

THE ANALYSIS OF EQUITY-EFFICIENCY TRADE-OFF IN THE EUROPEAN UNION ECONOMY

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Abstract. *The European Union's economic evolution for the last sixty years is specific to the long term stages of the economic cycle, of Kondratieff type. The economic expansion period has been characterized by a higher efficiency level (growth in productivity, in the labour occupation degree) which favoured the reducing of the inequalities related to incomes through the redistribution process. The economic recession stage showed that, under the terms of an increased unemployment, of a low aggregate demand and of a less flexible aggregate supply, the economic efficiency level is relatively lower. On these conditions, the providing of social equity (of the cohesion) will affect negatively the efficiency degree, fact which will extend the period of economic recession within The European Union.*

Key words: *economic growth; labour productivity; economic recession; total factor productivity*

The specific of the European model is to provide economic and social cohesion, meaning equity, by reducing the inequities in incomes both within the member countries and between the economies which are parts of The European Union. The social equity process represents the result of nationally incomes redistribution and of the conferring of structural funds within the communion. The providing of equity supposes, most of the times, a higher fiscal pressure on the employees and on the companies, and this will affect negatively the rate of economic growth. The result is a *trade-off* between equity and efficiency, which can be diminished only if the increasing of efficiency precedes the increasing of public expenses for equity.

Why is there a trade-off between efficiency and equity?

An increased rate of the economic growth suggests a higher degree of economic efficiency, because it supposes both the increase of the labour productivity and the degree of occupation for the population (such as in the case of the decomposition below):

$$GDP = \frac{GDP}{L} \cdot L \Rightarrow \% \Delta GDP = \% \Delta W_L + \% \Delta L$$

The labour productivity growth ($\% \Delta W_L$) represents the result of the investments made by the companies, including those in new technologies, of improvement in the education level of the labour and of the continuous training programs. The most part of the occupation degree for the population represents the effect of the investments and of active policies on the labour market which favour a higher flexibility of the employees.

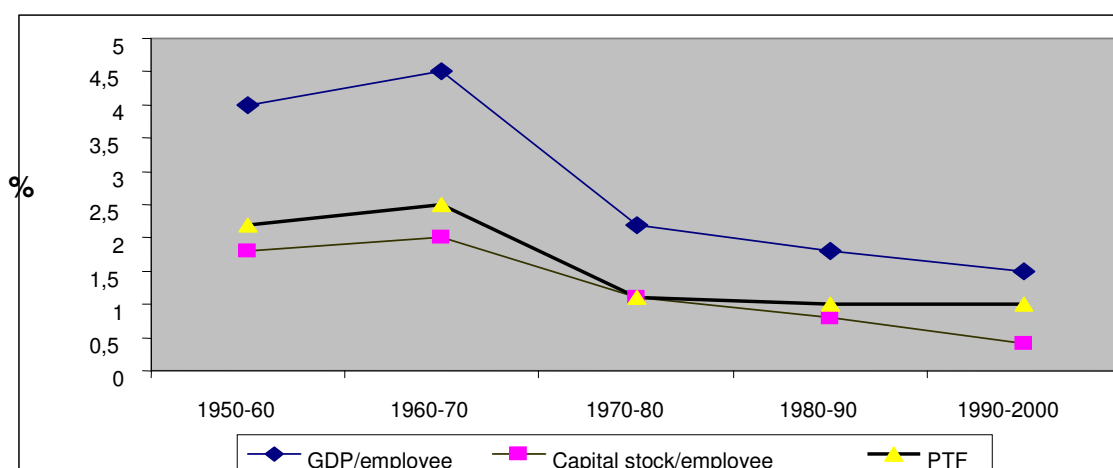
The providing of social equity influences negatively the economic efficiency through the following mechanisms:

- a) the increase of the current social transfers determines the increase in the budget deficit and in the public debt, this affecting the living standard of the future generations;
- b) the loans necessary to finance the budget deficit exerts a *crowding-out* effect on the private investments;
- c) the increase of fiscality for the counterbalance of the supplementary public expenses involves the decrease of consumption, of the private economies and of the investments;
- d) the increase of fiscality reduces the incentives in economy and discourages the business development.

The relationship between efficiency and equity has to be expressed according to the stages of the economic cycle that a certain country passes through. Thus, during the expansion periods, higher rates of economic growth are recorded and this leads to improvement of efficiency at the macroeconomic level. As a result of the automatic stabilizers' action, the budgetary incomes will increase, and this fact can support the social equity, without involving an increase in fiscality. In exchange, during the recession periods the budgetary incomes decrease because there is a decrease both in the labour productivity and in the degree of occupation of the labour. The maintaining of the same budgetary social expenses or even their increase will lead to the increase of the budget deficit and to the decrease of the economic efficiency to a greater extent. The result is that *the providing of the social equity has to be justified by the improvement of the macroeconomic efficiency.*

The equity-efficiency trade-off in European Union

The post-war economic evolution of the European Union is characterized by two distinct stages, which correspond to the long term stages of the economic cycle of Kondratieff type. Thus, until the '70s, there was a recording of an increase in the labour productivity (assessed as GDP per employee), an increase in the capital-labour endowment, as well as in the use of new technologies (of which impact is surprised by the evolution of the total factor productivity – PTF), and after 1973, their decrease (figure 1).



Source of data : The European Commission (2005)

Figure 1. The European Union's economic evolution

The rate of increase of labour productivity is the result of the summarizing the percentage modifications of the total factor productivity and the capital stock per employee, as it results from the decomposition of the production function of the Cobb-Douglas type:

$$GDP = PTF \cdot K^\alpha \cdot L^{1-\alpha} \Rightarrow \frac{GDP}{L} = PTF \cdot \left(\frac{K}{L}\right)^\alpha \Rightarrow \% \Delta W_L = \% \Delta PTF + \alpha \cdot \% \Delta \frac{K}{L}$$

Until 1973, Europe knew a period in which there was provided the sustainability of the *magic triangle*, made up of **economic growth, macroeconomic stability and the state of welfare**, thus diminishing the pressure of the compromise between equity and economic efficiency, through:

- the increase of the GDP per inhabitant with 3.8% as a result of the increase of the investment rate and of the degree of occupation of labour;
- the decrease of costs for the state of welfare, under the terms of the increase in the labour participation rate and of a low unemployment (of about 2%). The public expenses weight in the GDP was almost 36% in 1970, out of which the transfers represented 12% of the GDP and the public investments and the subsidies 14% of the GDP;
- the decrease of the rate of rise in prices to a 4% level.

The European Union's catching-up process within these almost three decades (1946-1973) was mainly stimulated by the appearance of new industries within the EU countries, by the diminishing of the occupied population weight in agriculture and their migration towards the industrial sector and towards the commerce, as well as by the settling of unions-employers agreements concerning the salary rise.

After the oil shocks there was a combination, with negative effects on the stability of the European social model, between a high rate of unemployment and the lowering of the rhythm of increasing the labour productivity. The increase of unemployment occurred among the employees less adjusting to changes – those with less qualifications -, under the terms of increasing the business relationships of the European companies with the lower salaries economies. As a consequence, the decrease in the occupation degree, which initially appeared to be a cyclic one, proved to be a structural one, without the rapid productivity growth which could increase the Aggregate Demand. *The magic triangle* broke in the recession stage of the Kondratieff cycle (figure 2), and this could affect the essence of the European model – providing social cohesion. Under these terms, the economies answered through policies of stimulating the Aggregate Demand, through an increase in the social transfers, supported, to some extent, by the increase of fiscality. The implementation of the Maastricht program for introducing the Euro currency has disciplined the EU countries from a macroeconomic point of view, but the decreases in the rates of unemployment and in the public expenses, as well as the GDP increase were only temporary. The incentives (productive, but also for searching a job) have decreased, and this fact accentuated the equity-efficiency compromise pressure.

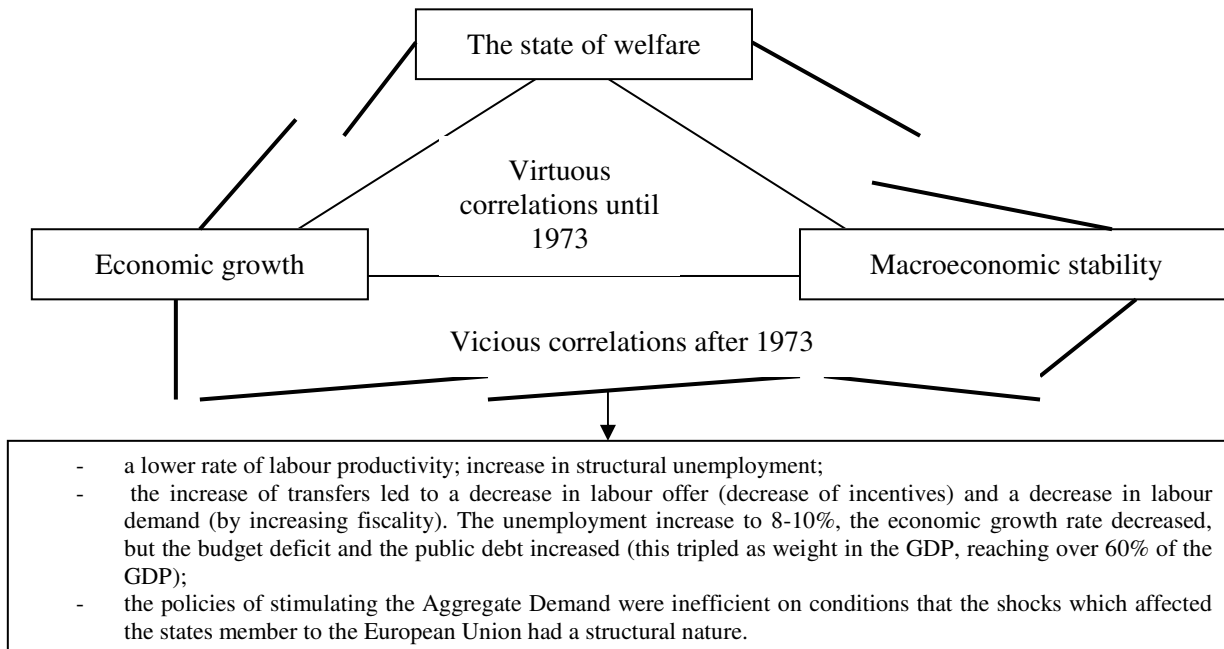


Figure 2. Components of the *magic triangle* of EU

Within the period after the oil shocks, the European Union was characterized by the decrease of the macroeconomic efficiency and by adopting a few measures able to support the social equity process. Their result was only the extent of the economic recession stage (figure 3).

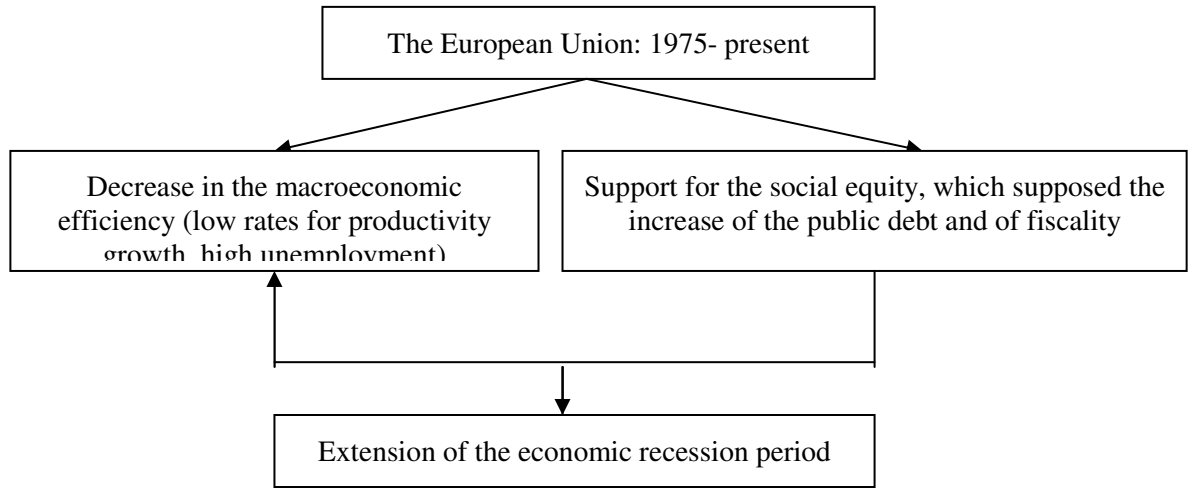


Figure 3. Emphasis of the equity-efficiency trade-off during the economic recession periods

The rate of increase in the labour productivity decreased in the European Union during the last twenty years, from 2.2% between 1987 and 1995 to 1.4% between 1995 and 2007; the percentage modification of the productivity was even lower between 2000 and 2007; the percentage modification of the productivity in The European Union may affect negatively both the economic growth process on a long term and the social equity. This statement can be checked by performing a decomposition of the GDP in EU case, based on the values recorded by the labour productivity and by the PTF during the period 2000-2007.

$$GDP = PTF \cdot K^{\alpha} \cdot L^{1-\alpha}$$

$$\frac{GDP}{L} = PTF \cdot \left(\frac{K}{L}\right)^{\alpha} = PTF \cdot \left(\frac{K}{PIB}\right)^{\alpha} \cdot \left(\frac{GDP}{L}\right)^{\alpha} \Rightarrow \left(\frac{GDP}{L}\right)^{1-\alpha} = PTF \cdot \left(\frac{K}{GDP}\right)^{\alpha} \Rightarrow \frac{GDP}{L} = PTF^{\frac{1}{1-\alpha}} \cdot \left(\frac{K}{GDP}\right)^{\frac{\alpha}{1-\alpha}}$$

Because the ratio $\frac{\alpha}{1-\alpha}$ is subunitary (under the terms of approximating α at the value of 1/3),

then there are records of the decreasing marginal efficiency of the investments' rate (which corresponds to the hypothesis of the Solow model). In stationary state, the ratio K/GDP is constant because the rates of increasing for the capital stock per employee and of labour productivity (depending on the capital) are zero.

$$\frac{K}{GDP} = \frac{\frac{K}{L}}{\frac{GDP}{L}} \Rightarrow \% \Delta \frac{K}{GDP} = \% \Delta \frac{K}{L} - \% \Delta \frac{GDP}{L} = 0.$$

It results that, in stationary state, which corresponds to the long term equilibrium of economy, the rate of increase in productivity is influenced by the evolution of the total factor productivity ($PTF^{1-\alpha}$ from the above equation). Its increase is obtained through logarithmation, as it follows:

$\ln PTF^{\frac{1}{1-\alpha}} = \frac{1}{1-\alpha} \cdot \% \Delta PTF$. On the conditions that the average increase of the PTF during the period 2000-2007 was 0.4% and α has the value of 1/3, then the annual rate of increase on a long term of the labour productivity is equal to:

$$\% \Delta \frac{GDP}{L} = \frac{1}{1-\alpha} \cdot \% \Delta PTF = \frac{0,004}{0,66} = 0,006 = 0,6\% .$$

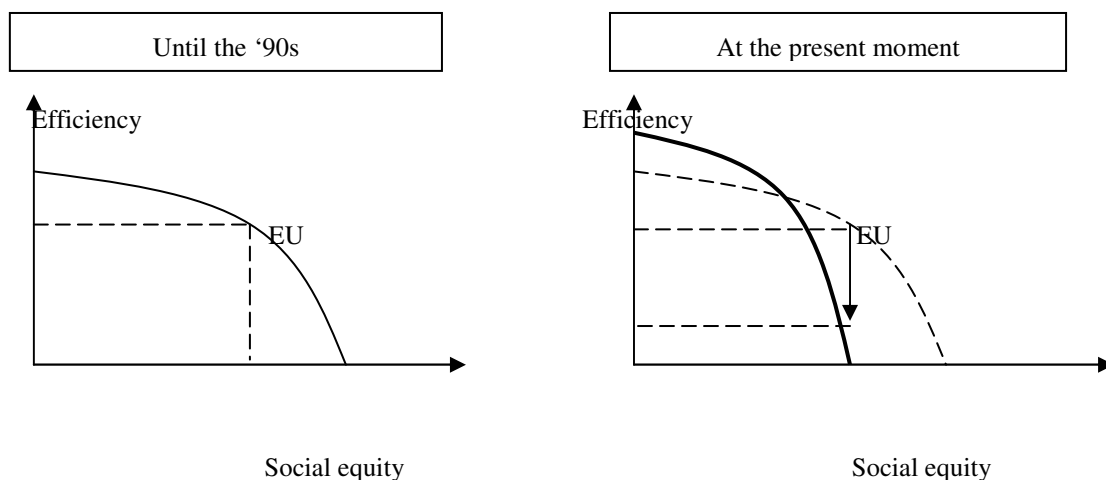
Between 2000 and 2007, the average increase of the occupied population within EU was 1.1%, so that the maintaining of the same evolution on a long term will generate an economic growth of only 1.7%:

$$GDP = \frac{GDP}{L} \cdot L \Rightarrow \% \Delta GDP = \% \Delta W_L + \% \Delta L = 0,6\% + 1,1\% = 1,7\% .$$

Solutions for Diminishing the Trade-off between Efficiency and Equity. The Adopting of the Lisbon Strategy

The inverse relationship between efficiency and equity can be described by a concave curve, according to which the opportunity cost for providing a more increased level of social equity is reflected by the bigger and bigger losses in the macroeconomic efficiency.

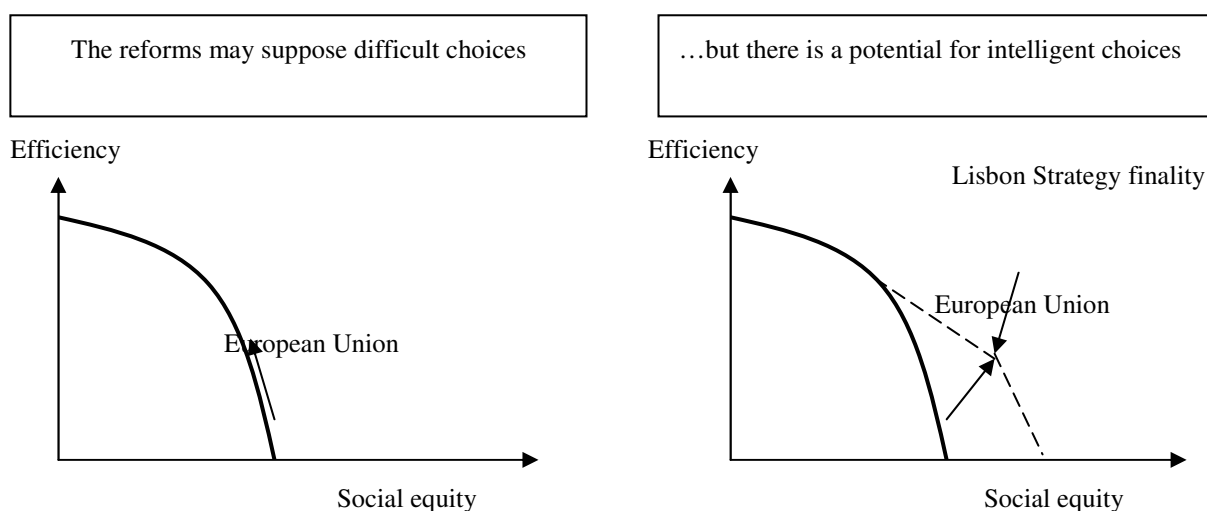
In The European Union, under the terms of regulation of the markets and of the catching-up process after the World War II there was a more flattened form of the curve of the compromise between efficiency and social equity. At the present moment, the increase of the global competition on the factors and products markets as well as the trend to de-regulate them suppose a more abrupt form of the curve, this being explained through the necessity to increase the external competition (figures 4.1 and 4.2).



Figures 4.1.; 4.2. Trade-off equity-efficiency curves

The maintaining of the same level for the social equity affects negatively the current rate of economic growth in the EU economy, and this determines a decreased external competition. A solution for its improvement is decreasing the social protection through the reforms in the social assistance systems, of which implementation is nevertheless pretty slow. As the EU officials have asserted, the economic transformation of the model aims both the improvement of the economic growth and the social cohesion

through *intelligent reforms*, which would determine the compromise curve's movement towards the right (figures 5.1.; 5.2.).



Figures 5.1.; 5.2. Lisbon reforms finality

In fact, the Lisbon Strategy, through the mentioned objectives, can provide *intelligent solutions* to the problems that the European model has to face. Its finality is predicted by the Northern states' performances, among the most competitive in the world, although there are super-developed welfare/providential states (if we take into consideration the public budget as a weight in the GDP, the amounts allotted for social assistance etc.).

The Northern economies' evolution is characterized by different mechanisms able to diminish the trade-off between equity and efficiency:

- the increased productivity and the social cohesion may be in a direct correlation;
- the policies active on the labour market determine the diminishing of the time for searching between jobs and the decrease of the rate of unemployment, on a long term;
- the labour market flexibility and the social security are not contradictory objectives;
- the continuous training, the developing of the employees' competences represent conditions for increased adjustment to changes of the labour;
- women's integration into the labour market constitutes a central element of the prosperity raise;
- the increase of the rate of participation on the labour market constitutes an efficient modality to diminish the pressure generated by the demographic evolutions;
- the increase of the amounts allotted to research-development, as well as the innovations constitute sources for the competitive advantage, which determine the increase in the macroeconomic efficiency.

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