

# EQUITY AND INCOME TAX REDISTRIBUTION

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*Two issues are covered by this study: 1) critical analysis and systematization of equity controversies and 2) attempts of finding technical solutions for measuring fiscal inequality, closely related to the redistributive role of income tax.*

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## **1. Tax Equity controversies**

Construction of a rational tax system has proved to be a step as difficult as it is delicate. The main reason is that its foundation principles and demands are often contradictory and extremely difficult to harmonize: moral and ethical demands of equity and tax justice, tax efficiency and technical principles of social policy and fiscal policy.

Principle that has been given special attention over time is that of fairness, ethical principle par excellence. "Equity should be the rule and taxation objective [...] since we were all created equal. But fairness does not mean that all individuals should be charged as [...] it implies that any tax act to be done correctly, taking into account a particular context or situation."<sup>417</sup> (Henry George, 1881)

Achieving ethical goals is very difficult to accomplish. Murray Rothbard pointed out that in this respect "Our conclusions are two:<sup>418</sup> economic science can not justify any principle of fair taxation and that nobody has managed to establish such a principle and (2) neutral tax, which seems to many an achievable ideal, logically proved unobtainable. Economists should abandon their quest for fair and neutral tax."

However the public debate related to finding the optimal tax system both socially and economically, is becoming increasingly heated. The idea of fairness in taxation was perceived differently from author to author and from one era to another. So over the last century have crystallized three major normative theories that have attempted to define an ideal tax system and fairness of each of these three cases is seen differently. The first theory on chronological order of their appearance, Equitable Taxation theory, has its origins in the writings of Henry Simons (1938), a recognized advocate of classical liberalism. The role of the State was to create equity through redistribution. Equity is achieved mainly horizontally, by applying the same rates to the same income. Taxation which is solely aiming the fiscal equity, is disregarding efficiency

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<sup>417</sup> Henry, George, The Common Sense of Taxation, The North American Review, iulie, 1881, Volumul 130, p.296

<sup>418</sup> Marinescu, Cosmin, "Mitul criteriului eficienței în știința economică", Revista Analiză și Prospectivă Economică, Ed. ASE, nr. 1-2/2005, p. 49-53

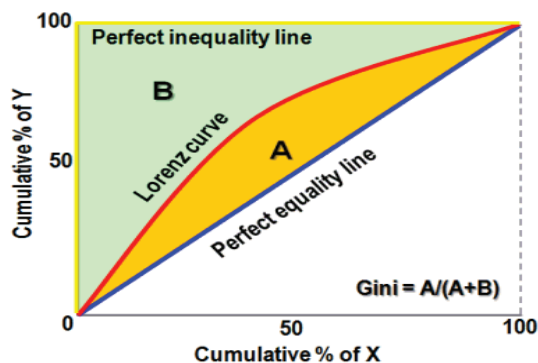
objectives. The second theory was the theory of Optimum Taxation, based on the doctrine of sacrifice and was developed by the classical school. In *The Principles of Political Economy* (1891) John Stuart Mill states that the fairness of taxation is that each taxpayer bears the same burden and the same sacrifice. Modern welfare economics (Pigou), interpreted the sacrifice as a utility loss, claiming that in order to equalize marginal utilities to minimize the sacrifice aggregate caused by taxation. Later, Frank Ramsey (1927), James Mirrless (1971), Peter Diamond (1971) also reiterated the idea that the tax system should involve the smallest sacrifice, but define sacrifice as a reduction in social welfare, and not as simply individual utility loss. Exchange Theory of taxation, the most recent theory, is looking for a tax system as close to perfect. The idea comes from the old tax theory of voluntary exchange Knut Wicksell's (1896) and the works of James Buchanan (1976-1980). This theory involves narrow, multiple elastic tax bases. Regarding tax rates are recommended fair rules to limit taxation by discrimination. From the findings above it appears that the three approaches have very different views on the fiscal construction, how tax is levied and how the idea of fairness can be applied in the system. Regarding their applicability, can be said that all three approaches were used as starting points to build different tax systems. Thus, the theory of fair taxation exercised most pronounced impact on the systems of USA, Sweden and Ireland. Optimal tax theory has exercised a less visible effect in recent years. Theory of tax exchange had a minimal effect at least until now the current tax system; it is visible only as theoretical support for constitutional changes to limit the power of local or state tax in the U.S. So equity in taxation is an easy to pronounce, but difficult to accomplish in practice, and neutralization of taxes is absolutely obvious conflict with their redistributive role and their quality of fiscal levers.

## 2. Indices of income redistribution through taxes

In developed countries, income tax has long been regarded as the main instrument for redistributing income and wealth. To measure fiscal equity, we use several indices., from wich the most commonly used is the Gini index.

### 2.1 The Gini Index

The difference between the Gini index for the distribution of income before tax and Gini index after taxation, is an indicator that measures the impact of such taxation. Gini Coefficient is a measure of statistical dispersion, first to be drawn up by the italian statistician Corrado Gini ("*Variability and change*", 1912). It is frequently used as a measure of income or wealth inequality. Gini coefficient is usually defined mathematically based on the Lorenz curve, each portion of the y-axis represents the proportion of total incomes simultaneously obtained by the bottom x% of the population. 45 degree line represents perfect equality of income.



Gini coefficient can be calculated as the ratio between the area that lies between the line of equality and the Lorenz curve (marked "A" in diagram) and total area under the equality line

(marked "A" and "B" in diagram), for example  $G = A / (A + B)$ . Gini coefficient can vary between 0 and 1, is sometimes multiplied by 100. A low Gini coefficient indicates more equal distribution, corresponding to a 0 is perfect equality, while the Gini coefficient indicates more unequal distribution, the corresponding value of 1 is maximum inequality.

Countries	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
BG				26	26	25	26	26	24	26	
FR	29	29	29	28	29	28	27	27	27	28	28
DE	29	27	25	25	25	25	25				28
HU						23	23	24	27		28
PL					28	30	30				36
RO				28	29		30	30	30	31	31
UK	32	32	30	32	32	32	31	35	34		
EU-25									29	30	31

[Source of this data: [Eurostat](#)]

In the table from above there are presented the values taken by the Gini index in some of the European countries, between 1995 and 2005.

While the developed European countries and Canada tends to have Gini indices between 24 and 36, the Gini index of the United States and Mexico are over 40, indicating that in the USA and Mexico inequality is high. In 2005, the Gini index for EU was estimated at 31, and in Romania grows from 1998 until 2005 at 28, 31, indicating a slight increase of tax inequity. The introduction of 16% tax, have produced, without doubt, an even more increase of the index. (32 in 2008-103 place in the world).

## 2.2 The Suits Index

The Suits<sup>419</sup> index is a measure of the Suits collective progressiveness, bearing the name of the economist Daniel b. Suits. It is often used in the analysis of fiscal policy in order to measure the degree of progressiveness, or changes under the arrangements for alternative tax. Similar to the Gini coefficient, Suits index is calculated by comparing the area below the Lorenz curve to the area under a proportional line. For a progressive tax, the index is positive, a [proportional tax](#) has a Suits index of zero, and a [regressive tax](#) has a negative Suits index.

However, almost all of the income tax systems allow for some amount of income to be earned without tax (an [exemption](#) amount) to avoid collecting tax from very low income units. Also, most of the income tax systems provide for higher marginal tax rates at higher incomes. These effects are combined to make income taxes generally progressive, and therefore have a positive Suits index. A tax that the richest people pay the whole tax has a Suits index of 1, and a tax where the poorest person pays everything, has a Suits index of -1.

<sup>419</sup> John E. Anderson, Atrayee Ghosh Roy, Paul A. Shoemaker "Confidence Intervals for the Suits Index" National Tax Journal. 2003-03

The Suits index has the useful property that the total Suits index of a group of taxes or policies is the revenue-weighted sum of the individual indexes. The Suits index is also related closely to the Gini coefficient. While a Gini coefficient of zero means that all persons receive the same income or benefit as a per capita value, a Suits index of zero means that each person pays the same tax as a percentage of income.

### **2.3 The Hoover Index**

Hoover index is the easiest to calculate from all measures of inequality, namely: the proportion of all income which would have to be redistributed to achieve a state of perfect equality (taken from the richer half of the population and offered to the poorest half). Hoover index varies between 0 and 1 (0% and 100%), where 0 (zero) indicates perfect equality and 1 (100%) indicates maximum inequality.

In a world of perfect equality, no part of resources need to be redistributed to achieve equal distribution, to have an Hoover index equal to 0 (zero). In a world in which all income was received only by one family, almost 100% of this revenue should be redistributed to achieve equality.

### **2.4 The Theil Index**

Theil index is a measure of entropy. That for any distribution of resources and with reference to information theory, "maximum entropy" occurs once income earners can not be distinguished by their resources, ie when there is perfect equality. The individuals can be distinguished by their income resources. The more distinguished they are, the lower „actual entropy” of a system consisting of current income and income earners. Also, based on information theory, entropy difference between these two may be called "surplus". It acts as a negative entropy.

A Theil index of 0 indicates perfect equality. A Theil index of 1 indicates that the distributional entropy of the system under investigation is almost similar to a system with an 82:18 distribution. This is slightly more unequal than the inequality in a system to which the "80:20 [Pareto principle](#)" applies.

There are three variants of the Theil index. When applied to distributions of income, Theil index first refers to systems in which revenues are distributed stochastically to income earners, while the second Theil index refers to systems within which the earners are stochastically distributed to incomes. Third Theil index is the arithmetic mean of the two mentioned above. Interestingly, the third formula of the Theil index has some similarities with Hoover index.

### **Conclusions:**

There are two forms of tax equity: vertical and horizontal equity<sup>420</sup>. Vertical equity – „The degree to which taxpayers with higher ability to pay in fact pay more in taxes”. In this case progressivity is the solution agreed in developed countries. Horizontal equity – „The degree to which taxpayers in identical circumstances pay the same taxes”, the revenue neutrality with respect to the income origin being more appreciated than fiscal discriminations.

Based on the indicators presented were designed several models for calculating the equity income taxation, analysis and measurement horizontal and vertical equity, the degree of progression of income taxation system, which will be topics of future research, with the base given the situation in Romania.

### **References:**

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<sup>420</sup> Musgrave and Musgrave, 1989, p.223

6. Berliant, Marcus and Strauss, Robert P., "Distributional analysis of prospective 2009 US individual income taxes: current law and the candidates' tax plans", 2008
7. Berliant, Marcus and Strauss, Robert P. "The Horizontal and Vertical Equity Characteristics of the Federal Individual Income Tax" p. 179 – 214, in David and Smeeding (editors), Horizontal Equity, Uncertainty, and Economic Well-being: Proceedings of the 1983 NBER Conference on Income and Wealth, (Chicago: University of Chicago Press). 1985
8. Ivica Urban, "Income redistribution in Croatia: The role of individual taxes and social transfers", 2008
9. John E. Anderson, Atrayee Ghosh Roy, Paul A. Shoemaker "Confidence Intervals for the Suits Index" National Tax Journal. 2003-03
10. Henry, George, The Common Sense of Taxation, The North American Review, iulie, 1881, Volumul 130
11. Marinescu, Cosmin, "[Mitul criteriului eficienței în știința economică](#)", Revista *Analiză și Prospectivă Economică*, Ed. ASE, nr. 1-2/2005
12. Musgrave, R. A. and P. B. Musgrave (1989), Public Finance in Theory and Practice, McGraw-Hill, fifth edition.
13. Pascalis Raimondos-Møller, Alan D. Woodland "Measuring Tax Efficiency: A Tax Optimality Index", 2004
14. <http://epp.eurostat.ec.europa.eu>