional items should be included into H-S income: employer contributions to pensions and other retirement plans, employer expenditures for employees' insurance, transfer payments, including social security retirement benefits, unemployment compensation, and welfare, capital gains, and income in kind.

2.3 Implementation of the H-S criterion is confounded by several difficulties:
a. income must be measured net of the expenses of earning it;
b. unrealized capital gains and the imputed income from durable goods are not easily gauged;
c. It is difficult to measure the value of in-kind receipts.

3. Excludable Forms of Money Income
3.1 interest on state and local bonds: P340-1
a. If t is an individual's marginal tax rate and r is the rate of return on taxable securities, he is willing to purchase nontaxable securities as long as their return exceeds (1-t) r.
b. The net effect of tax-exempt bonds is zero only for those investors who are just on the margin of choosing tax-exempt versus taxable securities. For all others, the subsidy to the state and local borrower is outweighed by the revenue lost at the federal level.
3.2 capital gains: P342-4
a. only realizations taxed: taxes deferred are taxes saved;
b. Lock – in effect: The tax system, under which only realizations are taxable, tends to lock investors into their current portfolios. This leads to a misallocation of capital, because it no longer flows to where its return is highest.
c. Capital gains on assets held to death of the owner are never subject to the income tax.
3.3 Employer contributions to pension and medical plans are excluded. Only when the pension is paid out at retirement are the principal and interest subject to taxation. P344
3.4 The Preferential treatment of some types of saving: Roth IRA (individual retirement account), Keogh plan, education IRA and 401(k) plan. P345
3.5 Gifts and inheritances are not subject to the federal income tax. P346

4. Exemptions and Deductions:
4.1 Exemptions are fixed amounts per family member. Exemptions are subtracted from AGI and phased out at high-income levels.
4.2 Deductions: Itemized deductions are subtractions for specific expenditures cited in the law. A taxpayer can take a standard deduction, which is a fixed amount that requires no documentation. Taxpayers can choose whichever deduction minimizes their tax liability. P347
4.3 Itemized deductions are phased out at high-income levels. They change after-tax relative prices, which often affects economic behavior. P371
4.4 Major itemized deductions:
a. unreimbursed medical expenses that exceed 7.5% of AGI;
b. state and local income and property taxes;
c. certain interest expenses;
d. Charitable contributions.
4.5 Interest deductibility in conjunction with preferential treatment of certain capital income can create tax arbitrage opportunities. High-income individuals are particularly likely to benefit from these opportunities.

4.6 Deductions versus credits: a tax credit is a subtraction from tax liability and hence, its value is independent of the individual's marginal tax rate. P352.

4.7 Tax expenditures: revenue losses caused by the exclusion of some item from the tax base. There is symmetry between a direct subsidy for an activity via expenditure and an implicit subsidy through the tax system. In general, whether a tax expenditure or a direct subsidy is more effective depends on the amount of crowding out that occurs, and on how responsive the demand for the preferred item is with respect to its after-tax price. P354

5. Rate structure: the final step in determining tax liability is to apply a schedule of rates to taxable income. Because of various phaseouts, the actual statutory marginal tax rates exceed the official rates. P355-60

6. Choice of Unit and the Marriage Tax: P360-4

6.1 three principles:

a. the income tax should embody increasing marginal tax rates;
b. families with equal incomes should, other things being the same, pay equal taxes;
c. two individuals' tax burdens should not change when they marry; the tax system should be marriage neutral

6.2 no system of family taxation can simultaneously achieve these three principles. Under current law, joint tax liabilities may increase or decrease upon marriage, depending on the couple's circumstances. The current tax tends to be highest when both spouses have similar earnings.

7. Taxes and Inflation: Bracket widths, personal exemptions, the standard deduction, and the earned income credit are now indexed against inflation. However there are no provisions to correct for inflation's effect on the taxation of capital income. P371

8. Treatment of International Income: P367-8

US follows a global system with respect to the tax treatment of income earned in other countries. The total amount of tax due is supposed to be roughly independent of whether the income is earned at home or abroad.

A territory system – a citizen earning income abroad need pay tax only to the host government.

The global system may distort production decisions, and the territorial system residential decisions.

9. State Income Taxes: state income taxes tend to be similar in structure to the federal tax. State income taxes have lower rates than the federal system and vary widely in their exact provisions. P369

Chapter 16: personal taxation and behavior

The US personal income tax affects many economic decisions, including labor supply, saving, residential housing consumption, and portfolio choice. Analysis of

the behavioral effects of taxation is among the most contentious of all areas of public policy. P 396

1. Labor supply:

1.1 Econometric studies of labor supply indicate prime age males vary their hours only slightly in response to tax changes (the elasticity of net wage on labor supply between 0 and 0.1), while hours of married women are quite sensitive to variations in the after – tax wage rate (the elasticity is about 0.8).

1.2 Earnings taxes can increase, decrease, or leave unchanged the amount of human capital investments. The outcome depends in part on how taxes affect hours of work. P 396

1.3 Laffer curve: tax revenue rises with the increase of tax rate first and then falls when the tax rate is high enough (inverted U-shape).

1.4 The notion that tax rate reductions create no revenue losses was an important tenet of the supply-side economics espoused by the Reagan administration. P381

1.5 The effect of tax rates on tax revenues depends on the responsiveness of labor supply to changes in tax rates and on the extent of substitution between taxable and nontaxable forms of income. P 397

1.6 The consensus among economists is that the overall elasticities are modest in size. It is safe to conclude that the economy is not operating beyond the revenue – maximizing tax rate. General tax rate reductions are unlikely to be self-financing in the sense of unleashing so much labor supply that tax revenues do not fall. P382

1.7 The revenue-maximizing tax rate is not the same for all income groups or the same for all types of income. P383

2. Saving:

2.1 Life – cycle model: individuals' consumption and saving decisions during a given year are the result of a planning process that considers their lifetime economic circumstances.

2.2 Taxing interest income lowers the opportunity cost of present consumption and thereby creates incentives to lower saving (substitution effect). However, such a tax reduces total lifetime resources, which tend to reduce present consumption, that is, increase saving (income effect). The net effect on saving is an empirical question.

2.3 There is no firm consensus of opinion on the effects of taxation on saving. Auerbach and Slemrod (1997) argue that the impact on saving of changes in the after-tax rate of return is very small or zero. That is, for the population as a whole, the income and substitution effects more or less cancel each other out. P390

2.4 As long as saving and investment are correlated, tax policy that affects saving can generally be expected to affect investment. The size of the effect, however, is smaller than one would find in a completely closed economy.

3. Housing decisions:

3.1 The federal income tax implicitly subsidizes owner-occupied housing by allowing mortgage interest payments and property taxes deductible. Because marginal tax rates tend to increase with income, the subsidy is worth more to high – income people, other things being the same.
3.2 by lowering its effective price, the federal income tax increase the demand for owner-occupied housing.

4. Portfolio composition
4.1 Tobin's model: individuals make their decisions about whether to invest in an asset on the basis of two characteristics – the expected return on the asset, and how risky that return is. P395
4.2 The theoretical effects of taxation on portfolio composition are ambiguous. Taxes reduce the expected return on a risky asset but also lessen its riskiness. The net effect of these conflicting tendencies has not been empirically resolved. P397
4.3 In effect, introduction of the tax turns the government into the investor's silent partner. If the investor wins, the government shares in the gain. But because of the loss-offset provision, if the individual loses, the government also shares in the loss. P395.