

## **Exports in the European Union sub-models. Determinants and performances**

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**Abstract.** *The aim of this paper is to identify the potential patterns within European Union sub-models, knowing the social and economic performances that characterizes them. Also, based on an econometric model with panel data, covering the period of 2000 to 2013, we want to highlight the relation between sub-models' exports competitiveness and their sensitivity to the fluctuations of several factors considered relevant in this study, such as: the share of tertiary education graduates, the unit labour cost and the investments.*

**Keywords:** sub-models, exports, social benefits, competitiveness, unemployment trap.

**JEL Classification:** C5, D63, F15, R23.

## Introduction

In the last 50 years, the literature about the socio-economic patterns from the European Union highlights several sub-models having economic, social and institutional features relatively similar, as well as performances or effects which tends to be relatively homogenized.

This paper examines the socio-economic performances of the European Union' sub-models, their specific characteristics in the European economic landscape and how the sub-models features affect the external competitiveness of the countries that are part of them.

Thus, this paper was divided into three distinct sections presented in the following paragraphs. In the first part of the article we performed an analysis of the main characteristics that tend to homogenize European sub-models as it emerged as a result of the theoretical background. We also followed the key factors that influence the performance of socio-economic sub-models, being focused specifically on the most important researches in this field, starting with Richard Titmuss (1974) and continuing with Gøsta Esping-Andersen (1990) and Aiginger and Leoni (2009).

In the second part of our approach we presented the performances recorded by the European sub-models in terms of labor market, ability to generate social equity and external competitiveness of the countries that compose them. In this regard, we utilized indicators such as the employment rate and the unemployment rate, the unemployment trap, the magnitude of inequalities regarding the income, the trade union level, the social protection expenditure per capita, the level of protection for employees and the gap level of protection regarding employees with normal employment contracts (permanent contracts) and with atypical employment contracts (usually on temporary period) etc.

Finally, the third part of the paper is a quantitative section. Based on an econometric model using panel data, we analyze factors that may explain sub-models export competitiveness and their sensitivity to several explanatory variables fluctuations included in the model. For this, we used as independent variables indicators such as: the share of population with tertiary education, the value of foreign investments, R&D expenditure etc. Data series have covered the annual frequency and time horizon from 2000 to 2013.

### 1. Main characteristics that homogenize the EU sub-models

As a result of literature review regarding the European Social Model we may say that it is difficult to talk about a single European Social Model, in terms of homogeneity, unicity in the European Union, but there are some related trends that can be identified at a regional level. However, over the past decades there have been researchers such as: Esping-Andersen (1990), Aiginger and Leoni (2009), Leibfried (1992), Ferrera (1996) and others, that made several efforts in shaping a few various regional typologies in today's well-known (sub)models.

This analysis is more interesting as we focus on the European Union's slowness development in the recent years, especially since the enlargement process has brought its inevitable intra-European heterogeneity. In addition, internal and external risks such as

international competitiveness, aging population and the increase of migratory phenomenon are elements that put additional pressure on the ability of European countries to quickly adapt.

In this context, as Aiginger and Leoni (2009) suggested, the theoretical and practical attempts to group European states in socio-economic (sub)models more or less homogenous is a first way of homogenization and "exhaustion" of complex differences between countries, at least at the level of some aggregated indicators.

The differences between states are often highlighted by the challenges that the European welfare state have to face. The European welfare state's modern bases started in the early 1940's - under the significant influence of Beveridge's ideas (1942) and developed especially in the postwar period, when social protection assumed and taken by national governments (level of redistribution, intervention and financing schemes, regulations) expanded significantly (Ştefan, 2015).

Richard Titmuss began his research with the study of welfare state expansion and founded three types of social models, emphasizing that "the purpose of constructing models is not to admire the architecture of each of them, but to discover some order into the factors disorder" (Titmuss, 1974). In this way, the British researcher formulated few socio-economic models through three key pillars of individual welfare, namely: (i) market; (ii) family and (iii) State (social institutions), thus identifying three contrasting typologies:

- *The Residual Model*, based on the premise that there are two natural channels through which the individual's needs are appropriately aligned, namely: market and family, while social institutions will intervene only when this link will diminish.
- *The Industrial Model* argued that social needs stands on work performance and productivity. This is the result of many theories that support the strong connection between incentives, reward, effort and loyalty.
- *The Institutional/Redistributive Model* incorporate social welfare as an important institution in society, being sketched on fundamentals that support social equality. Social equality is achieved through government intervention and redistribution, which is considered necessary, given the multiple effects of the market and thus of social change.

According to Titmuss (1974), all three models listed above involved a careful approach of ethic work and family institution in modern society. Subsequently, complex work of Esping-Andersen, *The Three Worlds of Welfare Capitalism* (1990) highlighted the various agreements between the same factors approached by Titmuss, namely: state, market and family, identifying in turn three types of welfare states:

- *The liberal model* represented by countries such as: Canada, USA and Australia.
- *The corporatist model*, in which they were embedded countries features such as: Germany, France and Italy.
- *The social-democratic model* considered to be the least widespread, being representative at that moment only for Norway and Sweden.

In this regard, Esping-Andersen revealed that the liberal model is one in which universal transfers were modest, the progress of social reform being marked by the phrase according to which the welfare limits is represented by the desire of choosing social benefits beyond

work. The state encouraged the market passively by guaranteeing minimum benefits and actively by subsidizing private welfare schemes.

On the other hand, the corporatist model seemed to be one in which the obsession of market efficiency is not visible. Moreover, the corporatist regime stood the Church's influence, which is why preserving the traditional family was one of its commitments. The state made itself remarkable once the family wouldn't have the possibility to help their members.

Finally, the social-democratic model promoted a welfare state outlining equality to the highest standards. In this way, the working class benefited from the same social rights as the "white collars". Thus, "All benefit, all are dependent and all will presumably feel obliged to pay" (Esping-Andersen, 1990, p. 36).

Therefore, on the writings made by two authors mentioned above and those summarized in Table 1, in Europe can be distinguished three social-economic models: (i) the Anglo-Saxon model (liberal), (ii) the Scandinavian model (social-democrat) and (iii) the Continental model (corporatist) – shaped by Esping-Andersen (1990) and based on the pioneering work conducted by R. Titmuss (see also the work of J.G. Andersen, 2012), to which were added the Mediterranean model (southern) and the catching-up model constructed with Central and Eastern Europe countries (new member states).

**Table 1.** *Authors who have shaped the EU socio-economic models*

1974	R. Titmuss	The Residual Model The Industrial Model The Institutional Model
1990	G. Esping-Andersen	The Liberal Model The Corporatist Model The Social – Democratic
1992 1996	S. Leibfried M. Ferrera	The Southern Model
1999	B. Ebbinghaus	The Northern Model The Central Model The Southern Model The Anglo-Saxon Model
2004	Kohl-Platzer	The New Member States Model
2009	K. Aiginger T. Leoni	The Scandinavian Model The Continental Model The Liberal Model The Mediterranean Model The New Member States Model

**Source:** Based on Titmuss (1974), Esping-Andersen (1990), Leibfried (1992), M. Ferrera (1996), B. Ebbinghaus (1999), Kohl-Platzer (2004) K. Aiginger, T. Leoni (2009).

Starting the scientific approach with the works mentioned above it becomes necessary to achieve a recent perspective from a comparative presentation of the theoretical models, given the risks that the EU's economy is currently experiencing (higher unemployment rates, fiscal consolidation and high public debts, the increase of people at risk of poverty, the decrease of fertility rates, the aging of population etc.).

These being said, the Scandinavian sub-model, considered to be an example for other member states (sub-models) is a pattern that managed to combine both equity and efficiency (Sapir, 2005; Socol et al., 2009), stands on the foundation of a not so easy

evolution. The countries from this sub-model (see Table 2) have passed through critical and important reforms at the end of the twentieth century, implementing some measures to make a more flexible labor market, reforms in social protection and fiscal adjustments, but they showed strong generosity of social security systems. Dealing with the spread of globalization, the situation of competitiveness in the countries was often questioned, but it seems that they proved to manage in a suitable way their advantages and disadvantages (see Ludo Van der Heyden's presentation at the conference *Beyond the European Social Model: Refresh or Reform*, 2006).

According to the study conducted by Aiginger and Leoni (2009), among the factors that favored the outstanding performances of the northern sub-model are included the high rates of employment and, in particular, the support of women's participation on labor market. Also, many public institutions which aimed the inclusion had supported the innovation, the quality of education, hence the allocation of significant public expenditure for research and development, education and IT&C. Thereby for better adaptation to new global requirements – note the two authors – the good cooperation between key institutional actors in society had an important role: the government, experts/specialists in economics, employers and trade unions.

On the other hand, *the liberal sub-model* highlights the individuals' responsibility towards themselves, social transfers are considerably lower than in other sub-models, and there is also a low labor market regulation. The state has a minimal role, while markets designed the redistribution of wealth.

At the crossroads made by the characteristics of the two sub-models mentioned above is *the continental sub-model*, which focuses on employment as the basis of transfers. In these countries (Table 2) benefits are moderate, tightly related with the revenues. Here, as in the northern sub-model we can see wage bargaining systems, trade unions, revealing finally a regulated labor market.

The Mediterranean sub-model shows a relatively low level of social transfers to support individuals, but that is balanced by the family support. In the countries belonging to this model (Spain, Italy, Portugal, Cyprus, Malta and Greece) can be notice the low rates of female participation in labor market, with them having as priority most of the housework, rather than being employed.

Both southern and continental sub-model are characterized by high expenditures for the elderly (pensions and health care), which indicates their poor participation in the workforce and a predisposition for early retirement. Another difference refers to the weak involvement of the State (social transfers) for families with children and also for young people.

The New Member States are highlighted primarily by different historical trajectory that followed after the Second World War. The fact is that after the fall of the Iron Curtain and the collapse of the communist system, replacing one social system with one that revolves around the market was not easy, Central and Eastern European countries facing deep crisis in that period. So, the catching-up process began only in the mid of 1990s.

Trying to assign them to one of the four sub-models, noticed in the developed countries of the European Union, it was concluded that none of them can be applied to the Central and Eastern European countries (Kohl-Platzer, 2004). The mix of policies and institutions for which they had applied after the 1989's events offer unique features to the New Member States sub-model.

Ultimately, it is characterized by heterogeneous social models that incorporate specific elements of the socialist system under which they previously served. In the context of the trinom market - state - family, the catching-up sub-model shows a behavior devoted to the market in terms of social perspective. Also, the state involvement in the common medium, public medium (parks, infrastructure, the educational system etc.) and family participation in supporting the individual are quite visible. Regarding the labour market, we can notice a low participation both from women and elderly population; also, long-life trainings programs are not part of the national priorities.

**Table 2.** *Characteristics of the EU social-economic sub-models*

Sub-models	Countries from the sub-models	Characteristics
<b>The Scandinavian Sub-model (Northern)</b>	Sweden Finland, Denmark	<ul style="list-style-type: none"> <li>▪ High degree of redistribution</li> <li>▪ Flexicurity on the labor market</li> <li>▪ High cooperation between social partners, trade unions and Government</li> <li>▪ Pronounced fiscal requirements (progressive type)</li> <li>▪ Includes some of the most competitive European economies</li> <li>▪ High awareness for the importance of environment</li> </ul>
<b>The Anglo-Saxon Sub-model (Liberal)</b>	UK, Ireland	<ul style="list-style-type: none"> <li>▪ Presents a more liberal approach, very closed to the US one</li> <li>▪ Social assistance is limited</li> <li>▪ The labor market is not regulated, job search lies to the individual</li> <li>▪ Relatively low fiscal requirements</li> <li>▪ High income inequality</li> </ul>
<b>The Continental Sub-model (Corporatist)</b>	France, Germany, Luxemburg, Belgium, Austria, The Netherlands	<ul style="list-style-type: none"> <li>▪ Large level of redistribution, but less pronounced than in the northern sub-model</li> <li>▪ Occupation is the basis of social transfers.</li> <li>▪ The labor market is regulated.</li> <li>▪ Relatively high fiscal requirements, which contribute to inhibiting the private sector in terms of job creation</li> <li>▪ Large social benefits for the unemployed, causing inactivity traps and high unemployment</li> </ul>
<b>The Mediterranean Sub-model (Southern)</b>	Spain, Portugal, Italy, Greece, Malta, Cyprus	<ul style="list-style-type: none"> <li>▪ Large social expenses with the elderly population, particularly with pensions and health care</li> <li>▪ The labor market is segmented, dual and regulated</li> <li>▪ An abundance of family businesses and family enterprises</li> <li>▪ The individual gets a high support from the family</li> <li>▪ Reduced flexibility of the labor force, which contributes to high rates of long-term unemployment</li> </ul>
<b>The New Member States Sub-model</b>	Poland, Czech Republic, Slovakia, Bulgaria, Croatia, Estonia, Latvia, Lithuania, Romania, Hungary, Slovenia	<ul style="list-style-type: none"> <li>▪ Mix of policies and institutions</li> <li>▪ Significant differences between the national systems of the countries that are part of the sub-model</li> <li>▪ The labor market is regulated</li> <li>▪ Low level of social security</li> <li>▪ Differentiated fiscal requirements</li> </ul>

**Source:** Based on Esping-Andersen (1990), Aiginger and Leoni (2009).

## 2. Social-economic performances and competitiveness in the European sub-models. Empirical evidences

In the tables below (Table 3 and Table 4) we grouped the EU countries in those five sub-models (clusters) that are promoted in the literature and we highlighted the value of various economic, social and institutional indicators, comparing the levels from 2008 to those from 2014 or the most recent year for which data were available. Each sub-model average was calculated using the weighted average formula, indicators being multiplied by the share of each country in total population of the sub-model in which was included until the 1<sup>st</sup> of January 2015:

$$\text{Submodel's average } j = \sum \frac{\text{Country population } i}{\text{Total submodel population } j} * \text{Indicator } X i,$$

where:

i – the member country of the sub-model;

j – European sub-model;

X – the indicator.

As it can be seen, the largest sub-model in terms of population is the continental sub-model, followed by the Mediterranean one, the NMS sub-model, the Anglo-Saxon sub-model and the northern sub-model. From the perspective of indicators covering the labor market, like: the employment rate for the active population (15-64 years) and the unemployment rate (15-64 years). We can observe that the best performance was reflected both in the pre-crisis and post-crisis period in the northern and the Anglo-Saxon sub-models, the existing institutional arrangements and the business development favoring relatively high employment rates above 70%. In a similar way, in 2014, continental sub-model recorded similar levels as in the pre-crisis period, in terms of employment rate.

On the other hand, the southern sub-model is the one that faced the highest increase in unemployment in 2014, of around 9.6 percentage points, from 8.5% in 2008 to 18.1% at the end of 2014, an increase which reflects both the negative output gap existing - partially supported by the tight credit and the fiscal consolidation measures implemented by national governments - and also the institutional problems that generate a pronounced character of stiffness for labor markets in this sub-model's economies.

Among the new member states from Central and Eastern Europe there has been a recovery in terms of employment rate, but unemployment is present at a high level, still 2.4 percentage points above that recorded in 2008.

**Table 3.** Social-economic indicators from the European sub-models

	% EU Pop.	Employment rate (15-64)		Unemployment rate (15-64)		Gini index after transfers	
		2008	2014	2008	2014	2008	2014
Northern sub-model	4.1%	74.4	72.7	5.5	7.8	24.9	26.0
Anglo-Saxon sub-model	13.7%	71.2	71.2	5.7	6.4	33.6	30.2
Continental sub-model	36.4%	68.4	69.4	6.9	7.4	29.5	29.3
Southern sub-model	25.5%	61.2	55.3	8.5	18.1	31.6	33.4
NSM sub-model	20.3%	60.8	62.3	6.6	9.0	31.0	30.9

Source: Eurostat, October 2015.

In Table 4, presented below, we examined three indicators tracking the institutions governing labor relations. The first two indicators, the protection of individual employees with an employment contract for an indefinite period (normal EPL) and the indicator on the protection of individual employees with contracts for a fixed/temporary period (temporary EPL) were provided by the database of the Organisation for Cooperation and Development (OECD), and union density rate was provided by the database of the International Labour Organisation (ILO). As in the case of the indicators calculated on Table 3, figures represent weighted averages of indicators.

Generally, there is a decrease of all three indicators analyzed between 2008 and 2013, less in terms of union density rate from the Mediterranean sub-model, which increased by one percentage point. In this case employees opted for this solution (trade unions) so that their rights could be better represented and they could obtain an additional protection. However, expanding temporarily horizons until the early 2000's it can be observed that there was a deregulation in the area of labor relations, in some states indicators had significantly decreased, especially in terms of union density rate.

This trend was guided and promoted by the Lisbon Strategy - which debuted in 2000 - under the so-called concept of "flexicurity", so governments had implemented national legislation labor codes to support labor market flexibility and the companies' ability to adjust the number of employees or the hours worked by the employees to the economy's demand.

According to the ILO data, there were very large percentage decreases especially in the countries of Central and Eastern Europe (CEE). Between 2000 and 2013 the biggest reductions in union density rate in CEE were held in Slovakia (58.8%), Estonia (58.4%), followed by Lithuania (52.2%), Hungary (52, 1%), Czech Republic (51.9%), Slovenia (49%) and Latvia (48%). In Bulgaria, the decrease rate was 30% between 2000 and 2012 and for Romania the data covering 2002-2012 show a decrease of 44.9%.

**Table 4.** *Institutional Indicators of the EU sub-models*

	% EU population	Normal EPL		Temporary EPL		Union density rate	
		2008	2013	2008	2013	2008	2013
Northern sub-model	4.1%	2.4	2.4	1.3	1.5	68.1	67.8
Anglo-Saxon sub-model	13.7%	1.3	1.1	0.4	0.6	27.4	25.7
Continental sub-model	36.4%	2.6	2.5	2.4	2.5	17.6	16.9
Southern sub-model	25.5%	2.7	2.4	2.9	2.8	25.5	26.5
NSM sub-model	20.3%	1.5	1.4	1.4	1.5	20.2	14.7

**Source:** Eurostat, OECD, International Labour Organization, October 2015.

On the other hand, in terms of legislation regarding the protection of workers, the member states for which data was available had tried to support increased flexibility on the labor market by reducing the degree of protection for employees, but also by reducing asymmetry between the protection offered to employees on determined contracts and those with temporary contracts.

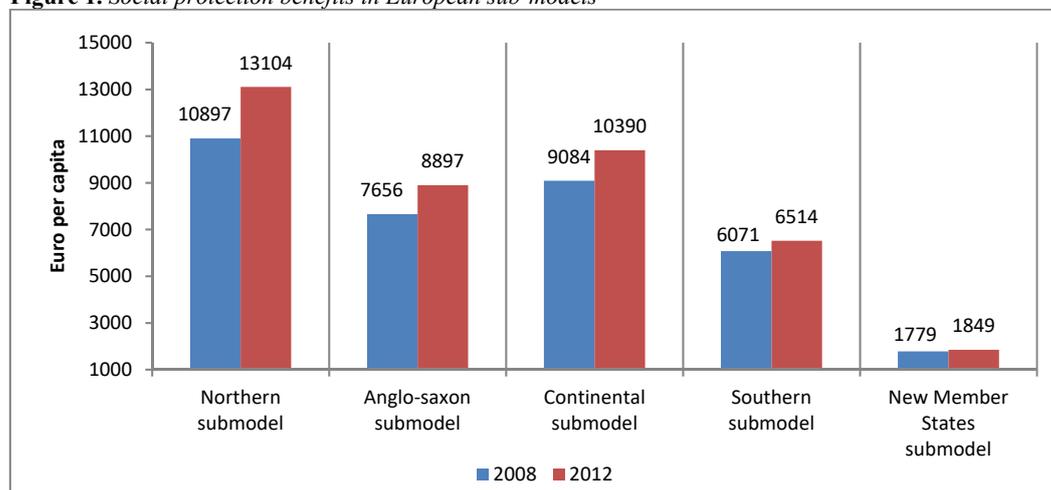
The effects of this problem regarding asymmetry were observed in the post-crisis period in states from the southern sub-model, where the duality of labor markets and high unemployment among young people have raised important problems to the governments.

Therefore, structural reform programmes targeted the labor market, especially in Portugal, Greece and Spain, where the protection index of the employees with indefinite period contracts has decreased considerably.

One of the most important features of the social and economic European models aims welfare systems by which governments intervene to improve the condition of individuals. Thus, in terms of generosity of social protection systems, measured through social protection expenditure per capita allocated, the northern sub-model is the one that has the highest rates, as shown in Figure 1.

In the northern sub-model, social protection expenditure per capita made by governments were in 2012 over EUR 13,100, followed by the continental sub-model, with EUR 10,390 per capita, and by the Anglo-Saxon sub-model, with almost EUR 8,900 per capita.

**Figure 1.** Social protection benefits in European sub-models



Source: Eurostat.

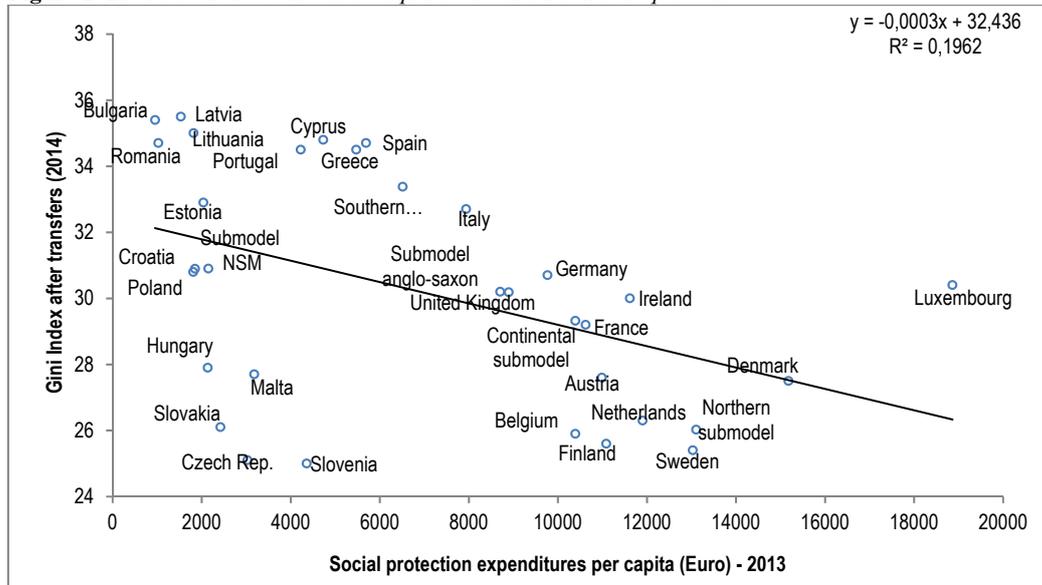
The results, in terms of poverty rate and inequality of income are significantly better in the northern sub-model compared to other European sub-models, because of the relatively high social spending (as social benefits allocated per capita and as share of GDP) and as a result to the large number of employees who are covered by trade unions.

Thus, income inequalities after transfers tend to be smaller in northern and continental sub-models, while in countries from sub-models that redistributes less, such as the southern and the New Member States sub-models, inequalities in income are significantly higher (see Figure 2 below). Additionally, we should take into account that the northern and continental sub-models have progressive systems of income taxation on individuals (personal income tax).

On the other hand, the rate of poverty reduction is heterogeneous. As shown by Ştefan (2015) poverty rate is reduced by less than 25% in countries such as Latvia, Poland, Italy, Bulgaria, Greece and Romania; while poverty rates are reduced by 50% in the Netherlands, Finland, Denmark and Ireland, these countries being known for having some of the largest social protection expenditure per capita. As a whole, there is negative correlation between

allocations store achieved through social protection systems and the degree of reduction poverty (poverty threshold is set at a level of 60% of median income).

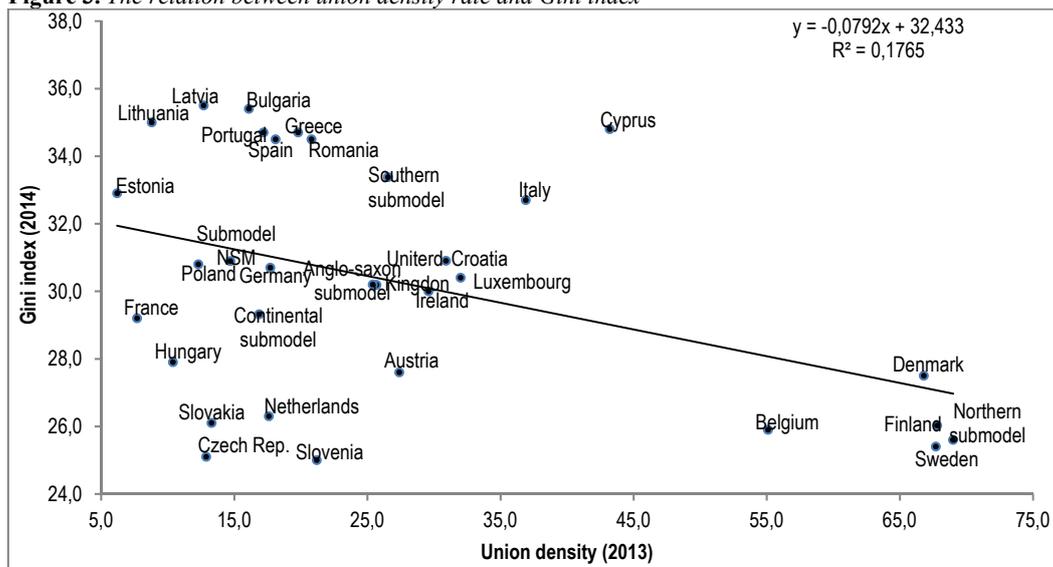
**Figure 2.** *The relation between social expenditure and income inequalities*



Source: Eurostat.

As it is shown in Figure 3, there is a negative relation between rate of union density and Gini index, EU Member States showing a heterogeneous picture, with countries such as Slovenia, Czech Republic and the Netherlands, which, had although recorded a high rate of union density, they failed to provide a better distribution of income among individuals.

**Figure 3.** *The relation between union density rate and Gini index*



Source: Eurostat, International Labour Organization (October 2015).

There are also countries such as Finland, Sweden and Belgium, where there is a high percentage of employees enrolled in trade unions (over 55% of all employees) and a lower Gini index. In addition, it can be seen that some countries in the Mediterranean sub-model (Greece, Portugal, Spain) and in the NSM sub-model (Lithuania, Latvia, Bulgaria, Romania) recorded the highest levels of Gini index and at the same time some of the lowest rates of union density.

Another angle of approach outlined in the literature that analyzes the socio-economic models relates to so-called "traps" that taxation and allocation systems of social benefits may create among individuals. There are three kind of traps: the inactivity trap, the unemployment trap and low wage trap (or poverty trap) (see for more details Carone et al., 2004).

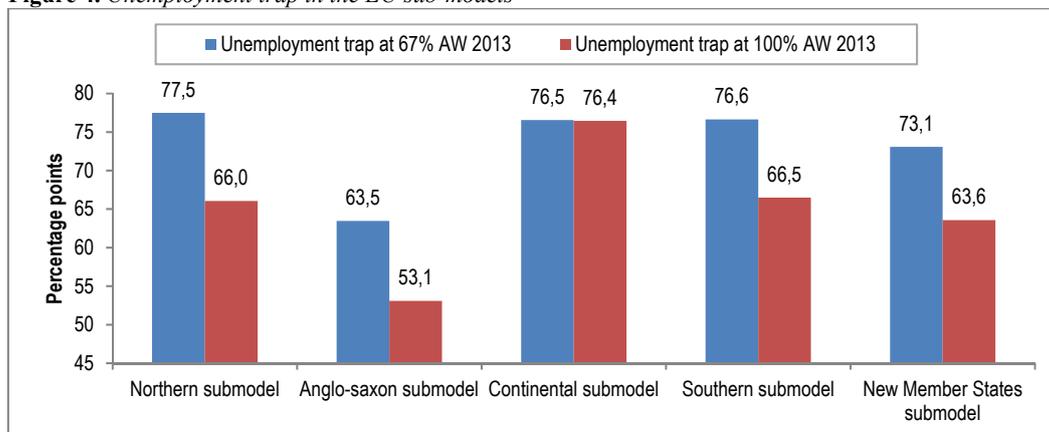
In this case, we can discuss about two perspectives regarding the impact of tax systems and social intervention schemes. There is, on one hand, the view on which the allocation of generous social benefits and, respectively, traps high (unemployment / inactivity / poverty) annihilates individual initiative (beneficiary persons) to occupy a job or to add effort (increase in working hours) in obtaining a higher salary.

On the other hand, one can consider that when accidentally or based on effects of cyclical issues (deficient on aggregate demand), individuals remain without a job, but if they receive support through social protection systems they can take more risks knowing that there is a "social safety net" to support them whether risks materialize or not.

Figure 4 reveals calculations which were based on the methodology developed by the OECD and the European Commission, using the values from 2013 for the unemployment traps in the five sub-models defined in the previous section (Northern, Anglo-Saxon, Continental, Mediterranean and New Member States). There were taken as reference two categories of individuals:

- An individual unmarried and unemployed, who previously won 67% of the average country level and who could be employed on a similar salary
- An individual unmarried and unemployed, who previously won 100% of the average country level and who could be employed on a similar salary

**Figure 4.** Unemployment trap in the EU sub-models



**Source:** The European Commission, Tax and benefits database (October 2015).

The figure shows that, in the first category of individuals the unemployment trap is higher by approximately 10 pp in four of the five sub-models, excepting the continental sub-model, where interventions through social protection and taxation systems are mainly proportional to the salary received by the individual analyzed, while in the other sub-models there is a tendency towards increasing the aid share as the salary is lower.

In the same time, according to Figure 4, the highest values of the unemployment trap were in 2013 in the northern sub-model (77.5%) - making an individual who is unemployed and then become employed at a salary of 67% of the average wage to obtain additional marginal gain of only 22.5 pp regarding the whole sub-model as an example (even only 10.1 pp in Denmark, which has an unemployment trap for this category of individuals of 89.9%).

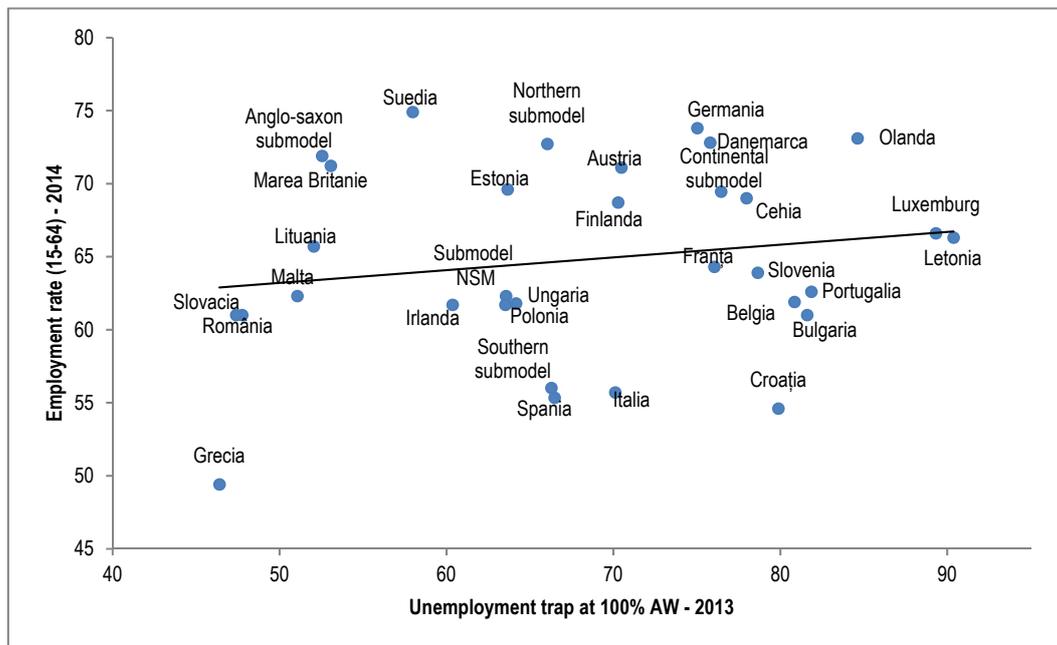
This sub-model is followed by the continental and the Mediterranean ones. We can add that in 2013 the New Member States and the Anglo-Saxon sub-models recorded the lowest values of unemployment trap, especially with regard to unemployed individuals who then became employed with a salary equal to the average salary at country level.

The level of unemployment trap presented above can bring arguments regarding the adoption of a national preference on the impact of social benefits visions: one that annihilates personal initiative or another one that promotes risk taking and individual's proactivity.

However, as it is shown in Figure 5, empirical evidence provides a diffuse picture among the member states and the socio-economic European sub-models from the perspective of the relation between unemployment trap (single individual, unmarried, unemployed and who can be employed with a salary equivalent to 100% of the average) and employment rate, even if it is often important to see a more detailed analysis of the quality of employment:

- There are countries that have relatively low unemployment traps and good performance in terms of employment rate (UK and Sweden);
- There are countries that have higher traps and good employment performance, which thrive by the implemented policies to stimulate individuals to take risks and to boost them for the purposes of employment (Netherlands, Denmark, Germany etc.);
- There are countries with small traps and poor performance (Greece, Romania Slovakia, Spain etc.)
- There are countries with large traps and poor performance of the labor market (Portugal, Croatia, Italy, Bulgaria, Belgium etc.)

In general, in countries with poor performance regarding the labor market, in terms of employment and unemployment persist both cyclical issues created by the deficit of aggregate demand - caused because of fiscal consolidation measures, difficult access to credit or other financing instruments for companies etc. and by the structural issues/institutional labor market (performance of the educational systems, the structure of employment in terms of training, labor relations legislation etc.).

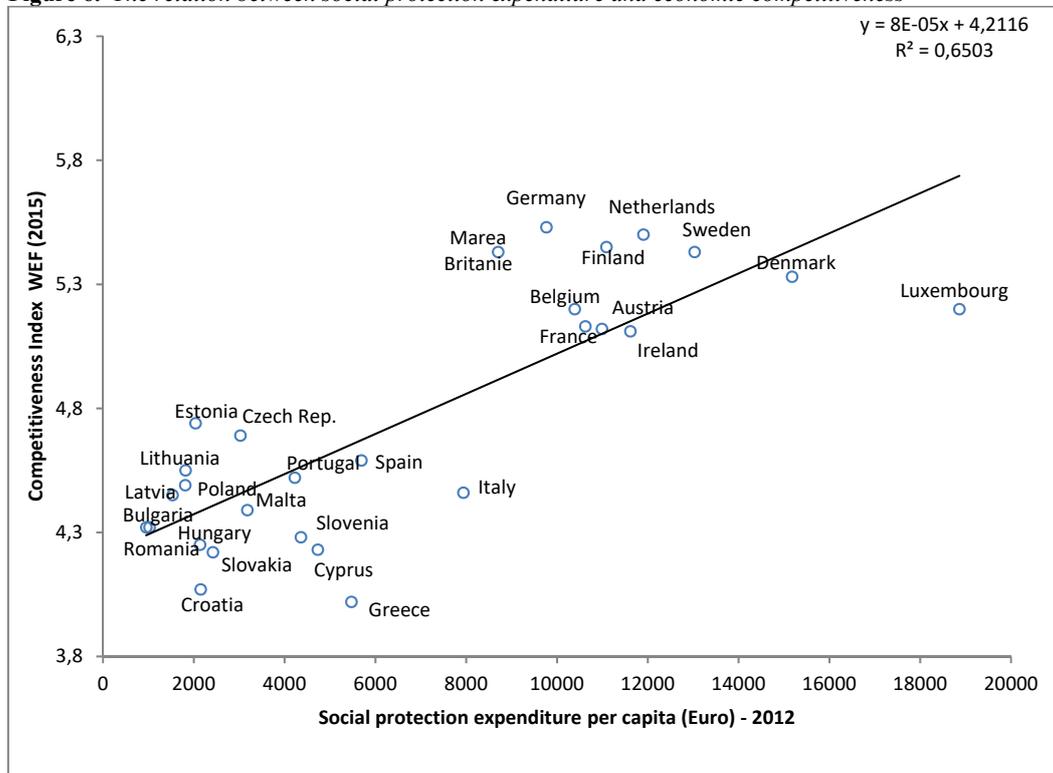
**Figure 5.** *The relation between unemployment trap and employment rate in the EU*

Source: Eurostat and The European Commission, Tax and benefits database (October 2015).

### 3. Econometric analysis – The influence of EU competitiveness on the sub-models' exports performances

In this section, we intend to evaluate from an empirically point of view the exports performances of the European sub-models' countries based on several economic, social and institutional variables considered relevant in connecting them with the competitiveness of the countries selected.

Figure 6 reveals that there is a direct correlation between the social protection allocations and the competitiveness of a national economy, as it is measured by the World Economic Forum, showing that 'embracing' risk may be driven despite a system of generous social protection. More precisely it shows that the fiscal pressure borne by economic agents (individuals or companies) is not necessarily an obstacle for competitiveness, exiting also structural and institutional components so that, even there is a loss of competitiveness in costs - aimed to a high rate of taxation, this may be offset by factors which supports non-cost competitiveness. In this case we can enumerate the various policies implemented on the labor market (active labor market policies, assistant policies in searching for a job, flexibility and deregulation on labor market), the quality of business environment and the incentives measures for entrepreneurship, the ease of opening a company, the limitation of the fiscal taxes numbers and the encouragement in lifelong learning, the high percentage of people with university or the facilitation of the transition from education to labor market etc.

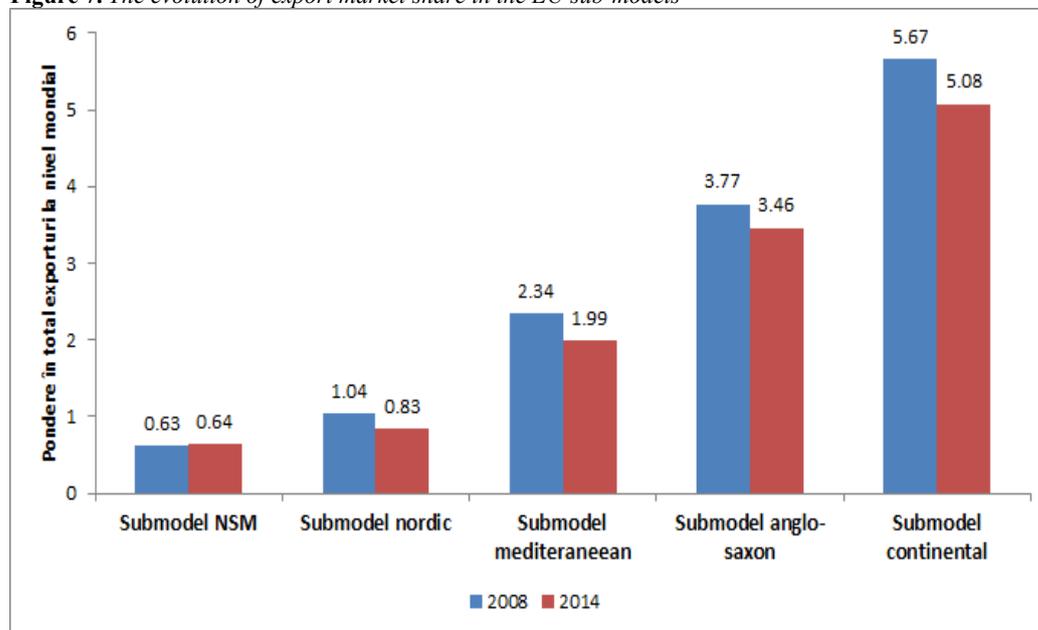
**Figure 6.** *The relation between social protection expenditure and economic competitiveness*

Source: World Economic Forum, Eurostat, October 2015.

The evolution of exports market share from the European Union's member states was unfavorable in the period analyzed (2008-2014) in four of the five European sub-models followed, excepting the New Member States sub-model (Figure 7). However, they still hold significant shares in total exports – globally.

Although they were descending compared to 2008, in the continental sub-model, at the end of 2014 stood out countries such as: Germany (7.54%), France (3.67%) and the Netherlands (3.11%). The three countries, along with Great Britain from the Anglo-Saxon sub-model - which represents around 3.6% of total exports worldwide had the highest shares on exports from the EU28.

Returning to the NMS sub-model, the increasing of exports share in its countries is based on many details. On one hand, many of these countries (Romania and Poland) had the exchange rate tool, which could be use in terms of allowing a depreciation of national currencies for competitiveness gains. Another explanation aims the improvement of the exports structure that countries have achieved, increasing exports on products with higher added value and winning a majority position in high-tech and medium high-tech goods exports. Finally, we can notice that in terms of destinations and exported goods there was a change in diversifying the exports to other regions outside the EU, because of the recession in the Eurozone and the economic expansion of the emerging countries.

**Figure 7.** *The evolution of export market share in the EU sub-models*

Source: Eurostat, October 2015.

In the following paragraphs, we made a quantitative analysis based on a panel econometric model with fixed effects so that we can find out how different variables manage to explain the export performance of the European sub-model's states. Thus, as explanatory variables we used the share of population with tertiary education in total population, the value of exports rate, the expenses made by each Member State for research and development and the foreign investments. The explanatory variable was the level of exports. Data are yearly basis and cover the period 2000-2013.

The econometric model contains the following variables:

$$\text{EXPSHARE}_i = c + \beta_1 * \text{EXPORTS}_i (-1) + \beta_2 * \text{ISD}_i + \beta_3 * \text{POPTERTIARY}_i + \beta_4 * \text{RESEARCH}_i + \gamma$$

where:

c = constant;

$\beta_1, \beta_2, \beta_3, \beta_4$ , = explanatory variable coefficients;

ISD = foreign direct investment;

EXPORTS = value of exports denominated in euro;

POPTERTIARY = share of population with tertiary education;

RESEARCH = worth of spending on research and development;

$\gamma$  = residual error.

The results of the processing data, made in Eviews 5, are shown in the table below:

Dependent Variable: D(EXPSHARE?)				
Method: Pooled Least Squares				
Date: 11/16/15 Time: 18:34				
Sample (adjusted): 2002 2013				
Included observations: 12 after adjustments				
Cross-sections included: 28				
Total pool (unbalanced) observations: 285				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.013682	0.006786	-2.016085	0.0448
D(ISD?)	7.31E-07	8.59E-08	8.508548	0.0000
D(EXPORTS?(-1))	1.04E-06	2.14E-07	4.865230	0.0000
D(POPTERTIARY?(-1))	-0.000216	4.11E-05	-5.260773	0.0000
D(RESEARCH?)	-2.49E-05	7.35E-06	-3.381786	0.0008
Fixed Effects (Cross)				
BELGIUM--C	-0.039160			
BULGARIA--C	0.015179			
CZECHREP--C	0.037150			
DENMARK--C	-0.003188			
GERMANY--C	-0.018031			
ESTONIA--C	0.017212			
IRELAND--C	-0.020879			
GREECE--C	0.013528			
SPAIN--C	0.022027			
FRANCE--C	-0.053705			
CROATIA--C	0.010195			
ITALY--C	-0.056785			
CYPRUS--C	0.006479			
LATVIA--C	0.018405			
LITHUANIA--C	0.023687			
LUXEMBOURG--C	0.014269			
HUNGARY--C	0.021131			
MALTA--C	0.002039			
NETHERLANDS--C	-0.063436			
AUSTRIA--C	-0.010986			
POLAND--C	0.087001			
PORTUGAL--C	0.017738			
ROMANIA--C	0.037645			
SLOVENIA--C	0.016700			
SLOVAKIA--C	0.020958			
FINLAND--C	-0.002581			
SWEDEN--C	-0.013228			
UK--C	-0.087522			
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.484008	Mean dependent var	-0.024351	
Adjusted R-squared	0.420783	S.D. dependent var	0.100197	
S.E. of regression	0.076256	Akaike info criterion	-2.203973	
Sum squared resid	1.471200	Schwarz criterion	-1.793869	
Log likelihood	346.0661	F-statistic	7.655403	
Durbin-Watson stat	1.936033	Prob(F-statistic)	0.000000	

**Source:** Own computations in Eviews 5 program.

As shown by the results obtained from the econometric analysis we can say that in 2000-2013 period (2002-2013 after adjustments) foreign investments and exports reputation (the latter was surprised by exports in period  $t-1$ ) have a positive influence over the exports share on global market.

At the same time, according to our results, expenditure on research and development and the number of persons with tertiary education had a negative impact on exports. The value of these coefficients is not very big, even if they are statistically representative for EU member states. Even if the sign is important, the endogenous variable sensitivity to fluctuations of explanatory variables is very low according to coefficients obtained in the analysis of panel data and further research is needed.

## Conclusions

This paper was a trial to identify the potential patterns within European Union sub-models, according to their social and economic performances. Indicators such as: the unemployment, the Gini index, the social benefits, the union density rate etc. and the relation between them reflected the sub-model's performances both in pre-crisis and post-crisis period.

These being said, our main findings can be summarized as follows.

Firstly, in the northern and the Anglo-Saxon sub-models, the institutional arrangements and the business development favoured relatively high employment rates, above 70%. On the other hand, the southern sub-model is the one that faced the highest increase in unemployment during the covering period (2008 to 2014) and the employees opted for trade union, so that their rights could be better represented and they could obtain an additional protection.

In terms of poverty rate and inequality of income, it seems like there are significantly better results in the northern sub-model compared to other European sub-models, due to the relatively high social spending and also as a result to the large number of employees who are covered by trade unions. Thus, income inequalities after transfers tend to be smaller in northern and continental sub-models, while in countries from sub-models that redistributes less, such as the southern and the New Member States sub-models, inequalities in income are significantly higher. It is also important to mention the fact that the sub-models such as the northern and the continental have progressive systems of income taxation on individuals.

Secondly, regarding the sub-models performances in terms of exports competitiveness, the evolution of exports market share from the European Union's member states was unfavourable in the period analysed (2008-2014) in four of the five European sub-models, excepting the New Member States one. In the catching-up sub-model some countries' exchange rate tools and the improvement of the exports structure contributed to the mentioned increase. However, the European Union sub-models still hold globally a significant shares in total exports.

Last, but not least, the econometric model with panel data, covering the period of 2000 to 2013, was used to highlight the relation between exports competitiveness and their sensitivity to the fluctuations of several factors considered relevant in this study. The model suggests that foreign investments and exports reputation have a positive influence over the EU's countries exports share on global market, while, the expenditure on research and development and the number of persons with tertiary education had a negative impact on exports.

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