

SOCIAL EXPENDITURE IN THE EUROPEAN UNION: DOES INCOME INEQUALITY MATTER?

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ABSTRACT

Do countries with serious inequality problems make a greater effort? Is equity a key element in social spending budget design? We have attempted to answer these, and other, questions throughout this article. The objective of this work is to analyse the economic and institutional factors influencing to a greater or lesser degree of social spending in the 27 countries that make up the EU. To this end we have used a data panel for a period of eleven years and added further variables to those generally used such as income distribution, the poverty rate, governing party ideology, the index of economic freedom and belonging to the euro zone. The results obtained prove that the estimated model is robust and that economic development, economic freedom and the establishment of the euro have all led to greater social spending. However, greater income distribution inequality has not led to an increase in items of social expenditure.

KEY WORDS: Income distribution, institutionalism, social expenditure, tax pressure and population.

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1. INTRODUCTION

Empirical evidence shows that countries which make a greater effort in social spending manage to reduce income inequality. This leads us to ask a number of questions such as: Do countries with more serious problems with inequality and poverty spend more on social policies? Is inequality a cause for social policy or its consequence? Is income distribution and equality influenced by institutional quality? This work is intended to contribute, along these lines, to the study of the determining factors influencing greater or lesser welfare spending. This is why, together with the purely economic factors, typical to this type of analysis, institutional, geopolitical and demographic parameters, which may determine the explanation of welfare spending, have been included.

A panel data model for the 27 EU countries covering a period of 11 years (from 1996 to 2006 inclusive) was used for this purpose. We believe that the use of such a heterogeneous sample, including countries with different levels of economic development and different historical integration processes is, in our opinion, a relevant aspect in the analysis of income distribution, due to the scarcity of empirical studies using institutional variables in this area. Using the model we produced, we analyzed the determining factors of social expenditure, differentiating between the economic and the institutional, this was in order to carry out not only a purely economic analysis, as is usually the case, but also an institutional one which is the main objective of this study. For this purpose, we have included a number of additional variables to the ones frequently used such as; inequality in income distribution, ideology of the governing party, economic freedom index, membership of the Euro area or demographic structure. The results obtained show that the estimated model is robust, that the adjustment quality is high, that it improves when the institutional, geopolitical and demographic variables are added to the purely economic model, and that the countries with greater inequality problems in income distribution do not try to solve them through higher expenditure. On the other hand, women require lower welfare spending, contrary to the elderly and children who require higher social expenditure. Finally, greater economic freedom and less corruption also lead to a greater welfare expenditure.

The study is structured as follows: Following this introduction, section 2 reviews the different explanatory theories for the Welfare State and the determining factors for welfare spending, distinguishing and evaluating economic and institutional factors. In section 3, a panel data model for the 27 countries of the European Union is applied to determine the influence of the different variables on welfare spending. Finally, the conclusions are presented in section 4.

2. THEORETICAL FRAMEWORK

There is ample consensus regarding the fact that it was at the end of the 19th century, in the midst of the worsening social problems inherent to economic modernization, when the Welfare State began to emerge in the most advanced countries. Bismarck's Germany is traditionally recognized to have pioneered the development of social policy, being the first to establish accident insurance, health insurance and pensions. More recent empirical studies, however, have revealed that the approval of a legal framework for social welfare did not always lead to effective progress in the welfare of the population. Indeed, Lindert (2004) indicated that the Bismarckian system was mainly financed by employers and workers contributions and not through State funding.

Economic literature on determinants of social policy is very extensive. In an attempt to summarize, contemporary studies into the modern Welfare State started in the post Second World War decades, a period which marked the golden age of capitalism and an increase in public welfare spending. The first empirical research concluded that the Welfare State was the fruit of both economic and demographic factors (Wilensky, 1975). On one hand, the advance of industrialization generated new demands for public expenditure due to the weakening of the social support networks based on kinship and tradition, typical of agrarian societies. Within this context, the State took on new functions in order to offer greater protection to an increasingly salary-dependant population whose welfare was necessary to ensure the availability of manpower and to maintain consensus within the complex urban society (Kerr et al., 1960). On the other hand, the processes of economic growth were accompanied by demographic changes derived from a greater life expectancy and ageing of the population.¹ From this

perspective, countries with similar levels of development would converge towards equally similar levels of welfare (Rimlinger, 1971). Other authors, such as Katzenstein (1985) and Gourevitch (1986), believe that the main determinant of welfare spending was the size of the population or the country. From this point of view, the smallest European States seemed historically more inclined to offer social protection, due to their political stability and to the greater openness and vulnerability of their economies. In general terms, the three variables used in most empirical studies attempting to explain welfare spending are; GDP, the unemployment rate, and the percentage of elderly people of the total population. Thus, Hicks and Swank (1992), Hicks and Misra (1993), Huber, Ragin and Stephens (1993), Huber and Stephens (2001), and Swank (2002), among others, find a positive correlation between these three variables and social expenditure.

An intense debate has also arisen, in current economic thinking, regarding the impact that globalization processes have on welfare spending policies. Huberman and Lewchuck (2003) find a positive correlation between welfare policies and the degree of commercial openness during the first stage of globalization (1850-1913). According to these authors, some governments, in response to the increasing pressure exerted by workers, combined labour measures and social insurance with the objective of defending workers from the risks faced both inside and outside factories. According to their analysis, in countries with greater external openness, more direct forms of protection were established, such as social insurance, while in economies with a lesser degree of openness other more indirect forms of protection such as labour legislation were predominant. The positive effect of international openness on redistributive policies was also established by various authors towards the end of the twentieth century. Indeed, Rodrik (1998) and Agell (1999 and 2002) state that, during this period, exposure to international trade lead to greater salary and employment instability, which forced governments to expand their protection policies. However, while D. Rodrik underlines the relation between demand for social protection and exposure to international trade, J. Agell stresses the role of labour market institutions in reducing the salary scales and offering workers a higher level of social coverage. In particular, according to Argell (2002), in the absence of perfect capital markets, workers are willing to negotiate lower salaries than expected, in exchange for a salary structure which offers security in the face of uncertainty. Both analysis perspectives can lead to

the idea that there is a certain level of complementarity between market operations and of governments. Other authors, such as Iversen and Cusak (2000), find positive and significant effects of service economy on social expenditure. The magnitude of the population has also been used to explain the size of the public sector, although only Gemmell et al. (2008) have found a positive and significant correlation with social expenditure. Other economic factors such as the public sector deficit or debt have also been used as determining factors of welfare spending (Swank, 2002).

Authors like Skocpol (1992) and Steinmo (1993), however, reduce the effect of the size of a country's economy and emphasize other types of variables such as its administrative organization and internal institutional structure. From their point of view, political decentralization and autonomy in favour of regional governments reduce the bureaucratic and financial capacity of the central State for the undertaking of social measures. The opposite would occur in States with centralized political institutions. In fact, economic and demographic factors by themselves cannot explain the existence of different welfare structures in these economies. This limitation has led to a search for other determinants of welfare spending. Authors such as Korpi (1989), Palme (1990) or Kangas (1991) empirically concluded that the main differences in welfare models of capitalist democracies are in the two types of political pressure available to the working classes to obtain a higher share of social benefits: the election processes and union strength.² On one hand, the transformation of census suffrage, typical of the late 19th century elitist democracies, into universal elections enabled a percentage of the low-income population, who were in favour of social change, to influence political decisions. On the other hand, the organization of workers into unions has increased their ability to exert pressure in the demand for their social rights, particularly by means of strikes. The degree of efficiency of these factors to promote welfare policies, however, depended on the mobilization of the working classes in each country around unions and political parties, as argued by Shalev (1983), Esping-Andersen and van Kersbergen (1992), Huber et al. (1993), and Hicks (1999).

Other factors such as a country's predominant religion have been considered to explain the different welfare models developed by countries before the Second World War. During this period, Lindert (2004) mentions that Protestant countries such as Great Britain and those in Scandinavia became the main advocates of social transfer, while

Catholic countries, with the exception of Ireland, remained far behind. In this sense, it seems that Catholic countries preferred the limited Church aid rather than State aid, although the effects of the former were minimal. The negative influence of Catholicism evaporated in the post WWII years when governments of pro-Catholic parties increased welfare spending in several European countries, an attitude surely conditioned by the political competition of the socialist parties.

In our study we attempt to go into greater depth in the analysis of the factors determining social expenditure. We have, therefore, added further variables to the traditional analysis, as is the case of poverty and income distribution. So far, studies have usually focused on analyzing how social policies affect equity in income distribution (Afonzo, Scknecht and Tanzi, 2008). However, income distribution itself as a cause of public social spending, which is one of the objectives of this paper, has not as yet been analyzed. So, with these two variables we intend to analyze whether welfare spending policies were set up with the objective of reducing both problems or whether equity is simply a consequence of social policy. Along these lines, as argued by Atkinson (2008), the aversion to inequality justifies the redistributive intervention of welfare spending. Tax pressure has also been included to evaluate its, usually, direct correlation with social spending. Moreover, we use demographic variables such as the percentage of elderly people in the population, and that of children and women, too. In both cases, inclusion of these variables enables us to analyze whether they cause an increase in social spending or a saving for the public sector.

Finally, the paper includes institutional variables, which attempt to measure the effect of institutional quality on public social spending. The most widespread current in new institutionalism or new institutional economics is the so-called Law and Economics, which analyses transaction costs and ownership rights. The best known names are Ronald Coase, Armen Alchian, Harold Demsetz, Richard Posner and Oliver Williamson. Another important current is known as Constitutional Political Economy, by James Buchanan from the Public Choice School. Fogel and North's *The New Economic History* also considers history as a process of the evolution of institutions. The theory of human capital by Schultz should also be taken into account, or Gary Becker's economic analysis of institutions and of family and marriage functions. In the case of this paper, we have taken the set of institutional variables which are the most

commonly used by the economic researchers and for which the largest database is available. We have, therefore, followed the classification established by Aixalá and Fabro (2007) who distinguish seven groups of institutional factors³:

1. **Civil Liberties**, which include a whole set of liberties such as freedom of press, freedom of speech, religious freedom, freedom of assembly and impartial legal procedures.
2. **Political Rights**, which measure the freedom of citizens to participate in a fair political process, sufficient competence in the political sphere and the holding of free and impartial elections.
3. **Economic Freedom**, which includes the security of legally acquired property rights and the freedom to undertake voluntary transactions both inside and outside a nation's borders (Gwartney and Lawson, 2003).
4. **Corruption**, which refers to the use of public office for personal benefit, including, therefore, bribes, extortion and other criminal offences such as fraud and embezzlement (Mauro, 1995).
5. **Social Capital**, which includes institutions, relations and standards which comprise the quality and quantity of social interactions within a society, such as general confidence indicators and civic norms (Putnam, 1993).
6. **Political Instability**, which includes, on the one hand, indexes which combine variables related to phenomena of social discontent, such as revolts, murders and coups and, on the other hand, measures for the degree of renewal of the executive, interpreted as an indicator of its instability or failure (Alesina and Perotti, 1994).
7. **Institutional Infrastructure**, which is a series of indicators that collect assessments of several aspects related to the above points, such as the security of property rights, predictability of government policies, reliability of the legal system, efficiency of the legislative system, efficiency of bureaucracy,

corruption, the Rule of Law, risk of expropriation and several categories of political instability.

This type of institutional analysis is new to empirical studies into the determining factors of welfare spending. Until now, these studies have focused on the role of the administrative organization of countries (Skocpol, 1992; and Steinmo, 1993), the distribution of power among different pressure groups and social classes (Ostheim and Schmidt, 2003), and the social cohesion of each country with regard to the preferences of the average voter (Easterly and Levine, 1997; and Alesina et al., 2001). With our analysis we intend to evaluate the relation between a set of institutional indexes which measure the degree of democracy, economic freedom, political stability and corruption, and social spending.

3. THE MODEL

The model used is a linear model intended to explain welfare spending by means of economic, institutional and demographic and geopolitical variables, as mentioned above.

The period of time considered was limited to the availability of data, fundamentally institutional variables. Even so, we have managed to generate a panel data model for a period of 11 years, from 1996 to 2006. In this sense, the use of panel data to study economic and institutional determinants in social spending is a novelty as most empirical studies use cross-section data because of the relatively recent creation of institutional indexes and a series of over 10 years was unavailable for some of these indicators. In this way, we have been able to analyze 297 observations for each of the variables, as we have used a sample of 27 countries for a period of 11 years. We have decided not to use data for the period 2007 to 2011 in order to avoid the possible distortion of the data due to the economic crisis.

3.1. Data

The variables used are summarized in the following table:

(TABLE 1)

3.2. The model

We have estimated a linear model using two estimators, Feasible Generalized Least Squares (FGLS) and Panel Corrected Standard Errors (PCSE). The Wooldridge test has determined that the model has an autocorrelation problem. The modified Wald test, likewise, has proved that the model is also heteroscedastic. In order to solve it, the two best estimators are the above⁴.

We have used a data panel to jointly evaluate all the economic, institutional, geographical and demographic variables used. Using panel data instead of cross-section analysis, traditionally the most widely-used method among researchers using institutional variables due to the problems of availability of the above mentioned data, enables us to; check individual heterogeneity, produce data with a higher degree of variability and a lower level of collinearity among the regressors, study dynamic adjustment processes, identify and measure effects which are not detectable with pure cross-section or time series data, and build and contrast models of more complex behaviour than would be possible using simpler data.

We have undertaken 24 different estimates depending on:

- The estimate of two different models, the strictly economic model and the extended model.
- The three dependent variables used.
- The two indicators used to measure equity in income distribution.
- Both estimators used.

Firstly, we have estimated a purely economic model using the following specification:

$$SE_{it} = \alpha + \beta_1 Y_{it} + \beta_2 DI_{it} + \beta_3 POVERTY_{it} + \beta_4 TAXPRESS_{it} + \beta_5 PD_{it} + \eta_i + \delta_t + \mu_{it} \quad (1)$$

in which,

SE measures government expenditure in social policy measured with three variables, social benefits expenditure, expenditure on education, and social spending, the latter being the sum of the former two; *Y* is the per capita income measured with the GDP; *DI* is the distribution of income measured through two variables, either the Gini coefficient or the ratio between income obtained by the richest 20% and the poorest 20% of the population; *POVERTY* is the index measuring the rate of people whose available income, before receiving any social grants, is below the poverty threshold risk rate; *TAXPRESS* is tax pressure; *PD* measures the public deficit with regard to GDP; η_i collects the unobserved individual effects specific for each country but constant in time, and δ_t measures the unobserved time effects which vary in time but are identical among countries.

We later extended the model to include institutional, geopolitical and demographic variables and, thus, established the following model:

$$\begin{aligned}
 Se_{it} = & \alpha + \beta_1 Y_{it} + \beta_2 DI_{it} + \beta_3 POVERTY_{it} + \beta_4 TAXPRESS_{it} + \beta_5 PD_{it} + \gamma_1 ICL_{it} + \gamma_2 IPR_{it} \\
 & + \gamma_3 IEF_{it} + \gamma_4 IPC_{it} + \gamma_5 IPS_{it} + \gamma_6 IQII_{it} + \lambda_1 EURO_{it} + \lambda_2 PARTY_{it} + \\
 & \lambda_3 UNEMPLOYMENT_{it} + \lambda_4 ELDERLY_{it} + \lambda_5 CHILDREN_{it} + \lambda_6 WOMEN_{it} + \\
 & \lambda_7 MORTALITY_{it} + \eta_i + \delta_t + \mu_{it}
 \end{aligned} \tag{2}$$

in which,

ICL is the index of civil liberties; *IPR* is the index of political rights; *IEF* is the index of economic freedom; *IPC* is the index of perception of corruption; *IPS* measures political stability; *IQII* is the index that measures the quality of institutional infrastructure; *EURO* is the dummy variable taking value one if the country belongs to the Euro zone; *PARTY* is the dummy variable taking value one if the governing party is left-wing; *UNEMPLOYMENT* measures the unemployment rate; *ELDERLY* is the percentage of people over 65 with regard to the total population; *CHILDREN* is the percentage of people under 14 with regard to total population; *WOMEN* is the percentage of female population with regard to total population; and *MORTALITY* is the death rate.

3.3. Results

After evaluating the model explained by FGLS and PCSE and verifying the global significance of the models used, we obtained the following results:

(TABLES 2, 3, 4 AND 5)

The first conclusion we obtain from the estimates we have made is that the inclusion of institutional, geopolitical and demographic variables in the strictly economic model improves the adjustment quality, as the R^2 changes from 0.83 to over 0.91 both in the case of using the Gini coefficient as income distribution measure, as when we use the income ratio between the highest and lowest quintile. Besides, there is not much difference between the different estimates undertaken using the different estimators and variables, so we may conclude that the model is robust.

As for the values we have obtained, most cases coincide with what is expected a priori. In this way, economic development, measured with GDP per capita, has a positive influence on public social policies. In this way, the most developed countries spend more both on social benefits and on education. This result coincides with those obtained by Hicks and Swank (1992), Hicks and Misra (1993), Huber, Ragin and Stephens (1993), Huber and Stephens (2001), and Swank (2002).

As for the question in the title of this study: Does Income Inequality Matter? the answer is negative. The negative sign obtained for the regressor in this variable suggests that countries with higher income inequalities do not make a greater effort to combat it, as they spend less both on social benefits and on education. The sign obtained for the regressor does not vary with the variable used to measure income distribution and with the analyzed model, but the regressor is significant depending on the different models estimated. Thus, in the strictly economic model (tables 2 and 3) this variable is only significant when education spending is the dependent variable. However, in the global model (tables 4 and 5), this variable is significant for all the dependent variables we have used, thus indicating that the global model is robust. That shows, in our view, that the inclusion of the institutional variables strengthens the effect of the income distribution on public social spending. So far, economic literature has focused on the

effect of social spending on income distribution. In this sense, Afonso, Schuknecht and Tanzi (2008) argue that a greater social spending, coupled with good education, lead to a greater equity in income distribution. Furthermore, as Psacharopoulos et al. (1995) and Alonso (2001) maintain, education is a very effective tool that enables the reduction of inequality, and thus education spending also exerts the same redistributive effect. Also, Keizer and Spithoven (2009) conclude for the Dutch case that income inequality decreases when the welfare state increases, and on the other hand, Ovaska and Takashima (2010) argue that welfare inequality is explained by income inequality, health quality and the level of institutional quality. In this paper, we aim to analyze whether countries with greater inequalities try to reduce them with greater efforts in social policy, as argued by Atkinson (2008). However, the result obtained allows us to conclude that it is not, that is to say that equity is not the fundamental objective of social policy in EU countries, and, therefore, income distribution has become more a consequence of social policy than one of its causes.

Poverty, however, is an issue of serious concern for EU governments, as countries with higher poverty rates have to make greater efforts in public expenditure for education. On the contrary, the estimated regressor for this variable is hardly significant to explain the evolution in social benefits and welfare spending in general, which leads us to conclude that poverty is not a key element for deciding social benefit policies.

Tax pressure does have a positive and significant effect on social expenditure. Therefore, countries with higher tax pressure also spend more both on social benefits and on education. As for verification of the restrictive effect which, a priori, public deficit has on social expenditure, we find different results for social benefits and for education spending. Thus, countries with a higher public deficit try to reduce it by reducing their expenditure on social benefits. On the contrary, this is not the case of education spending, in which the public deficit does not have that restrictive effect on this item of expenditure. These results agree with the thesis of Atkinson (2008), who argues that globalization can make it harder to finance the increased social spending that globalization generates, thus public deficits grow and thus the possibility of increasing efforts regarding social policy is limited.

As for the effect of the index of civil liberties on social policy, this indicator is defined in such a way that those countries with greater civil liberties have a lower index, so the result is what was expected a priori, as European countries with a higher freedom of expression and belief, of association and legal security, spend more on education. In the case of social benefits and social spending, however, this variable is insignificant, the same as happens with the estimate for the regressor of the political rights index variable. In this case, the estimated regressor is neither very significant for social benefits nor for education spending.

As to the impact of economic freedom on social expenditure, the result obtained is very significant and positive. There is, thus, a positive correlation between the two, and protection of property rights, a lower level of corruption, and the solidity of tax policy have a positive effect both on social benefits and on education spending. This does not mean that the most conservative societies defend a larger public sector nor a reduction of the inequality in income distribution, but the intensity of preferences of those societies are more strongly oriented toward these types of public expenditures, because they are aware of the relationship between income and educational and health levels. This result coincides with the conclusions obtained by Molina, Amate and Guarnido (2011), for whom economic freedom has a positive influence on tax pressure, so if tax pressure also has a positive effect on social spending, we can conclude that greater economic freedom entails higher welfare spending.

The sign obtained for the regressor of the variable measuring corruption suggests that countries with higher rates of corruption spend less on social benefits and education. Their low significance, however, allows us to conclude that the effect of corruption on the design of social policies in EU countries is very low. On the other hand, the estimated regressor for the index of political stability is positive and very significant, so countries with lower risks of political instability also make a lower effort for both social benefits and education spending, as countries that have a higher degree of political stability show that their inhabitants are more aware of certain aspects such as education, health, the unemployment problem or retirement benefits among others. As to the regressor estimated for the index of institutional infrastructure quality, its low importance does not allow us to reach any clear conclusions.

As to the geopolitical and demographic variables, belonging to the Euro area has a very significant effect. The positive sign estimated suggests that EU countries that have decided to adopt the Euro as their national currency are those that spend most on social policies. Hicks and Swank (1992) and Swank (2002) concluded that trade has a positive and significant influence on social expenditure. In this way, since the introduction of the single currency has entailed greater trade in countries with the same currency, for this reason Euro-area countries spend more on social items. The effect of ideology of the governing political party in each country on welfare spending is not significant, so this is not a determining factor for social policy design. In fact, as indicated by Pierson (2001), the competitive pressure exerted by market forces and the world economic liberalization limit the capacity for action of the different political parties. As for the unemployment rate, its effect is not significant for social benefits, or for social expenditure in general. What is significant, however, is its influence on education spending. The estimated negative sign allows us to conclude that countries with a lower unemployment rate spend less on education. This result, surprising a priori, is due to the sample and its time span. From 1996 to 2006, most of these countries have experienced a process of expansion in which the unemployment rate has decreased to historical levels. At the same time, public and social expenditure have not decreased, in fact they have even increased, so the result obtained is not conclusive in this case.

On the other hand, the result obtained for the estimated effect of the population over 65 on welfare spending is as expected. The regressor is positive and very significant, so countries with a larger retired population have a higher social spending. Perhaps, it is surprising that the aging population has a positive and significant influence on state education expenditure. However, people over 65 show an index of support for economic policy (in favour of greater public spending) 30% higher than young people (Sáez-Lozano, 2006). A similar result is obtained for the variable measuring the influence of child population on social spending. The positive sign suggests that as the importance of child population increases with respect to the total population, social expenditure also increases. The regressor, however, is more significant in the case of education spending, as this expenditure is fundamentally concentrated on this sector of the population. This result coincides with that obtained by Garrett and Mitchell (2001), who analyze the positive influence of the dependent population (under 15 and over 65 years) on social expenditure. In any case, we have to stress that in Europe there are three basic models

of social policy (Esping-Andersen, 1990): the Nordic model, which bases its efforts on young people; Anglo-Saxon model, which is based on a lower degree of social benefits; and the Continental model, which is based on social contributions and emphasizes on the elderly. These three models have had different results in their struggle to reduce inequalities (Munzy and Smeeding, 2008), but show that the dependent population generates greater social spending. In the case of the percentage of women with regard to the total population, the sign of the estimated regressor is negative and significant, so countries with a higher number of women than men have a lower social spending. Thus, although Huber and Stephens (2001) consider that the expansion of the public sector is a consequence of an increase of women's participation in the workforce; women incur a lesser social expenditure. Finally, the death rate has a negative and significant effect on social spending, so EU countries with a higher death rate have lower social expenditure.

4. CONCLUSIONS

Results obtained in our study allow us to conclude that the inclusion of institutional and geopolitical variables used in the analysis of the determinants of social expenditure in EU countries improves the purely economic analysis and increases the interest of the results obtained, in our view. Moreover, both the sample and the variables used have enriched the analysis. Despite being part of the same economic block, the 27 countries analyzed show differences in their economic development level and their historic, cultural, political and economic background experience, and these differences affect in the way each of these countries carry out the social policy. In this sense, the most developed countries of the sample spend more on social benefits. Furthermore, the Mediterranean countries which focus their efforts on the elderly, have not achieved the objectives of equity and poverty reduction the Scandinavian countries have, which concentrate on social benefits for young people. In any case, these two population strata incur greater welfare expenditure in the EU.

In this paper, we have tried to find the determinants of social spending in EU countries, with particular attention to income inequality, because redistributive intervention of this expenditure is justified by the aversion to inequality, and, therefore, the main objective of social policy should be to reduce the inequality in income

distribution. However, the results obtained from the estimates show that countries with higher indexes of income inequality are not the ones to make a greater effort in welfare spending, so, the objective of reaching a higher equity in income distribution has become more a consequence of social policy than one of its causes. Something similar can be concluded about the relation between poverty and social spending. Only education spending seems set, among other objectives, to reduce poverty in EU countries. Therefore, we think that equity and poverty reduction should be fixed as key objectives in the design of social policy in the EU. The idea is not to spend more but to spend it more efficiently, and the institutional quality of these countries may help to achieve this purpose. Along these lines, the set of civil and political liberties reached by these countries has had a positive influence on education spending but not on greater social coverage. The fight against corruption, protection of property rights, solidity of tax policy, and political stability, however, do result in a greater effort being made both in social benefits expenditure and in education spending. In the case of the EU, this has also been influenced by the replacement of national currencies by the Euro in a number of countries, leading to an increase in competition and to an intensification of social policies by governments. However, globalization makes the increase in welfare spending it generates more difficult to finance, which is shown in the fact that public deficit has a restrictive effect on social benefit expenditure but not on education spending, which proves the commitment of these countries with education. In any case, it is important to keep in mind that the main objective of most public welfare spending is to restore income (unemployment and retirement benefits) or health (health spending), while the redistributive goal is secondary. The only expenditure that really aims to achieve equity objectives is education spending.

5. REFERENCES

- Afonso, A., Schuknecht, L., & Tanzi, V. (2008). Income distribution determinants and public spending efficiency. *European Central Bank, Working Paper*, 861.
- Agell, J. (1999). On benefits from rigid labour markets: norms, market failures, and social insurance. *The Economic Journal*, 109, 143-164.

- Agell, J. (2002). On the determinants of labour market institutions: Rent seekings vs. social insurance. *German Economic Review*, 3(2), 107-135.
- Aixalá, J., & Fabro, G. (2007). Indicadores institucionales y crecimiento económico: Un panorama. *Hacienda Pública Española*, 182(3), 115-162.
- Alesina, A., Glaeser, E. & Sacerdote, B. (2001). Why doesn't the US have a european-type Welfare State? *Brookings papers on Economic Activity*, 2, 187-277.
- Alonso, A. (2001). Logistic regression and world income distribution. *International Advances in Economic Research*, 7(2), 231-242.
- Atkinson, A.B. (2008). "European Union Social Policy in a Globalising Context" in Costabile, L. (ed.), *Institutions for Social Well-Being: Alternatives for Europe*. New York: Palgrave MacMillan.
- Barro, R. J. (1996). Determinants of economic growth: A cross-country empirical study. *NBER Working Paper*, 5698.
- Beck, N., & Katz, J.N. (1995). What to do (and not to do) with Time-Series Cross-Section Data. *American Political Science Review*, 89(3), 634-647.
- Dixit, A. & Londregan, J. (1998). Ideology, tactics, and efficiency in redistributive politics. *Quarterly Journal of Economics*, 113(2), 497-529.
- Easterly, W. & Levine, R. (1997). Africa's growth tragedy: Policies and Ethnic division. *Quarterly Journal of Economics*, 112(4), 1203-1249.
- Esping-Andersen, G. (1990). *Three worlds of Welfare Capitalism*. Cambridge: Polity.
- Esping-Andersen, G. & van Kersbergen, K. (1992). Contemporary research on social democracy. *Annual Review of Sociology*, 18, 187-208.
- Garrett, G. & Mitchell, D. (2001). Globalization, government spending and taxation in the OECD. *European Journal of Political Research*, 39(2), 145-177.
- Gourevitch, P. (1986). *Politics in hard times: Comparative responses to international crises*. Ithaca: Cornell University.

- Gwartney, J., & Lawson, R. (2003). The concept and measurement of economic freedom. *European Journal of Political Economy*, 19(3), 405-430.
- Hall, J. and Ludwig, U. (2010). Neo-liberalism, the Changing German Labor Market, And Income Distribution: An Institutional and Post Keynesian Analysis. *Journal of Economic Issues*, 44(2), 345-357.
- Hicks, A. (1999). *Social democracy and welfare capitalism: A century of income security politics*. Ithaca: Cornell University Press.
- Hicks, A. & Misra, J. (1993). Political resources and the growth of Welfare in affluent capitalist democracies, 1960-1982. *The American Journal of Sociology*, 99(3), 668-710.
- Hicks, A. & Swank, D. (1992). Politics, institutions, and Welfare spending in industrialized democracies, 1960-82. *The American Political Science Review*, 86(3), 658-674.
- Huber, E. & Stephens, J. D. (2001). *Development and crisis of the Welfare State: Parties and policies in global markets*. Chicago: University of Chicago Press.
- Huber, E., Ragin, C. & Stephens, J. D. (1993). Social democracy, Christian democracy, constitutional structure, and the Welfare State. *The American Journal of Sociology*, 99(3), 711-749.
- Huberman, M. & Lewchuck, W. (2003). European Economic Integration and the social compact, 1850-1913. *European Review of Economic History*, 7(1), 3-42.
- Iversen, T. & Cusack, T. R. (2000). The causes of Welfare State expansion, deindustrialization or globalization? *World Politics*, 52, 313-349.
- Kangas, O. (1991). *The politics of social rights: Studies on the dimensions of sickness insurance in OECD countries*. Stockholm: Swedish Institute for Social Research.
- Katzenstein, P. (1985). *Small states in world markets: Industrial policy in Europe*. New York: Oxford University Press.
- Keizer, P. and Sphoven, A. (2009). Cultural Foundation of Distribution of Income: The Dutch Case. *Journal of Economic Issues*, 43(2), 513-522.

- Kerr, C., Dunlop, J., Harbison, F. & Myers, C. (1960). *Industrialism and industrial man*. New York: Oxford University Press.
- Korpi, W. (1989). Power, politics, and the State Autonomy in the development of social citizenship: Social rights during sickness in eighteen OECD countries since 1930. *American Sociological Review*, 54(3), 309-328.
- Lindert, P. H. (2004). *Growing public. social spending and economic growth since the Eighteenth Century*. Cambridge: Cambridge University Press.
- Mauro, P. (1995). Corruption and growth. *Quarterly Journal of Economics*, 110(3), 681-712.
- Molina, A., Amate, I., & Guarnido, A. (2011). Economic and institutional determinants in fiscal pressure. An application to the European case. *Journal of Economic Issues*, 45 (3), 573-591.
- Mulligan, C., Gil, R. & Sala-i-Martin, X. (2002). Social Security and democracy. *NBER Working Paper*, 8958.
- Munzi, T. and Smeeding, T. (2008). “Conditions of Social Vulnerability. Work and Low Income: Evidence for Europe in Comparative Perspective” in Costabile, L. (ed.), *Institutions for Social Well-Being: Alternatives for Europe*. New York: Palgrave MacMillan.
- Ostheim, T. & Schmidt, M. G. (2003). “Die Machtressourcentheorie”, in Manfred G. Schmidt, Nico A. Siegel & Tobias Ostheim (eds.), *Wohlfahrtsstaatliche politik: Theorien und methoden*. [http://www.politikon.org/inhalt\(1e1/index.htm](http://www.politikon.org/inhalt(1e1/index.htm)
- Palme, J. (1990). *Pension rights in welfare capitalism: The development of old-age pensions in eighteen OECD countries, 1930 to 1985*. Stockholm: Swedish Institute for Social Research.
- Pampel, F. & Williamson, J. B. (1989). *Age, class, politics, and the Welfare State*. Cambridge: Cambridge University Press.
- Pierson, P. (2001). *The new politics of the Welfare State*. Oxford: Oxford University Press.

Pscharopoulos, G., Morley, S., Fiszbein, A., Lee, H., & Wood, W. (1995). Poverty and economic inequality in Latin America during the 1980s. *Review of Income and Wealth*, 41(3), 245-264.

Putnam, R. D. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton: Princeton University Press.

Ovaska, T. and Takashima, R. (2010). Does a Rising Tide Lift all the Boats? Explaining the National Inequality of Happiness. *Journal of Economic Issues*, 44(1), 205-223.

Rimlinger, G. V. (1971). *Welfare Policy and Industrialization in Europe, America, and Russia*. New York: Willey.

Rodrik, D. (1998). Why do more open economies have bigger governments? *The Journal of Political Economy*, 106(5), 997-1032.

Sáez Lozano, J.L. (2006). Actitudes de los españoles hacia la Hacienda Pública. *Papeles de trabajo del IEF*, 22.

Shalev, M. (1983). The social democratic model and beyond: two “generations” of corporative research on the Welfare State. *Comparative Social Research*, 5, 315-351.

Skocpol, T. (1992). *Protecting soldiers and mothers: The political origins of social policy in the United States*. Cambridge: Cambridge University Press.

Steinmo, S. (1993). *Taxation and democracy: Swedish, british and american approaches to financing the modern state*. New Haven: Yale University Press.

Swank, D. (2002). *Global capital, political institutions, and policy change in developed Welfare States*. Cambridge: Cambridge University Press.

Swenson, P. (1996). Arranged Alliance: Business interests in the New Deal. *Politics and Society*, 25, 66-116.

Wilensky, H. L. (1975). *The Welfare State and Equality: Structural and Ideological Roots of Public Expenditures*. Berkeley and Los Angeles: University of California Press.

6. END NOTES

- (1) The ageing of the population has become a key variable in historical welfare analyses (Pampel and Williamson, 1989; Hicks and Misra, 1993; and Mulligan et al., 2002). Lindert (2004) indicates that the "age effect" in the period prior to the Second World War could act as *proxy* for other variables that had a positive effect on social transfers such as a change in life ratios (life expectancy and fertility) and the migration flows that caused it. On the other hand, the increasing ageing of the population in developed countries towards the end of the twentieth century has favoured social transfers.
- (2) It should not be forgotten that democracies offer ways for the upper classes to slow down the social policies by means of *lobbies* or contributions to election campaigns, as mentioned by Swenson (1996), Barro (1996) and Dixit and Londregan (1998).
- (3) Beck and Katz (1995) proved that the standard errors generated by the PCSE estimator are more precise than those of FGLS, although there is still a debate about both estimators.

TABLE 1: TAXONOMY OF MODELIZED VARIABLES

NATURE	NAME	DESCRIPTION
<p>Economic</p>	<p>Social Policy^a</p>	<p>We have used three measures for Social Policy:</p> <ol style="list-style-type: none"> 1) Per capita social protection expenditure: defined as the expenditure undertaken by the public sector in social welfare, whether in money or in kind. It is a database developed by the European System of Integrated Social Protection Statistics (ESSPROS) which includes social benefits by the following functions: sickness/healthcare, disability, old age, survivors, family/children, unemployment, housing and social exclusion not elsewhere classified. Source: <i>Eurostat-ESSPROS</i>. 2) State education expenditure per capita: defined as expenditure undertaken by the public sector, both current and capital, paid by educational institutions, and subsidies received by students in the form of grants and public benefits to undertake their studies. This variable is measured in terms of purchasing power parity. Source: <i>Eurostat</i>. 3) Per capita social expenditure: is the sum of the two previous points. Source: <i>authors, with the use of Eurostat data</i>.
	<p>GDP per capita</p>	<p>Measured in US Dollars. It is a <i>proxy</i> variable of the development level of a country. Source: <i>Government Finance Statistics</i>, IMF.</p>

	Income distribution	<p>We have used two measurements for income distribution:</p> <ol style="list-style-type: none"> 1) Gini coefficient. 2) Ratio of income between extreme quintiles, that is, the ratio between the total income received by the richest 20% and the poorest 20% of the population. <p>Source: <i>Eurostat</i>.</p>
	Poverty	<p>Index measuring the rate of people whose available income, before receiving any social transfers, is below the poverty threshold risk rate. Source: <i>Eurostat</i>.</p>
	Tax pressure	<p>Defined as income tax (taxes and contributions to Social Security) in relation to GDP. Source: <i>Governments Finance Statistics</i>, IMF.</p>
	Public deficit^b	<p>Defined as the Government's capacity or need for lending and borrowing. Source: <i>Governments Finance Statistics</i>, IMF.</p>
Institutional	Civil Liberties	<p><i>Index of Civil Liberties</i>: It is an index prepared by the NGO <i>Freedom House</i> which includes evaluations of religious and press freedom, Rule of Law, economic, human and association rights.</p>
	Political Rights	<p><i>Index of Political Rights</i>: It is an index prepared by the NGO <i>Freedom House</i> and which includes evaluation on free and impartial elections, multiple political parties, a significant opposition, military dominance, and self-determination of minority groups.</p>

	Economic Freedom	<i>Index of Economic Freedom:</i> An index prepared by the <i>Heritage Foundation Research Institute/Wall Street Journal</i> which includes assessments on commercial policy, Government tax load, Government intervention on economy, monetary policy, foreign investment and capital flow, foreign activity, financial activity, salary and price control, property rights, and black market regulation and activity.
	Corruption	<i>Index of perception of corruption:</i> It is an index prepared by the NGO <i>Transparency International</i> including perceptions of businessmen, academics and analysts about the level of corruption in civil servants and politicians.
	Political Instability^c	<i>Index of Political Stability:</i> It is an index prepared by the World Bank belonging to a group of indicators called <i>Worldwide Governance Research Indicators</i> (Governance Aggregate Indicators). In particular, this indicator quantifies the perception of the probability for the government to be subject to actions of destabilization or to be overthrown by unconstitutional or violent means, including terrorism.

	<p style="text-align: center;">Institutional Infrastructure</p>	<p><i>Governance Aggregate Indicators:</i> These are 6 indicators prepared by the <i>World Bank</i> for measuring the quality of institutional infrastructure. These indexes are the following:</p> <p><u>Voice and Responsibility</u>, which measures the level to which citizens of a country can participate in the election of their government, as well as freedom of expression, freedom of association and press freedom.</p> <p><u>Political stability</u>, which we have already defined and are using separately.</p> <p><u>Government Efficiency</u>, measuring the quality of public service, quality of public administration and the level to which it is independent from political pressures, quality of the formulation and implementation of policies, and credibility of the government's commitment to those policies.</p> <p><u>Regulatory Quality</u>, measuring the capacity of the government to formulate and apply appropriate policies and regulations allowing for and promoting private sector development.</p> <p><u>Rule of Law</u>, measuring the degree to which the agents trust and obey social rules and, particularly, the quality of the implementation of contracts, police and courts, as well as the probability of crimes and violent acts being committed.</p> <p><u>Control of Corruption</u>, which measures the level to which public power is used for private benefit, as well as small and large scale corruption, and the control of the State by select minorities and private interests^d.</p>
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Geopolitical and demographic	Governing Political party	Its value is one if the government is left wing or left-centre, otherwise it is zero. With this variable we intend to verify whether the left-wing governments adopt efficient measures to alleviate inequalities in income distribution.
	Belonging to the Euro area	Its value is one if the country belongs to the Euro area, otherwise it is zero. Again we try to quantify the effect that the creation of the single currency has had on income distribution. By means of this variable we verify whether a greater openness entails higher social expenditure or not.
	Unemployment	Indicator measuring the rate of unemployed people with respect to the active population. Source: <i>Eurostat</i> .
	Elderly people	Percentage of people over 65 with regard to total population. Source: <i>Eurostat</i> .
	Children	Percentage of people under 14 with regard to total population. Source: <i>Eurostat</i> .
	Women	Percentage of female population with regard to total population. Source: <i>Eurostat</i> .
	Mortality	Death rate, that is, number of deaths per 100,000 inhabitants. Source: <i>Eurostat</i> .

^a In the case of these three variables, we have used their value in terms per inhabitant, because if they are measured in terms of GDP, the latter would appear on both sides of the equation.

^b This reasoning that has led us to use this variable is the same as the one used for public expenditure. The commitment of most of these countries to the consolidation of public finances causes a higher public deficit which leads to greater tax pressure.

^c Although this index is used together with the rest of indexes to measure the quality of institutional infrastructure, as mentioned above, we use this index separately in a third evaluation to analyze how tax pressure is affected by a greater or lesser political stability.

^d As explained above, we have created a global indicator which allows us to quantify the effects of the quality of institutional infrastructure on the evolution of equity in income distribution. This indicator is the mean value of these five indicators (as we use Index of Political Stability separately).

TABLE 2: RESULTS OF ESTIMATES I (STRICTLY ECONOMIC MODEL AND GINI COEFFICIENT)

VARIABLES	SOCIAL BENEFITS		EXPENDITURE ON EDUCATION		SOCIAL EXPENDITURE	
	FGLS	PCSE	FGLS	PCSE	FGLS	PCSE
CONSTANT	-66.27* (-1.48)	-32.29 (-0.55)	-81.08 (-0.69)	-2.58 (-0.02)	-80.48* (-1.48)	-39.59 (-0.57)
GDP per capita	0.14*** (29.33)	0.13*** (21.38)	0.02*** (23.26)	0.02*** (14.91)	0.16*** (29.77)	0.15*** (21.56)
INCOME DISTRIBUTION 1 (GINI COEFFICIENT)	-1.21 (-0.12)	-1.59 (-1.24)	-3.30* (-1.30)	-7.43** (-2.32)	-4.46 (-0.37)	-2.36* (-1.58)
POVERTY	-2.02** (-2.20)	-1.61* (-1.39)	3.61* (1.59)	5.54** (1.90)	-2.13** (-1.88)	-1.05 (-0.76)
TAX PRESSURE	6.76*** (7.97)	7.50*** (6.96)	1.52*** (7.21)	1.69*** (6.34)	8.74*** (8.43)	9.34*** (7.32)

PUBLIC DEFICIT	-9.83 (-1.18)	0.48 (0.04)	4.73 ^{***} (2.54)	5.60 ^{**} (2.09)	-7.70 (-0.73)	5.98 (0.44)
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Number of observations	297	297	297	297	297	297
R²		0.83		0.73		0.84

* 10% significant.

** 5% significant.

*** 1% significant.

TABLE 3: RESULTS OF ESTIMATES 2 (STRICTLY ECONOMIC MODEL
AND RATIO OF INCOME BETWEEN HIGHEST AND LOWEST QUINTILE)

VARIABLES	SOCIAL BENEFITS		EXPENDITURE ON EDUCATION		SOCIAL EXPENDITURE	
	FGLS	PCSE	FGLS	PCSE	FGLS	PCSE
CONSTANT	-67.36** (-1.89)	-57.03 (-1.19)	-11.07 (-1.15)	-10.06 (-0.82)	-86.59** (-1.96)	-75.76* (-1.33)
GDP per capita	0.13*** (29.29)	0.13*** (21.43)	0.02*** (23.10)	0.02*** (14.76)	0.16*** (29.73)	0.15*** (21.58)
INCOME DISTRIBUTION 2 (RATIO OF INCOME BETWEEN HIGHEST AND LOWEST QUINTILES)	-3.83 (-0.12)	-5.03 (-1.17)	-1.45** (-1.75)	-2.64*** (-2.55)	-1.52 (-0.38)	-7.56* (-1.54)
POVERTY	-2.00** (-2.19)	-1.68* (-1.44)	3.98** (1.80)	5.43** (1.89)	-2.09** (-1.86)	-1.14 (-0.82)

TAX PRESSURE	6.75 ^{***} (8.10)	7.59 ^{***} (7.10)	1.51 ^{***} (7.37)	1.70 ^{***} (6.47)	8.75 ^{***} (8.56)	9.47 ^{***} (7.49)
PUBLIC DEFICIT	-9.81 ^{**} (-1.89)	1.43 (0.12)	5.03 ^{***} (2.78)	6.04 ^{**} (2.26)	-7.57 (-0.72)	7.40 (0.54)

Number of observations	297	297	297	297	297	297
R²		0.83		0.73		0.84

* 10% significant.

** 5% significant.

*** 1% significant.

TABLE 4: RESULTS OF ESTIMATES 3 (GLOBAL MODEL AND GINI COEFFICIENT)

VARIABLES	SOCIAL BENEFITS		EXPENDITURE ON EDUCATION		SOCIAL EXPENDITURE	
	FGLS	PCSE	FGLS	PCSE	FGLS	PCSE
CONSTANT	87.27 (0.77)	62.18 (0.40)	-62.11** (-2.17)	11.02 (0.31)	52.55 (0.40)	76.11 (0.44)
GDP per capita	0.10*** (17.25)	0.10*** (13.96)	0.01*** (13.18)	0.01*** (8.57)	0.11*** (17.79)	0.11*** (14.14)
INCOME DISTRIBUTION 1 (GINI COEFFICIENT)	-4.42*** (-4.44)	-4.72*** (-3.86)	-1.19*** (-5.00)	-1.28*** (-4.14)	-5.38*** (-4.73)	-5.99*** (-4.29)
POVERTY	3.81 (0.45)	-2.87 (-0.28)	6.53*** (3.72)	7.34*** (2.78)	9.51 (0.98)	4.81 (0.41)
TAX PRESSURE	4.61***	4.06***	9.37***	1.18***	5.62***	5.22***

	(5.59)	(4.23)	(4.50)	(4.37)	(5.91)	(4.58)
PUBLIC DEFICIT	-1.38** (-1.66)	-1.66* (-1.54)	3.22** (1.92)	3.74* (1.48)	-8.17 (-0.90)	-1.21 (-1.02)
INDEX OF CIVIL LIBERTIES	0.61 (0.01)	3.55 (0.63)	-3.56*** (-2.96)	-5.20*** (-3.65)	-3.57 (-0.69)	-1.92 (-0.30)
INDEX OF POLITICAL RIGHTS	4.60 (0.74)	1.62* (1.39)	4.12 (0.24)	2.38 (0.11)	4.40 (0.59)	1.64* (1.31)
INDEX OF ECONOMIC FREEDOM	1.23** (2.18)	1.66** (2.13)	4.03*** (3.03)	6.05*** (3.32)	1.68*** (2.65)	2.28*** (2.63)
INDEX OF PERCEPTION OF CORRUPTION	4.35 (1.24)	8.80** (1.94)	4.08 (0.49)	4.20 (0.37)	2.83 (0.70)	9.12** (1.78)
INDEX OF POLITICAL STABILITY	0.89*** (2.86)	0.94*** (2.40)	2.39*** (2.93)	1.05 (0.96)	1.07*** (3.08)	1.05** (2.35)
INDEX OF QUALITY OF INSTITUTIONAL INFRASTRUCTURE	-0.84 (-0.13)	-3.98 (-0.46)	1.67 (0.92)	1.95 (0.80)	2.72 (0.38)	-1.87 (-0.19)

BELONGING TO THE EURO AREA	3.11 ^{***} (4.08)	3.44 ^{***} (3.84)	4.47 ^{***} (3.25)	2.99 [*] (1.56)	3.12 ^{***} (3.66)	3.70 ^{***} (3.72)
GOVERNING POLITICAL PARTY	0.99 (0.26)	0.77 (0.15)	-1.36 [*] (-1.34)	-0.97 (-0.71)	-0.89 (-0.20)	-0.33 (-0.06)
UNEMPLOYMENT RATE	6.72 (0.64)	-8.23 (-0.65)	-6.88 ^{***} (-3.04)	-9.21 ^{***} (-3.16)	-4.39 (-0.36)	-1.75 (-1.22)
PERCENTAGE OF PEOPLE OVER 65	2.29 ^{***} (6.28)	2.21 ^{***} (5.26)	2.80 ^{***} (3.08)	2.85 ^{***} (2.56)	2.52 ^{***} (6.03)	2.52 ^{***} (5.16)
PERCENTAGE OF CHILDREN (PEOPLE UNDER 14)	4.03 [*] (1.60)	1.66 (0.53)	1.23 ^{**} (1.88)	1.41 ^{**} (1.68)	5.53 ^{**} (1.91)	3.20 (0.88)
PERCENTAGE OF WOMEN	-4.09 ^{***} (-3.20)	-3.13 ^{**} (-1.75)	2.20 (0.69)	-6.05 [*] (-1.47)	-4.15 ^{***} (-2.81)	-3.80 ^{**} (-1.89)
DEATH RATE	-1.16 ^{***} (-3.70)	-1.38 ^{***} (-3.36)	-0.33 ^{***} (-3.66)	-0.26 ^{**} (-2.04)	-1.50 ^{***} (-4.16)	-1.64 ^{***} (-3.43)

Number of observations	297	297	297	297	297	297
R²		0.91		0.84		0.91

* 10% significant.

** 5% significant.

*** 1% significant.

TABLE 5: RESULTS OF ESTIMATES 4 (GLOBAL MODEL AND RATIO OF INCOMES BETWEEN HIGHEST AND LOWEST QUINTILE)

VARIABLES	SOCIAL BENEFITS		EXPENDITURE ON EDUCATION		SOCIAL EXPENDITURE	
	FGLS	PCSE	FGLS	PCSE	FGLS	PCSE
CONSTANT	-89.87 (-0.07)	-20.48 (-0.13)	-87.35*** (-2.95)	-68.32 (-0.18)	-71.96 (-0.52)	-27.06 (-0.15)
GDP per capita	0.09*** (16.90)	0.10*** (13.82)	0.01*** (13.27)	0.01*** (8.20)	0.11*** (17.48)	0.11*** (13.92)
INCOME DISTRIBUTION 2 (RATIO OF INCOME BETWEEN HIGHEST AND LOWEST QUINTILES)	-1.52*** (-4.42)	-1.81*** (-4.18)	-4.64*** (-5.92)	-4.82*** (-4.80)	-1.95*** (-5.01)	-2.29*** (-4.71)
POVERTY	3.79 (0.44)	-2.74 (-0.27)	5.86*** (3.53)	6.96*** (2.75)	9.87 (1.02)	4.90 (0.42)

TAX PRESSURE	4.75 ^{***} (5.85)	3.99 ^{***} (4.21)	8.83 ^{***} (4.41)	1.10 ^{***} (4.13)	5.70 ^{***} (6.12)	5.11 ^{***} (4.54)
PUBLIC DEFICIT	-1.14 [*] (-1.36)	-1.28 (-1.20)	3.87 ^{***} (2.36)	4.40 ^{**} (1.78)	-4.70 (-0.51)	-7.27 (-0.62)
INDEX OF CIVIL LIBERTIES	-1.18 (-0.26)	2.22 (0.39)	-4.10 ^{***} (-3.52)	-5.18 ^{***} (-3.73)	-5.17 (-0.99)	-3.56 (-0.56)
INDEX OF POLITICAL RIGHTS	4.63 (0.71)	1.63 [*] (1.41)	5.34 (0.34)	3.16 (0.16)	4.61 (0.60)	1.67 [*] (1.34)
INDEX OF ECONOMIC FREEDOM	1.32 ^{**} (2.29)	1.58 ^{**} (2.04)	3.65 ^{***} (2.84)	5.82 ^{***} (3.24)	1.74 ^{***} (2.72)	2.19 ^{***} (2.53)
INDEX OF PERCEPTION OF CORRUPTION	4.62 [*] (1.29)	8.94 ^{**} (1.98)	1.96 (0.24)	5.58 (0.50)	3.16 (0.78)	9.31 ^{**} (1.83)
INDEX OF POLITICAL STABILITY	0.87 ^{***} (2.76)	0.92 ^{***} (2.36)	2.09 ^{***} (2.61)	0.97 (0.90)	1.04 ^{***} (2.96)	1.02 ^{**} (2.31)
INDEX OF QUALITY OF	-0.11	-3.22	2.81 [*]	2.48	3.69	-0.76

INSTITUTIONAL INFRASTRUCTURE	(-0.02)	(-0.37)	(1.60)	(1.03)	(0.50)	(-0.08)
BELONGING TO THE EURO AREA	2.82 ^{***} (3.72)	3.20 ^{***} (3.59)	3.82 ^{***} (2.91)	2.58 [*] (1.39)	2.78 ^{***} (3.32)	3.39 ^{***} (3.44)
GOVERNING POLITICAL PARTY	2.07 (0.52)	1.00 (0.19)	-0.83 (-0.85)	-0.77 (-0.58)	3.58 (0.08)	-0.19 (-0.00)
UNEMPLOYMENT RATE	6.90 (0.65)	-8.36 (-0.66)	-7.04 ^{***} (-3.09)	-9.21 ^{***} (-3.13)	-4.41 (-0.36)	-1.76 (-1.22)
PERCENTAGE OF PEOPLE OVER 65	2.37 ^{***} (6.44)	2.27 ^{***} (5.41)	3.07 ^{***} (3.41)	3.01 ^{***} (2.69)	2.65 ^{***} (6.32)	2.60 ^{***} (5.34)
PERCENTAGE OF CHILDREN (PEOPLE UNDER 14)	3.42 [*] (1.35)	1.39 (0.44)	1.24 ^{**} (1.87)	1.22 [*] (1.43)	4.80 [*] (1.65)	2.84 (0.79)
PERCENTAGE OF WOMEN	-3.81 ^{***} (-2.86)	-2.79 [*] (-1.54)	2.94 (0.92)	-5.46 [*] (-1.31)	-3.69 ^{***} (-2.41)	-3.40 ^{**} (-1.67)
DEATH RATE	-1.22 ^{***} (-3.78)	-1.47 ^{***} (-3.54)	-0.32 ^{***} (-2.95)	-0.27 ^{**} (-2.17)	-1.59 ^{***} (-4.32)	-1.74 ^{***} (-3.63)

Number of observations	297	297	297	297	297	297
R²		0.91		0.83		0.91

* 10% significant.

** 5% significant.

*** 1% significant.

