PRINCIPLES OF TAXATION

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In this paper we deal with the fair distribution of tax burden among the members of the society. Although, distribution of income is not an economic issue, but many economists have involved in fair distribution of income and tax burdens. There are two main principles of taxation have been developed so far: the one is benefit principle and the other is ability to pay principle.

Benefit principle implies that, each taxpayer should contribute to the financing of public goods and services, in line with the benefits received. Thus, it serves as an efficiency rule, since the expenditure and the revenue side of the budget is connected under benefit principle. But, ability to pay or fiscal capacity principle of taxation, involves in determining the rate structure of the different taxes. Since the tax burdens are determined in line with the fiscal capacity or by the ability to pay, the tax structure is progressive. Because, under this principle the taxpayers are assumed to face to same sacrifice that is the same level of welfare loss due to paying to the government. All sacrifice rules result in progressive tax rate structure.

The implementation of benefit principle is limited to few taxes such as earmarked taxes, special assessments, user charges and to social security contributions made by the employees. But, the ability to pay principle of taxation is applied to a wide variety of taxes such as income, corporation, expenditure, wealth and other taxes.

A. BENEFIT PRİNCİPLE

According to benefit principle, taxes should be distributed among the people in relation to the benefit they receive from publicly provided goods and services. Under this approach horizontal equity requires that, people who enjoy the same level of benefit pay the same amount of taxes? Whereas, vertical equity calls for those who enjoy more of the

goods and services pay more in taxes than those who enjoy less. And, those who don't make use of the services should be free of charge of the taxes needed to finance public services. Thus, benefit principle leads to efficient use of the resources, since the people will have a notion of the cost of the goods and services provided by goverment.

As far as the efficiency in public sector is concerned, Pareto Optimality Condition is satisfied under benefit aproach, when the sum of the marginal benefits or demands of the two individuals (representing two income groups) equals the marginal cost. As shown in Figure 3.1, individual A pays a tax of (t_a) and B would pay a tax of (t_b), each pay a tax equal to the marginal benefit to them of the good financed by the public sector. Thus, benefit principle implies that, each individual should be taxed according to marginal benefits that each derives from the public goods and services.

PU   : Public goods production
MB$_A$: A's marginal benefit
MB$_B$: B's marginal benefit
MC   : Marginal cost
t   : Total tax
t_a : A's share in total tax
t_b : B's share in total tax
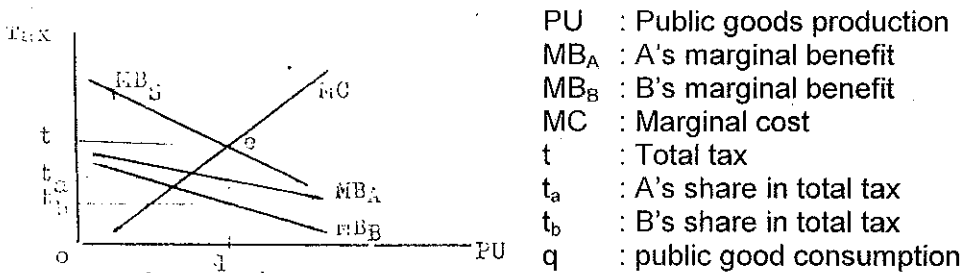q   : public good consumption

Figure 1.1: Distribution of tax burdens under
Benefit Principle

Benefit principle has the advantage of relating the revenue and expenditure sides of the public budget. Although the principle applies the market criteria to the public sector, but it is applicable where the exclusion principle applies to govermentally produced goods and services. Payments in terms of tax is voluntary, as would be voluntary in the market and tax payments are made in line with the benefits received. Thus, benefit principle satisfies whit allocational (efficiency) and distributional (equity) considerations of budget policy.

a) Rate Structure

The appropriate tax rate depends on the income and price elasticity of demand for divisible public services. Income elasticity of demand for public services can be measured as the percentage change in goverment expenditures divided by the percentage change in gross national product. Thus, depending on the elasticity of the tax price with respect to income, tax rate would be,

- progressive, if the elasticity is bigger than 1,

- regressive, if the elasticity is less than 1 and

- proportional, if the elasticity is equal to $1^{(1)}$,

When the benefits are internalized by particular user of the public services, the govermental agencies should act in setting the tax prices or user prices similar to private firms. For this reason, public enterprises are setting the user prices equal to marginal cost. In practice, the user prices of the public services are set equal. to average cost pricing principle in the USA. For instance, the revenues obtained through taxes on gasoline and cars matches the cost of highway expenditures. In this case, tax on gasoline represents the benefits received by the road use. Thus, earmarked taxed in the form of gasoline taxes enter into the determination of new road construction.

b) Types of Benefit Taxes

There are three important benefit taxes in the Western World, namely automative taxes, payroll taxes and special assessments. In addition to this taxes, non tax revenues such as user charges, fees, and other administrative revenues are also considered to be benefit taxes. Each of these taxes or prices are earmarked in a special fund and used to provide the relevant service. These are,

1. Automative Taxes: The amount of gasoline a person buys and the size of automobile a person owns, provide a rough index of people's use of the road. To apply the benefit principle, automative taxes are levied on gasoline and vehicle, and the proceeds are put into a highway trust fund to be user taxes which is earmarked to road building can't be diverted to other purposes.

2. Payroll Taxes: Payroll tax as a contribution to social security fund by the employees is the another common practice of benefit taxation. Payroll taxes are earmarked to finance the particular social benefits such as retirement benefits, madicare and unemployment benefits. But, employer's or government's contribution to the social security fund can't be considered benefit taxation, because they are made according to ability to pay principle.

3. Special Assessments: Special assessment is widely used as a benefit tax, when the value of property is increased due to public works or as a result of urban renewal programs. Thus, revenues obtained from the special assessments are used to finance the expenditures made by

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[1] Musgrave R. - Musgrave P.: Public Finance in Theory and Practice, (fifth ed), McGraw, London, 1989, p.220.

local administrations and municipalities, which increases the value of the properties. Many local services, such as the construction of sewers and streets are particularly financed out of special assesssments levied on the residents who will be served.

c) Evaluation

Benefit taxation is applicable in cases in which government applies the earmarked taxes and user charges. Since, its application is limited to the goods and services subject to exclusion principle, these taxes are not comprehensive enough to be an equity measure. If benefit taxes were subject to a widespread application, then government might be asked to provide subsidies or transfers to the low income families. Because, income and price elasticies of the same for different income groups. Thus, privatization and deregulation of health and educational services calls for governmental support programs including grants, scholarship, students financial aid, vouchers or green cards etc. As a result of these sort of transfers, the financial cost of privatization and deregulation programs are likely to increase. If the low income families are not supported by the goverment, they wouldn't consume those public services and their welfare level also is likely to decrease.

B. ABILITY TO PAY PRINCIPLE

The ability to pay principle is the other standard of fairness in taxation. It was formulated by Adam Smith as the first canon of fair tax system. This principle implies that, richer members of the society have to pay more taxes than the poor.

The modern version of equity is based on an equal sacrifice basis. That is, each taxpayer should bear an equal sacrifice in the payment of taxes to the goverment. By paying taxes, taxpayers sacrifice from the alternative used of the forgone revenues on consumption. Ability to pay principle implies that both horizontal and vertical equities should be achieved in the payment of the taxes to the goverment. Horizontal equity calls for the taxpayers with the same taxpaying ability should have to pay the same taxes or be treated unequally, Thus, both equity concepts require that, people with the same income should be treated equally and the taxpayers with the different income should be treated unequally in order to equalize the sacrifice.

Income is generally accepted as an index of taxpaying ability or fiscal capacity. But, many economists consider both expenditure and wealth to be included in tax base. Some economists argue that, since wealth produces income which is taxed, nevertheless the mere

possesion of wealth may yield satisfaction its own. Nicholas Kaldor, argued that consumption rather than income should be the proper base of taxation.

Ability to pay principle implies that, progressive tax schedule should be applied to tax base. As a matter of fact that, three sacrifice formulas that are equal absolute sacrifice, equal marginal sacrifice and proportional sacrifice formulas calls for progressive tax structure in the application of ability to pay principle.

Equal Sacrifice Formulas

The sacrifice involved in paying taxes is being used to desing a tax structure under ability to pay approach. Here, sacrifice corresponds to the loss of welfare or decrease of consumption level due to tax payments to the goverment. Thus, there are three equal sacrifice formulas have been deginal and proportionate sacrifice. All sacrifice formulas are based on certain assumptions such as (1) it is possible to compare utilities among the taxpayers, (2) utilities of the taxpayers are the same within a particular income levels, and (3) marginal utulitiy of income decreases as income level increases. Progressive rate structure also calls for a declining marginal utility of income schedule with an elasticity greater than unity[2].

1. Equal absolute sacrifice: This sacrifice formula implies that, all people should experience the same level of welfare loss in paying taxes. Under this sacrifice formula, taxpayers with the same income level experience the same sacrifice, in order to achieve the horizontal equity. Whereas, taxpayers with different income levels should also have to experience the same sacrifice, in order to achieve the vertical equity under equal absolute sacrifice formula.

Suppose first that, (a) and (b), representing two income groups, have the same level of incomes as shown by OA and OB in the graph below; respectively. In order to achieve horizontal equity among (a) and (b), it would be necessary to tax them the same amount, lets say MA equal to BN. Thus, those taxpayers with the same income by paying the same taxes, would suffer the same welfare loss as measured by two equal areas of AEDM and BHGN.

Suppose now that, taxpayers (a) and (c) representing two income groups, have different income levels as shown by OA and OC respectively in the graph. According to the equal absolute sacrifice formula, in order to achieve vertical equity, they should suffer the same.

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[2] Alternative sacrifice rules are explained different ly from the traditional forms as stated below.

welfare loss or sacrifice as measured by MAED which is equal to CPRS. By experiencing the same sacrifice (a) pays MA and (c) pays CP as tax liabilities. Thus, vertical equity calls for progressive tax structure under the equal absolute sacrifice formula.
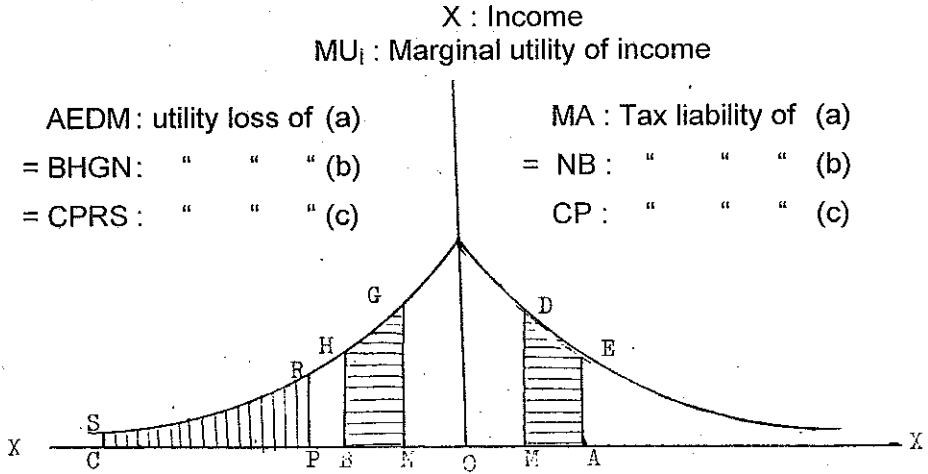

Figure 1.2: Horizontal and Vertical Equities
Under Equal Absolute Sacrifice

2. Equal Marginal Sacrifice Formula: According to this formula, the tax system should be designed to create the minimum aggregate sacrifice for the group as a whole. The same formula is also known as least total sacrifice or equimarginal sacrifice. This formula calls for a maximum progression or % 100 tax rate to be applied after some level of income. Thus, higher progressive tax rates are applied to level down the income from top until required revenue is obtained. Suppose that, four income groups represented by (a), (b), (c) and (d), having different level of incomes such as $ 200.000, 100.000, 80.000 and 50.000 respectively. And the goverment wants to collect $ 120.000 tax revenue. Of the tax burden is distributed as it is shown in the table 3.1 : then the society will achieve the least total sacrifice or equal marginal sacrifice under abilitiy to pay principle.

Taxpayers	pretax income	$ 120.000 revenue	posttax income	$ 160.000 revenue	posttax income
(a)	200.000	100.000	100.000	120.000	80.000
(b)	100.000	20.000	80.000	30.000	70.000
(c)	80.000	------	80.000	10.000	70.000
(d)	50.000	------	50.000	------	50.000

Table 1.1 : Tax structure under Equal Marginal Sacrifice

Thus, (a) pays $100.000 and (b) pays 20.000 as a tax. Then, total marginal sacrifice is minimized and vertical and horizontal equities are also achieved after tax liabilities are paid. If goverment wants to increase tax revenues from $ 120.000 to $ 160.000, tax liabilities should be distributed as it is shown in the table. In this case, (a) pays $ 30.000 and (c) pays 10.000 as a tax. As a result of this distribution of tax liabilities, income levels of (b) and (c) are equalized to achieve the horizontal equity. But, if we had only two taxpayers (a) and (b), least sacrifice rule would leave both taxpayers with the same income. Let's say (a) pays $ 110.000 and (b) pays $ 10.000 and each heaving the same after tax incomes of $ 90.000.

3. Equal Proportional Sacrifice: This formula suggest that, a tax should cause all individuals to give up the same percentage of total utility, in order to reach vertical equity. For instance, suppose that (a)s income is 2000 dollars and (b)s is 1000 dollars. If (a) suffers 20 and (b) suffers 10 utility out of their respective incomes, then both would bear equal proportions of disutility. This formula also calls for progressive tax structure to attain horizontal and vertical equity.

Tax Rates

The tax rate is the amount of tax applied per unit of tax base. The unit of the tax base is the income slices (brackets) in income taxation, the value of the goods in sales and value added taxes. There are three rates applied to different tax bases. Tax rates are utilized in computation of tax yield to goverment or tax liability of the taxpayer. Tax base multiplied by tax rate equals the tax yield or tax liability.

Tax rates may be statutory (legal) or effective. Statutary rate is the legal tax rate as it appears in the taxation codes. Effective tax rate is the amount of tax paid, divided by the adjusted gross income. Adjusted gross income is the difference between the gross receipts and the cost of doing business or business expenses. By substracting exemptions and deductions from the adjusted gross income, we obtain the taxable income or tax base.

Average tax rate and marginal tax rate is utilized in order to measure the progressivity, proportionality and the regressivity of a tax rate. Average tax rate is the amount of tax divided by the taxable income. Thus, it is computed by dividing the total tax liabilitiy by the taxable income or the tax base. While, the marginal tax rate is the amount of the tax paid on the last increment of taxable income. And, it is computed by dividing the change in total tax liability by the change in total taxable income or tax base. The important characteristics of the tax rates can be explained as follows.

1. Progressive (graduated) tax rate: It is a tax rate which increases as the size of the tax base increases. Supose that, when the tax base increases from $ 5.000 to $ 10.000, and the tax liabilitiy also increases from $ 1.000 to $ 3.000. Thus, marginal tax rate will be % 40, and average tax rates will be % 20 for the first income slice that is $ 5.000, % 30 for the second slice of income, which is $ 10.000. Progressive tax rate is mainly applied to individual income taxation and personal expenditure tax.

2. Proportionate (flat) rate: It is a tax rate which remains constant as the size of the tax base increases. If applied to the above tax bases at 20 percents, then average tax rate for the two bases and the marginal tax rate will be the same.

3. regressive tax rate: It is a tax rate which decreases as the size of the tax base increases. Suppose that, tax base increases from $ 5.000 to $ 10.000, while the tax base increases from $ 1.000 to $ 1.500. In this case the average tax rates are % 20 for the second income slice of 10.000 dollars. The marginal tax rate is % 10 in regressive tax rate structure. Most of the sale, excise, value added and wealth taxes are applied at proportional tax rates, but actually they are refressive taxes. For instance, poor and the rich people pay the same tax for a magazine, but if we consider the size of their tax bases or incomes, then we can conclude that the rate structure is refressive. Various tax rates and their relations with different tax rates are shown in Table 3.2[3].
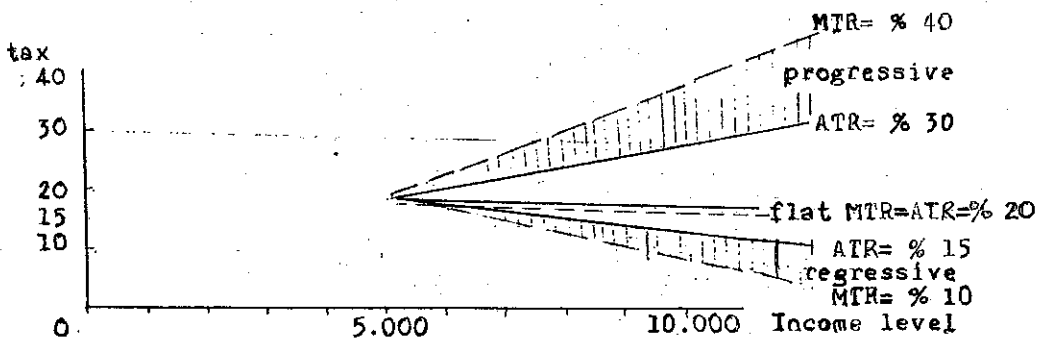

Table 1.2 : Relationship between tax rates and tax base

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[3] Herber, Bernard : **Modern Public Finance**, Irwin, 1979, s. 98-101.

Progressive Tax Structure and Stabilization Policy

There is a positive functional relationship between the amount of taxes and the level of income. But, this relationship doesn't exist under the revenues collected from lump sum taxes and the income levels. Because, lump sum tax is not related to any ecomic activity. By making use of this relationship between the tax revenues and the disposable incomes of the individuals, some macroeconomic stabilization policies can be desined.

According to Keynesian thought, progressive tax rate structure can be used as a means of automatic stabilization. In case of businesscycles there is no need of taking any fiscal policy measure by the goverment. Because, built in flexibility characteristics of progressive tax structure automatically secure the state of stabilization. As a matter of fact that, during the inflationary period, as the income level is increasing a greater part of the income will be transferred to the government. Thus, disposable income level will be decreased due to progressive taxation. Decreased level of disposable income will also decrease the effective demand, leading to price level stabilitiy in the economy. In case of recession, the built in flexibility characteristics of progressive tax structure, will increase disposable income because the rate of tax is too low at the lower part of income scales. Thus, increase in tax revenues will be less than increase in disposable income. Since, the disposable income is increased automatically by the progressive tax structure, then effective demand for the goods will be stimulated and the stability in prices will be restored. This built in flexibility function of progessive tax structure can be measured by marginal propensity to tax and income elasticity.

Marginal propensity to tax refers to functional relationship that exists between the change in tax revenue and the change in income base. Thus, marginal propensity to tax (mpt) can be formulated as $mpt = \Delta t / \Delta y$; with t representing tax revenue (or yield to goverment) and y representing income.

The income elasticity of taxation (y_t) is also closely associated with fiscal stabilization policy. The income elasticity of taxation is the ratio of the percentage change in revenue yield to the percentage change in income. Thus, it can be formulated as $y_t = \Delta t / t_0 : \Delta y / y_0$ [4]. The income

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[4] t = revenue yield or tax revenue
   y = income
   Δ = change between base year and a subsequent year
   o = base year

elasticity of taxation is elastic ($y_t > 1$) under progressive; inelastic under regressive; and unitary under proportional tax rate structures. Under an income tax, tax revenue increases as the tax base increases; whereas, tax revenue doesn't increase under wealth, property, sale and death taxes, as the tax bases increase. on the other hand, income elasticity of the lump sum taxes tend to be zero, because there is no direct linkage between the tax base and the income.

A goverment should also consider the revenue productivity of a tax as well as its economic effects. Since, the alternative taxes may yield the same amount of tax revenues to the goverment, the tax with the lovest social cost should be selected, when a tax reaches to its capacity. Opportunity cost of a tax refers to the opportunities forgone in private sector consumption, dues to the payment of the taxes.

Kinds of Revenue	in millions TL.	% of total revenues
Consalidated Budget Revenues	(56.632.630)	100
General Budget Revenues	(55.328.350)	97.70
Total Tax Revenues	(45.466.742)	80.28
Taxes on Income	(23.181.106)	40.93
- Individual Income Tax	(18.614.092)	32.86
- Coproration Income Tax	(4.567.014)	8.06
Taxes on Wealth	(411.083)	0.07
- Motor Vehicles Tax		
- Inheritance and Grift Tax		
Taxes on Goods and Services	(13.816.762)	24.40
- Value Added Tax (domestic)	(7.614.761)	13.40
- Supplementary Tax		0.6
- Motor Vehicle Purchase Tax		1.12
- Petroluem Consumption Tax		2.23
- Banking and Insurance Iransactions Tax		2.05
- Stamp Tax		2.63
- Fees		2.20
Taxes on Foreign Trade	(8.039.500)	14.20
- Custom Duty	(1.052,056)	1.85
- Custom Duty on petroleum		0.01
- Single and Cut-off Tax		0.05
- Value Added Taxes (Imports)	(4.712.936)	8.32
- Stamp Duty on Imports	(1.550.668)	2.74
- Duty for Transportation Infrastractures		1.20

Revenues From Abolished Taxes
Total of Regular Non-Tax Revenues   (4.267.664)   7.53
Corporate Profits and State Shares   0.36
Revenues of State Property   3.25
Interest, Reclaims from Concession and Lending   0.46
Fines   1.24
Various Revenues   2.21

Total of Special Revenues and Funds   (4.584.944)   8.09
Special Revenues   (1.635.528)   2.88
Funds   (2.949.416)   5.21

Other Revenues   (1.009.000)   1.70

Annexed Budget Revenues   (1.364.000)   2.41

Table : Turkhish Taxation System and
Budgetary Revenues in 1990.