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Social preferences and fiscal policies: an analysis of the composition of public expenditures in the European Union

Abstract: *The European Union has recently been putting the emphasis on the need to change the composition of public expenditures to what, according to the public policies endogenous models, is considered as a high quality of public finances—that is, a higher share of productive expenditures. These recommendations are the same for all the EU member states. Joined to the fiscal requirements arisen from the Maastricht Treaty and the Stability and Growth Pact, EU authorities are promoting a one-size-fits-all fiscal policy model. Our paper analyzes the differences existing in the composition of public expenditures in the European Union. If this composition is significantly different, that would mean that in the European Union there are differences in the national preferences about the role-size of public expenditures, some that would not allow the implementation of a single model of public sector and fiscal policy.*

Key words: *composition of public expenditures, European Union, productive public expenditures, quality of public finances, social preferences, varieties of capitalism.*

Since the mid-1990s, the process of construction of the European Monetary Union (EMU) has involved the implementation of general and common criteria for the implementation of fiscal policies for all the EMU member states and for the candidate countries. Fiscal requirements

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in terms of the size of fiscal deficits and stocks of public debt set in the Maastricht Treaty, and reinforced in the Stability and Growth Pact, involved for national fiscal policies in the European Union a convergence process in term of the size and evolution of fiscal imbalances.

Despite implicit recommendations, EU members have freedom to set the size of the public budgets and their composition, in terms of both expenditures and revenues. However, this view is currently changing: based on public policy endogenous growth models (PPEGMs), European institutions are encouraging the rise in the share of those items considered in these models as productive expenditures, such as public investments, research and development (R&D), active labor market policies, and the fall of those items considered as unproductive expenditures. The aim is to change the composition (and the size) of public budgets toward what would be an optimal composition of public expenditures, seemingly the same for all countries.

This view runs counter to other analyses (such as those related to the theories of varieties of capitalism, comparative capitalism, and welfare production regimes) that argue that differences in social, cultural, demographic, political, and institutional elements lead to differences in the size, role, and functions developed by national public sectors. Consequently, there would not be a universal optimum composition of public expenditures leading to the best economic performance.

Our paper analyzes the differences in the composition of public expenditures in the European Union. If this composition is significantly different, that would mean that in the European Union there are differences in the national preferences about the role-size of public expenditures, some that would not allow the implementation of a single model of public-sector fiscal policy.

The implementation of this strategy by the European countries should have generated a convergence in national fiscal policies in the sign (and size) of fiscal imbalances, the size of public revenues and spending, and the composition of these items. A number of papers detect the convergence of public imbalances, public deficits, and the stock of public debt; however, the outcome is not so clear in the case of the composition of public expenditures (see Ferreiro et al., 2008 and 2009 for full details). Some studies support the hypothesis of convergence in the composition of public expenditures (European Commission, 2002; Sanz and Velazquez, 2004), but others argue that there is no convergence or that the convergence is limited (Ferreiro et al., 2009; Starke et al., 2008).

This paper does not try to analyze whether a convergence in the size and composition of public spending has taken place in the European Union.

We try to analyze whether significant differences remain in terms of both the size of public expenditure and its composition. The existence of these differences would mean that EU member states are not homogeneous and that the social preferences of their populations and constituencies would play a key role in the design of the national public sectors.

The role of fiscal policy in the European Union: theoretical bases

The EMU has involved the implementation of a strategy of macroeconomic policy based on the rules and norms set in the Maastricht Treaty and the Stability and Growth Pact. In this sense, national fiscal policies in the European Union are based on three main pillars:

1. The implementation of sound and sustainable fiscal policies
2. The reduction of the size of public deficits and the stocks of public debt
3. The reduction of the size of public expenditure and taxation

In this approach, fiscal policy is believed to affect economic activity only in the short run, but it cannot affect potential output. The long-term effects of fiscal policy arise from the non-Keynesian effects of fiscal policy and the theoretical propositions that emanate from it. One of the main conclusions of this approach is that fiscal consolidation has an expansionary effect on the economic activity both in the short and the long term (Afonso, 2006; Alesina and Perotti, 1995, 1997; Alesina, Perotti, and Tavares, 1998; Alesina et al., 2002; Briotti, 2005; Giavazzi et al., 2000; Hemming et al., 2002; Kumar et al., 2007).

However, fiscal policy is currently gaining attention, with emphasis put on the quality of public finances (Deroose and Kastrop, 2008; European Commission, 2008). The Lisbon Strategy, the current Broad Economic Policy Guidelines, and the reformed Stability and Growth Pact all accept that fiscal policy, now understood as the management of the composition of public expenditures and revenues, can have a positive effect in the long run, in terms of both the level and the rate of growth of potential output. This effect would come from the composition of public expenditure, not from the size of public expenditures or revenues or from the fiscal balance.

The theoretical basis of these recommendations is the PPEGMs. These models, based on the endogenous growth theory, argue that fiscal policy can accelerate the long-run rate of economic growth by shifting the revenue stance away from distortionary forms of taxation and toward nondistortionary forms, and switching expenditures from unproductive

to productive forms are growth enhancing (Angelopoulos et al., 2007; Aschauer, 1989; Barro, 1990, 1991; Barro and Sala-i-Martin, 1995; Devarajan et al., 1996; Gemmel and Kneller, 2001; Gupta et al., 2005; Irmen and Kuehnel, 2009; King and Rebelo, 1990; Kneller et al., 1999, 2001; Romero de Avila and Strauch, 2003).

PPEGMs define "productive" expenditures as those that, by complementing private-sector production and generating positive externalities to firms, have a positive effect on the marginal productivity of capital and labor, and "unproductive" expenditures would be those that give direct utility to households (Angelopoulos et al., 2007; Devarajan et al., 1996; European Commission, 2004). Although the empirical evidence is mixed, for a number of studies "productive" expenditures include public investment, R&D, active labor market policies, defense, public order and general administrative costs, transport and communication, and, up to a limit, education and health (Afonso and González Alegre, 2008; Afonso et al., 2005; Angelopoulos et al., 2007; Aschauer, 1989; Atkinson and van den Noord, 2001; Barro, 1990, 1991; Bleaney et al., 2001; Devarajan et al., 1996; Easterly and Rebelo, 1993; Gemmel and Kneller, 2001; Kneller et al., 2001; Romero de Avila and Strauch, 2003).

PPEGMs or the concept of quality of public expenditures do not imply that a rise in overall public expenditures driven by a rise in productive expenditures has a positive effect on the (short-term or long-term) economic activity. In these approaches, a basic argument is that the overall size of the government has a negative effect on long-run growth (Barrios and Schaechter, 2008).

Therefore, for the European Union, the recommendations arising from these models are, first, to reduce the current size of overall public expenditures,[1] and, second, to change the composition of public expenditures of that "government activity and related public spending that is essential for the performance of the economy" (Afonso et al., 2005, p. 10). This "core," "essential," or "productive" spending would include spending for essential administrative services, basic research, basic education and health, public infrastructure, and internal and external security (ibid.). Nonetheless, even in the case of productive expenditures, the positive effects of these expenditures depend on that spending being

[1] For Buti et al. (2003), the maximum stabilizing size of governments would be 35 percent of gross domestic product [GDP] for small open economies and 40 percent of GDP for large open economies. Note that in 2007, the average size of public expenditures for France, Germany, Italy, Spain, Sweden, and the United Kingdom, countries that can be labeled as large economies, was 46.8 percent of GDP, and the average size of public expenditures for the other 21 EU countries was 42.1 percent of GDP.

below certain limits, above which the effect on productivity of inputs would be negative.

European institutions accept that the current levels of expenditures in productive outlays[2] or in other outlays (such as those related to the welfare state that fulfill redistributive objectives) are below the limits that lead to negative effects on economic growth (European Commission, 2002). Nonetheless, if this spending is financed with distortionary taxes, productive spending may have a negative effect on the long-run growth. Moreover, if the overall size of governments is excessive, then the overall economic impact of public finances may well be negative, and hence, the need to reduce the size of governments along with a recomposition of public revenues and expenditures (Deroose and Kastrop, 2008).

Social preferences and fiscal policies

The above approach involves that the design of public policies, fiscal policy included, is to be based on the optimizing behavior of private agents. The only aim of public intervention is the correction of market failures, and consequently is driven by strict neoclassical efficiency criteria. Public economic intervention would be a mere functional derivative of equilibrium solutions of individual egoistic behavior (Heise, 2009). As Ferreiro and Serrano state, for mainstream economics,

> the achievement and maintenance of the desired equilibrium outcome is only possible if the institutional design of the public sector and policy-making guarantee the "proper" working of public authorities—namely, credible and time-consistent policy compatible with the market-clearing equilibrium. (2009a, p. 11)

In this sense, the management of the composition of public expenditures would become an instrument designed and managed with strictly economic criteria: to increase the productivity of both capital and labor resources and to increase the endowment of these two productive inputs with the ultimate aim of reaching the long-term equilibrium outcome.

Inasmuch as fiscal policy recommendations from the EU institutions are similar for all the EU member states, this means that the technical-economic criteria that must drive the behavior of fiscal authorities have universal validity for all the European economies. Obviously, this means

[2] In the elaboration of a quality of public finances composite indicator, the European Commission (2009) include as productive spending the public spending on transportation, R&D, education, health, public order and safety, and environmental protection.

that there must be not only a single model of fiscal policy (in terms of its macroeconomic policy dimension) in Europe but also a single model of public sector in the European Union, with similar sizes, kinds of expenditure, sources of revenues, functions, and so forth. Thus, the frontiers between the private and public spaces must be similar in the European countries. The design of the optimal public sector would respond to technical and not normative criteria. National-state economic policies, fiscal policy included, would become standardized.

Although on some occasions it is accepted that the size of the public sector and its composition are influenced by political choices and national preferences (Barrios and Schaechter, 2008; Deroose and Kastrop, 2008; European Commission, 2002), this conflicts with the suggestion of reducing the size of government and redirecting the composition of public spending. Seemingly, the approach of the quality of public finances seems to involve the existence of a trade-off between the achievement by the public economic activity of political and economic objectives (European Commission, 2008). Thus, a high size of the government explained, for instance, for a high spending on redistributive public policies would be at the expense of a lower long-run economic growth.

The existence of a convergence process in the composition of public expenditures in the European Union would involve either that the whole set of social, cultural, demographic, political, and institutional elements that define the preferences of national constituencies about the role and functions to be placed by the domestic public sectors in Europe are increasingly similar, or that they are irrelevant in the definition of the size or composition of public expenditures. This conclusion would be opposite to those reached by the theories of varieties of capitalism, comparative capitalism, and welfare production regimes (Bernard and Boucher, 2007; Campbell and Pedersen, 2007; Crouch and Streeck, 1997; Hall and Soskice, 2001; Iversen and Stephens, 2008; Jackson and Degg, 2008; Rhodes, 2005; Whitley, 2007). These theories argue that these factors set the nation-state economic policies, and, consequently, that there is no single model of public-economic policy that allows the best economic performance to be obtained.

Despite the importance given by Post Keynesians to fiscal policies, and, by extension, to the role played by public sectors as engines of the economic activity, there are few papers dealing with the determinants of the choice of the fiscal tools implemented. Discretionary fiscal policy is considered a key element for the stabilization of the economic activity and even for reaching a full employment level of economic activity. The management of the size of public revenues and expenditures and the size

of fiscal imbalances are key elements in any Post Keynesian strategy of economic policy.[3] However, most Post Keynesian recommendations do not take into account that the characteristics of public sectors differ dramatically among countries, and that these countries manage in radically different ways not only the evolution of the overall sizes of public expenditures and revenues as a tool to reach their respective economic and fiscal objectives but also the different kinds of revenues expenditures.[4]

Actually, most Post Keynesian analyses identify fiscal policies with the management of the size of public expenditures and revenues, with the fiscal imbalance, and with the management of the different items of revenues and expenditures, but in the latter case always focusing on the economic classification of public spending, a choice that allows measurement of the impact of fiscal policy through the use of the respective multipliers. Surprisingly, this view is similar to that adopted by mainstream approaches: the management of public revenues and expenditures is carried out using strictly technical criteria—that is, the need to reach a certain macroeconomic outcome. Obviously, this outcome is different in the two approaches: for mainstream economics, the objective is to reach an equilibrium (market-clearing) outcome, whereas the Post Keynesian approach is to reach a full employment level of aggregate demand and economic activity.

In a recent paper, Heise argued that, contrary to the traditional Keynesian view,

> the theory of economic policy is not merely concerned with a single or a bundle of policy instruments being simply imposed on a theoretical model, but it is the doctrine that is concerned with relating means and ends in a systematic way so that the goal of achieving overall welfare maximization may be met (policy dimension). This touches not only upon the optimal use of scarce resources by the political actor (polity dimension) but also upon questions about the willingness of political actors to behave in a certain way and to achieve what has been *normatively* set (politics dimension). (2009, p. 384, emphasis added)

Consequently,

> the objectives of economic policy are no longer merely functional derivatives of equilibrium solutions of individual egoistic behavior, but must be normatively chosen. Full employment is just as much a "natural" outcome of labor markets in monetary production (i.e., capitalist) economies as any "natural" income distribution is according to productivity measures that exist. (ibid., p. 390)

Ferreiro and Serrano share this view:

> The analysis of the elaboration of economic policy, both in the design of new rules of the game and/or institutions and in the implementation of measures of macroeconomic policies, must accept that any decision is the result of an equilibrium of interests that can change the current distribution of power. The analysis of the institutional design made by the State (and the orientation of the macroeconomic policy) involves the incorporation of complex issues such as, for instance, the analysis of different agents' interests. (2009b, p. 192)

Accepting the normative content of the design and implementation of public economies, macroeconomic (fiscal and monetary) policies included, involves the acceptance that the existing configuration of public economic activity has a historical nature, influenced by the current set of economic, social, cultural, and political elements that define not only the relationships among individuals but also the relationship and frontiers between the private and public spheres. Obviously, these elements influence the value and the evolution both of the size of public revenues and expenditures and also of the composition of these public economic activities. Inasmuch as these elements are different, not only the size but also the composition of public budgets will differ.

How similar are public expenditures in the European Union?

The hypothesis of the paper is that the existence of different national preferences about the role and size of public expenditures in the European Union has an influence not only on the overall size (as a percentage of GDP) of the European public sectors but also on the composition of public expenditures. In this sense, our paper has three objectives: (1) to analyze whether EU countries significantly diverge in the composition of public expenditures, (2) to detect which items are more (dis)similar, and (3) which countries are more similar considering not only the overall size of public expenditures but also its composition. The relevance of the latter analysis is that those countries that can be grouped into one cluster would share a similar set of preferences about the size, roles, and functions of national public sectors.

The analysis of the similarity of the composition of public expenditures is made through two procedures. The first is carried out using statistical

[3] On this respect, see volume 31, no. 4, of the *Journal of Post Keynesian Economics.*

[4] See Ferreiro et al. (2008) for a study of the budgetary effect of the fiscal adjustments in the EMU member states.

measures of dispersion and box plots. We use in our analysis two measures of dispersion—standard deviation and interquartile range. The standard deviation is a good measure of dispersion when there are no outliers. The interquartile range is a robust measure, because it is not affected by outliers. Standard deviation measures the dispersion of the whole distribution. Interquartile range covers only the middle 50 percent of cases. The information provided by both measures is completed with box plots. This analysis is complemented with a cluster analysis of the components of public spending: countries with a significantly similar composition of their national public expenditures would be part of the same cluster.

The analysis is made using data provided by the Eurostat Government Finance Statistics. Data analyzed are those related to the composition of public expenditures of the national general governments in terms of the economic and functional-COFOG (classification of functions of government) classifications of public expenditures. The period analyzed is 1999–2007. To avoid business cycle effects on public expenditures and expenditure composition, we calculated the average size and the composition of public spending for the whole period. The size of total public expenditures is measured as a percentage of GDP, while the composition of public expenditures is measured as a percentage of total expenditures.

Statistical analysis

Table 1 shows the statistical measures of the dispersion in the composition of public expenditures in the EU member states. As data show, the differences, as measured by the standard deviation and the interquartile ranges, are higher in the economic than in the COFOG classification. This involves that the main differences among countries are found not in the weight or relevance given to the functions developed by the respective national public sectors but in the way that these sectors organize the supply of the public services and goods (and, obviously, in the size of the public sector).

However, this conclusion is biased due to the strong relationship between the values of the mean and the standard deviation. To avoid this bias, Table 2 shows the coefficient of variation of the different kinds of public expenditure. Again, we detect a higher dispersion in the economic classification than in the functional-COFOG classification. In terms of the economic classification, the main differences are found in the items related to property income (basically, interest from outstanding public debt), capital transfers, and social transfers in kind. Interestingly, in the COFOG classification, where the social preferences about the functions

Table 1
Composition of public expenditures (as a percentage of total public expenditures)

Variable	Lower	Higher	Mean	Median	Standard deviation	Inter-quartile range
COFOG classification						
General public services	Estonia: 9.32	Cyprus: 23.24	14.74	14.35	3.35	3.59
Defense	Luxembourg: 0.64	Romania: 7.04	3.5	3.05	1.59	1.6
Public order and safety	Denmark: 1.86	Estonia: 6.81	4.17	4.02	1.39	2.45
Economic affairs	France: 5.83	Czech Republic: 17.72	10.86	10.61	2.91	3.66
Environment protection	Sweden: 0.57	Luxembourg: 2.79	1.56	1.44	0.64	0.99
Housing	Belgium: 0.72	Romania: 5.79	2.23	1.94	1.34	1.26
Health	Cyprus: 7.3	Ireland: 19.65	12.64	12.87	2.3	2.49
Recreation	Greece: 2.7	Estonia: 6.06	2.58	2.41	1.04	1.03
Education	Greece: 6.64	Estonia: 18.44	12.42	11.86	2.62	2.79
Social protection	Cyprus: 22.35	Denmark: 46.65	35.25	34.87	5.77	9.77
Economic classification						
Intermediate consumption	Belgium: 7.09	United Kingdom: 25.39	14.35	13.93	4.54	6.55
Compensation of employees	Germany: 16.44	Cyprus: 34.76	25.23	24.86	4.71	6.48
Subsidies	Greece: 0	Austria: 6.57	3.04	2.86	1.31	1.64
Property income	Estonia: 0.56	Greece: 12.44	5.81	6.04	2.95	2.46
Social benefits other than social transfers in kind	Romania: 24.43	Germany: 40.17	30.7	30.31	4.12	6.75
Social transfers in kind	Greece and United Kingdom: 0	Netherlands: 17.62	6.11	4.53	4.87	7.64
Other current transfers	Lithuania: 1.89	Romania: 8.99	4.37	3.92	1.71	1.95
Capital transfers	Sweden: 0.66	Czech Republic: 7.27	3.06	2.98	1.67	2.66
Gross capital formation	Austria: 2.17	Estonia: 12.33	6.97	7.15	2.64	4.17
Total public expenditures (percent of GDP)	Ireland: 33.61	Sweden: 55.64	44.09	44.3	5.9	9.61

Table 2
Coefficient of variation of the kinds of public expenditure

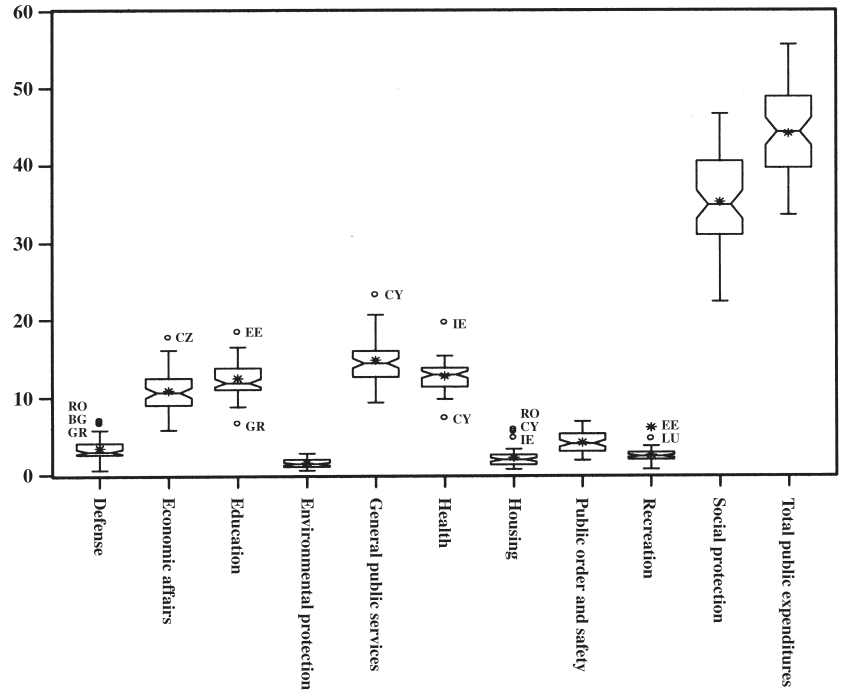
Economic classification		COFOG classification	
Social benefits other than social transfers in kind	0.134	Social protection	0.164
Compensation of employees	0.187	Health	0.182
Intermediate consumption	0.316	Education	0.211
Gross capital formation	0.379	General public services	0.227
Other current transfers	0.391	Economic affairs	0.268
Subsidies	0.431	Public order and safety	0.333
Property income	0.508	Recreation	0.403
Capital transfers	0.546	Environment protection	0.410
Social transfers in kind	0.797	Defense	0.454
		Housing	0.601

to be developed by the public sectors should be more evident, the differences are lower in those items more directly related with the welfare states—that is, social protection, health, and education, items that, on average, comprise more than 60 percent of total public expenditures. Again, this leads us to argue that the differences of national social preferences about the role functions to be played by the public sectors are found not in the kind of functions developed, but in the intensity of the public interventions—that is, in the size of public sectors.

The above analysis based on the dispersion measures is complemented with the analysis of box plots (Figures 1 and 2).[5] Box plots are a useful tool to identify the outliers—both near and far outliers. In Figures 1 and 2, the country outliers are identified with a circle (for near outliers) and a star (for far outliers). As can be seen, the number of outliers is higher in the COFOG than in the economic classification. These outliers explain

[5] A box plot summarizes the distribution of a set of data by displaying the centering and spread of data using five elements: the smallest observation, the first quartile, the third quartile, the median, and the largest observation. The first and third quartiles are termed the *hinges,* and the difference between them represents the interquartile range (IQR). Median is depicted using a line through the center of the box. The inner fence is defined as the first quartile minus 1.5*IQR and the third quartile plus 1.5*IQR. *Whiskers* and *staples* show the values outside the first (lower adjacent value) and third quartiles (upper adjacent value) but within the inner fences. The staple is a line drawn at the last data point within (or equal) each of the inner fences. Whiskers are horizontal lines drawn from each hinge to the corresponding staple. Any data lying more than 1.5*IQR lower than the first quartile or 1.5*IQR higher than the third quartile are considered as outliers. To characterize outliers, the outer fence is defined as the first quartile minus 3.0*IQR and the third quartile plus 3.0*IQR. Data between the inner and outer fences are named *near outliers* (circles), and data outside the outer fence (stars) are *far outliers.*

Figure 1 Box plot COFOG classification



Notes: BG = Bulgaria, CY = Cyprus, CZ = Czech Republic, EE = Estonia, GR = Greece, IE = Ireland, LU = Luxembourg, RO = Romania.

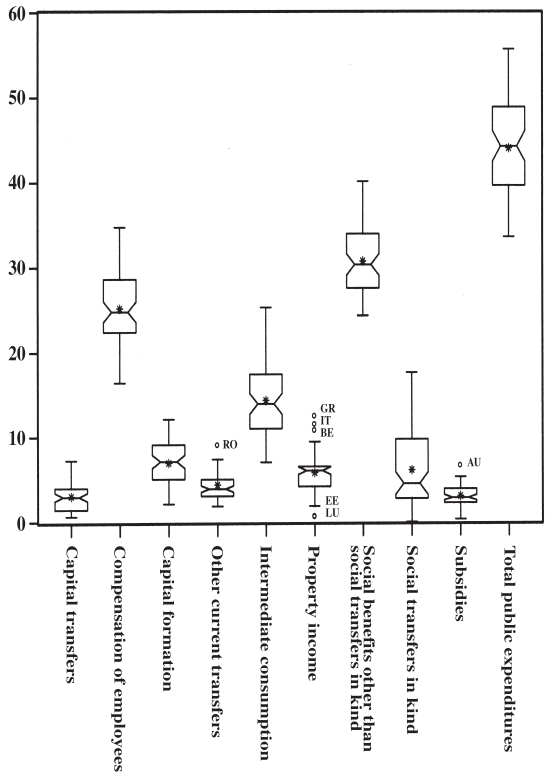
a great deal of the dispersion in the composition of public expenditures in terms of the functional classification, which again is an argument in favor of the hypothesis that the main differences in the national public budgets are related to the size of national public sectors.

Cluster analysis

Previous analysis is complemented with a cluster analysis of the components of public spending. Cluster analysis allows us to analyze data sets with a large number of countries, assigning sets of observations that, given a set of characteristics, are similar. This technique has been used to analyze the similarities in the composition of public expenditures and the dynamic evolution of this composition in studies such as those of Ferreiro et al. (2008) and Sanz and Velazquez (2004).[6]

[6] Recent examples of the use of cluster analysis in other topics are Cecchetti et al. (2009) and Ormerod et al. (2009).

Figure 2 Box plot economic classification



Notes: AU = Austria, BE = Belgium, EE = Estonia, GR = Greece, IT = Italy, LU = Luxembourg, RO = Romania.

The existence of an identical composition of public expenditures would lead to a number of clusters depending exclusively on the differences in the overall size of public expenditures. If this composition is not identical, the cluster analysis groups countries with statistically similar composition of public expenditures and size of public expenditures. To identify cluster of cases, we calculated factor coordinates. Principal component analysis (PCA) gives the more explanatory factor of the whole set of countries. An ascending hierarchical classification was applied to coordinates estimated by PCA using Ward's (1963) criterion, which maximizes the variance among clusters and minimizes the variance within clusters. Test values show the main significant features of each cluster. In the cluster analysis of the economic classification, the data matrix is formed by the 27 countries and the 10 active variables—the shares as percentage of

total public expenditure of the 9 items in this classification plus the size of public expenditure (as a percentage of GDP). In the cluster analysis of the COFOG classification, the data matrix is formed by 27 countries and 11 active variables—the shares as a percentage of total public expenditure of the 10 items in this classification plus the size of public expenditure (as a percentage of GDP).

Tables 3 and 4 show the results of the cluster analysis. The different variables that appear in each cluster are ranked in terms of their relevance (test values) in the formation of the clusters.

The cluster analysis of the composition of public expenditures according to the economic classification shows the existence of seven clusters.[7] Variables contributing to the formation of the clusters are those with a probability lower than 2.5 percent. The exception is Luxembourg in the clusters based on the economic classification, where the variables are those with a probability below 4 percent. The countries and the main relevant items that define these seven clusters are the following:

- Cluster 1: Austria, Belgium, and Germany. Defined by shares of expenditure in social transfers in kind, social benefits, compensation of employees, and intermediate consumption significantly above the EU mean, and expenditure in gross capital formation below the EU mean.
- Cluster 2: Luxembourg. Defined by a share of other current transfers above the EU mean and by a share of property income below the EU mean.
- Cluster 3: Denmark, Finland, France, Netherlands, Poland, Slovenia, and Sweden. Defined by a size of total public expenditure above the EU mean and by a share of capital transfers below the EU mean.
- Cluster 4: Greece, Hungary, Italy, Malta, Portugal, Slovakia, and Spain. Defined by a share of property income expenditure above the EU mean.
- Cluster 5: Czech Republic. Defined by a share of capital transfer above the EU mean.
- Cluster 6: Bulgaria, Estonia, and Lithuania. Defined by a share of expenditure in intermediate consumption above the EU mean, and expenditures in gross capital formation below the EU mean.

[7] The first five factors explain 81.4 percent of total inertia, with all countries being well explained by these factors. Ward's criterion has been applied to these factors. Using three criteria (the ratio inertia inter/inertia total with a value of 0.74, the structure of dendograms, and the significance of the classes), we obtained seven clusters.

Table 3
Clusters of EU countries according to the composition of public expenditures (economic classification)

Clusters	Countries	Variables	Cluster average	Overall average	Cluster standard deviation	Overall standard deviation	Test value	Probability
Cluster 1	Belgium	Social transfers in kind	13.218	6.107	2.351	4.779	2.68	0.004
	Germany	Social benefits	36.121	30.748	3.650	4.039	2.40	0.008
	Austria	Compensation of employees	19.858	25.235	3.085	4.625	–2.10	0.018
		Intermediate consumption	8.250	14.355	0.842	4.456	–2.47	0.007
		Gross capital formation	2.737	6.966	0.504	2.592	–2.94	0.002
Cluster 2	Luxembourg	Other current transfers	7.413	4.375		1.675	1.81	0.034
		Property income	0.634	5.811		2.893	–1.80	0.036
Cluster 3	Denmark	Total public expenditure	49.375	44.093	4.371	5.786	2.75	0.003
	France	Capital transfers	1.347	3.062	0.660	1.635	–3.16	0.001
	Slovenia							
	Finland							
	Sweden							
	Poland							
	Netherlands							

(continues)

Table 3
Continued

Clusters	Countries	Variables	Cluster average	Overall average	Cluster standard deviation	Overall standard deviation	Test value	Probability
Cluster 4	Greece	Property income	8.624	5.811	2.385	2.893	2.93	0.002
	Italy							
	Spain							
	Hungary							
	Malta							
	Portugal							
	Slovakia							
Cluster 5	Czech Republic	Capital transfers	7.27	3.06		1.635	2.52	0.0059
Cluster 6	Bulgaria	Intermediate consumption	19.900	14.355	1.780	4.456	2.24	0.012
	Estonia	Other current transfers	2.449	4.375	0.402	1.675	–2.07	0.019
	Lithuania	Public expenditure	36.896	44.093	1.913	5.786	–2.24	0.012
Cluster 7	United Kingdom	Other current transfers	6.917	4.375	1.153	1.675	3.69	0.000
	Ireland	Intermediate consumption	18.500	14.355	4.313	4.456	2.26	0.012
	Cyprus	Social benefits	27.003	30.748	2.052	4.039	–2.25	0.012
	Latvia	Social transfers in kind	1.507	6.107	1.656	4.779	–2.34	0.010
	Romania	Total public expenditure	38.158	44.093	3.033	5.786	–2.49	0.006

Table 4
Clusters of EU countries according to the composition of public expenditures (COFOG classification)

Clusters	Countries	Variables	Cluster average	Overall average	Cluster standard deviation	Overall standard deviation	Test value	Probability
Cluster 1	Belgium Italy Luxembourg Hungary Netherlands Poland Portugal Slovenia	Defense	2.537	3.504	0.769	1.594	–2.05	0.020
Cluster 2	Denmark	Total public expenditure	51.517	44.093	2.910	5.786	3.50	0.000
	Germany	Social protection	42.427	35.250	1.933	5.665	3.45	0.000
	France	Environment	1.019	1.565	0.336	0.626	–2.37	0.009
	Austria	Economic	8.053	10.865	1.524	2.858	–2.68	0.004
	Finland Sweden	Public order	2.638	4.167	0.504	1.367	–3.05	0.001
Cluster 3	Greece	Defense	6.630	3.504		1.594	1.96	0.025
		Education	6.610	12.420		2.622	–2.22	0.014

(continues)

Table 4
Continued

Clusters	Countries	Variables	Cluster average	Overall average	Cluster standard deviation	Overall standard deviation	Test value	Probability
Cluster 4	Cyprus	Housing	5.664	2.228	0.130	1.312	3.78	0.000
	Romania	Defense	5.867	3.504	1.174	1.594	2.18	0.015
		Health	9.389	12.690	2.089	2.259	–2.11	0.018
		Environment	0.642	1.565	0.021	0.626	–2.12	0.017
		Social protection	25.367	35.250	3.013	5.665	–2.52	0.006
Cluster 5	Czech Republic	Economic	14.824	10.865	2.026	2.858	2.95	0.002
	Ireland	Health	15.342	12.690	2.570	2.259	2.50	0.006
	Spain	Environment	2.271	1.565	0.315	0.626	2.40	0.008
	Malta	Social protection	30.479	35.250	2.280	5.665	–1.79	0.037
Cluster 6	Estonia	Recreation	6.060	2.580		1.037	3.35	0.000
		Education	18.440	12.420		2.622	2.30	0.011
Cluster 7	Bulgaria	Public order	5.828	4.167	0.369	1.367	2.95	0.002
	Latvia	Defense	4.978	3.504	1.230	1.594	2.29	0.011
	Lithuania	Total public expenditure	39.056	44.093	2.637	5.786	–2.12	0.017
	Slovakia United Kingdom							

- Cluster 7: United Kingdom, Ireland, Cyprus, Latvia, and Romania. Defined by shares of expenditure in other current transfers and intermediate consumption significantly above the EU mean, and with shares of social benefits, social transfers in kind, and total public expenditure below the EU mean.

Table 4 shows the results of the cluster analysis of the COFOG classification of public expenditures.[8] Variables contributing to the formation of the clusters are those with a probability lower than 5 percent. In our opinion, this classification better reflects the social preferences of a society about the role to be played by public sectors in a society. Therefore, the clusters resulting from the analysis are a good proxy of the national similarities–differences among these preferences. Now, we get seven clusters:

- Cluster 1: Belgium, Hungary, Italy, Luxembourg, Netherlands, Poland, Portugal, and Slovenia. Defined by a share of defense expenditure significantly below the EU mean.
- Cluster 2: Austria, Denmark, Finland, France, Germany, and Sweden. Defined by a size of public expenditures and shares of expenditure in social protection significantly above the EU mean, and with shares of environmental protection, economic affairs, and public order and safety below the EU mean.
- Cluster 3: Greece. Defined by shares of expenditure in defense above the EU mean and education below the EU mean.
- Cluster 4: Cyprus and Romania. Defined by shares of expenditure in housing and defense significantly above the EU mean, and with shares of health, environmental protection, and social protection below the EU mean.
- Cluster 5: Czech Republic, Malta, and Spain. Defined by shares of expenditure in economic affairs, health, and environmental protection significantly above the EU mean, and with a share of expenditure in social protection below the EU mean.
- Cluster 6: Estonia. Defined by shares of expenditure in recreation and education significantly above the EU mean.
- Cluster 7: Bulgaria, Latvia, Lithuania, Slovakia, and the United Kingdom. Defined by shares of expenditure in public order and safety and defense significantly above the EU mean, and with a share of total public expenditure below the EU mean.

[8] The first five factors explain 84.3 percent of total inertia, with all countries being well explained by these factors. Ward's criterion has been applied to these factors. Using three criteria (the ratio inertia inter/inertia total with a value of 0.72, the structure of dendograms, and the significance of the classes), we obtained seven clusters.

The cluster analysis allows us to group countries according to their similarities among them and the differences with the rest of the EU member states. Besides, it helps to identify the items more relevant in the cluster formation—that is, those items in which the national social preferences are more different. The existence of clusters with a low number (1–2) of countries makes that the number of countries affected by a significant difference be the more accurate measure to detect where those differences in the preferences are:

- defense: 16 countries (clusters 1, 4, and 7)
- environmental protection: 12 countries (clusters 2, 4, and 5)
- social protection: 12 countries (clusters 2, 4, and 5)
- public order and safety: 11 countries (clusters 2 and 7)
- economic affairs: 10 countries (clusters 2 and 5)
- health: 6 countries (clusters 4 and 5)
- housing: 2 countries (cluster 4)
- recreation: 1 country (cluster 6)
- education: 1 country (cluster 6)

In the case of the size of total public expenditures, this is a relevant variable for the formation of 2 clusters (clusters 2 and 7), involving 11 countries.

Summary and conclusions

Both mainstream and Post Keynesian analyses tend to analyze the management of economic public interventions as the result of a decision-making process exclusively based on technical criteria. For mainstream economics, the management of pubic revenues and expenditures is the answer to micro- or macroeconomic market failures that separates the current economic activity from the market-clearing equilibrium. For Post Keynesian economics, public revenues and expenditures are tools to reach a full employment level of aggregate demand and economic activity. In both cases, however, this technical approach allows us to state universal recommendations of fiscal policy, for instance, for Post Keynesians to use the budget position to achieve full employment, to manage fiscal balances in a countercyclical way, or to use those items with the higher multiplier effect, usually public investment spending.

However, public sectors are not functional responses to purely economic problems. The design of public sectors and the frontiers between the pri-

vate and public spaces is, to put it in a few words, the result of the social preferences existing at certain moments and locations.

In the case of the European Union, the existence of 27 member states involves that the implementation of single fiscal policy rules conflicts with the differences detected not only in economic performances but also with differences in a number of social, political, cultural, and institutional elements. These differences have their reflex in the different sizes and composition of public expenditures in the EU member states. Obviously, the enlargement process of the European Union to the Central and Eastern European countries amplifies these differences. This is clear in the case of the analysis of the functional composition of public expenditures, where we detect that EU member states not only differ among them in terms of the size of public expenditures. This shows the different views about the size of public sectors and the relevance given to public sectors by national constituencies as a supplier of goods and services to the private sector. We also detect significant differences in terms of the relevance given to the different kinds of services and goods supplied by the European public sectors.

In this sense, it is relevant to mention that these differences are not only related to the outlays that are usually included as welfare states' expenditures. In this sense, items such as education, housing, or even health are the kinds of expenditures with the lowest relevance in the cluster formation—that is, these would be the expenditures with the lowest dispersion. On the contrary, it is in items included in the minimum states, such as defense or public order and safety, where the highest differences are found.

Although questionable, the existence of fiscal rules related to fiscal imbalances, mainly in a monetary union, can be justified by both economic and political reasons. However, the step forward defended by European institutions in favor of a single model of public sectors, with the aim of homogenizing the size and the functions of European public sectors, collides not only with the lack of a solid economic basis but also with constituencies and societies that state their preferences in favor of national design of their public sectors.

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