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**FISCAL REGIONAL FLOWS IN EUROPE:  
THE REDISTRIBUTIVE EFFECTS OF THE  
EUROPEAN UNION BUDGET**

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**ABSTRACT**

The purpose of this paper consists in estimating the redistributive effects among European countries and regions of the European Union budget in the 1995-97. This analysis makes for the main items of revenue, expenditure and net fiscal balance. The methodology follow consist of two phases. First, we estimate the income elasticity of the European Union revenues, expenditures and fiscal balance with the purpose of to examine the progressive degree of every instrument considered. Secondly, we analyse the impact of these instruments in the income regional and national with the objective of to evaluate its capacity of to reduce differences in per capita income levels.

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## 1. INTRODUCTION

During this last decade one of the more actual and debated subjects is the redistributive capacity on a territorial-wide scale of the European Union budget. Among the numerous arguments for defending an active intervention it is emphasised its power to mitigate horizontal equity problems, that are due to the intervention of the national governments<sup>1</sup>, its capacity to reduce the income territorial disparities that exist or the disparities derived from the integration process<sup>2</sup>, its ability to guarantee the existence of the own European Union<sup>3</sup>, and its power to mitigate the negative effects originated by possible asymmetric shocks that can be generated in the monetary union<sup>4 5</sup>.

Due to this last argument a great number of studies have been devoted to estimate the redistributive power of the central government in countries such as United States and Canada (because they are considered referents for the European case), since it is one of the established requirement by the monetary optimum areas theory<sup>6</sup>. The obtained results change considerably depending on the revenues and expenditures categories that are taken into account on the econometric technique that is used. Thus, while Sala-i-Martin and Sachs (1992) estimate the redistributive power of the United States federal government about 40%, Von Hagen (1992) gets much more restrictive results. He obtains a value close to 10%. Applying on alternative methodology, Bayoumi and Masson (1995) estimate the regional redistribution capacity of United States federal budget around 22% and in the case of Canada in a 39%. These authors consider that the federal fiscal flows depend on the institutional structure of each country, and that in the European ambit the spatial redistribution is carried out by the national governments. Moreover, they consider that the territorial redistributive capacity of the federal governments is more a political option than a economy necessity for the performance of the monetary union.

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<sup>1</sup> See Davezies-Nicor-Prud'homme (1996).

<sup>2</sup> Among the numerous studies that are in favor of this argument are distinguished Cecchini Report (1988), Padoa-Schioppa Report (1987) and Emerson et al. (1992).

<sup>3</sup> See Cremer y Pestieau (1996).

<sup>4</sup> The Monetary Union supposes not only the transfer of the monetary policy to European Union but also the existence of important limits to the fiscal policy established through Stability Programs, which reduce the national fiscal autonomy.

<sup>5</sup> See, for example, Sala-i-Martin and Sachs (1992), Krugman (1993) and Goodhard and Smith (1993).

<sup>6</sup> See Mundell (1961).

All these studies have led to the development of several empirical works that, although these do not have aim of debating the suitability of the European Monetary Union, these have applied their methodology to estimate for several countries the territorial redistribution capacity of the central government. In this sense, it is important to point out Goodhart and Smith (1993)' work and Domenech-Maudes-Varela (2000)' study. In the first paper, the authors have replayed the methodology used by Sala-i-Martin and Sachs (1992) and Von Hagen (1992) for the cases of the United States, Canada and Great Britain.

In the second study, the authors carry out similar analysis in order to estimate the redistributive effects of the European Union budget among the member countries during the 1986-98 period. More exactly, these authors have estimated the elasticity of different categories of community expenditure and revenue in relation to the income of the member countries through a logarithmic regression. The estimation was carried out on a pool of data where temporal dummy variables were included with the purpose of simultaneously analysing how changes affect each region each year. The results obtained showed that the redistributive impact of the fiscal flows between the member countries generated by the European Union budget was considerable, particularly given the small size of this budget, and that this redistributive effect has tended to increase over time, due basically to the effects of the structural and cohesion funds. The elasticity of per capita community expenditure estimated in ecus in relation to per capita income is -0.23, which means a certain degree of progressiveness, whereas revenues behave proportionally as the value of the coefficient is very close to one.

The methodology employed by Bayoumi and Masson (1995) has been reproduced by Duboz and Nicot (1998) to analyse the redistributive capacity of Germany federal government and by Barberán-Bosch-Castells-Espasa (2000) for the Spanish central government. In the first case, the results obtained show that the redistribution power of the federal budget is around 40%, and that this percentage has remained practically unchanged after the unification process in 1991. In the Spanish case, the income regional redistributive capacity of central government budget is calculated about 36%.

Méltiz and Zumer (1998) have extended this study using an econometric estimation by panel to estimate the equation proposed by Bayoumi and Masson. The estimations obtained through the panel econometric technique show that redistribution is substantially more significant in France and in the United Kingdom than in the United States and Canada. In France, net transfers (revenue less public expenditure) proceeding from the central government reduce 38% of the regional disparities in income, 26% in the United Kingdom and around 18% and 16% in Canada and the United States respectively.

Another alternative way to quantify the regional redistributive capacity of the public sector is to use macroeconomics models. It can be done in three different ways: through simulations on neo-classical models<sup>7</sup>, incorporating fiscal flows in endogenous growth models<sup>8</sup> or using input-output tables<sup>9</sup>.

In spite of the majority of studies on this subject have been carried out in the last decade, it is necessary to mention the McDougall Report (1977) because it is the pioneer to deal this subject and for its rigor and amplitude. This Report analyses the ability of the central governments of France, Italy, the United Kingdom, the Federal Republic of Germany, Australia, Canada, Switzerland and the United States, to reduce regional disparities in terms of income. The Report draws three significant conclusions. The first is the affirmation that regional differences in income diminish strongly after the budgeted activity of the central government. In fact, the Report estimates that, on average, public sector activity reduces regional differences by 40%, the single-state country budgets showing greater redistributive power than those of federal states (46% in relation to 35%)<sup>10</sup>. The second great conclusion is that, in general, the redistributive

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<sup>7</sup> Pisani-Italianer-Lescure (1993) use the simulation method to quantify the insurer effect of the central government of the United States, Germany and France; Jones and Whaley (1990) analyse the influence of the fiscal flows generated by the federal government of Canada in six regions using a general equilibrium model; and Blake (1995) also uses the macroeconomic simulation method to analyse the regional effects when there are changes in the fiscal and monetary policies of the national government of Great Britain.

<sup>8</sup> See for example Pereira (1999), where he evaluates the effects of the European Funds in the four cohesion countries.

<sup>9</sup> Pola (1998) analyse through input-output regional tables the impact of the fiscal flows generated by the central government budget of Italy.

<sup>10</sup> In fact, the redistributive power of central governments is estimated in the case of Germany to be 29%, Australia 53%, Canada 32%, the United States 28%, and Switzerland 22% (in this case social security is not included). With regard to the single-state countries, the results obtained were in the case of France 54%, Italy 47%, and the United Kingdom 36%.

effect of public expenditure is much greater than of public revenue. The results obtained state that, on average, the redistribution associated with public revenue is 5%, while that related to public expenditure reaches 35%. Thirdly, the Report shows the existence of an inverse relationship between the sign and the volume of the regional fiscal and trade balances.

On this line of research, the purpose of this paper is to estimate the redistributive effects among European countries and regions of the European Union budget in the 1995-97. This analysis is made for the main revenue and expenditure categories and also for the budget as a whole using the net fiscal balance.

In this sense, we want to reiterate that the aim of this study is not to analyse whether the European Union has to act in the spatial redistribution ambit or no, but only to estimate the distributive effect generated by its actuation. This is due to the fact that regardless of whether there exist reasons that justify an active intervention in the territorial redistribution area by the European Union, it is obvious that any public budget has distributive effects and that in particular any budget actuation, by the revenues or by the expenditures side also has distributive effects although these actuation do not have explicit redistributive objectives<sup>11</sup>. For this reason the knowledge of the distributive effects at national and regional level is itself an interesting information.

The methodology used consists of two phases. Firstly, we estimate the income elasticity of the European Union revenues, expenditures and fiscal balance with the purpose of examining the degree of progressivity of each instrument considered. Secondly, we analyse the impact of these instruments in the regional and national income with the aim of evaluating its capacity to reduce the differences in per capita income levels.

In order to achieve the proposed objectives, the present paper is structured in five sections, this introduction being the first one. In the second section the methodology applied is explained, while in the third one the characteristics of the data used are described. In the forth an estimation of the redistributive effects of the budget of the

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<sup>11</sup> See Mc Dougall (1992) and Castells (1998a).

European Union is made, and in the fifth and last section the main conclusions are gathered together.

## 2. METHODOLOGY

The methodology employed in analysing the redistributive effects of the budget of the European Union combine the elasticities method introduced by McDougall (1977) and the disposable income method developed by Bayoumi and Masson (1995).

First, we estimate the elasticity-income of the regional and national European Union revenues, expenditures and fiscal balance with the purpose to examine the progression of every instrument considered.

Following Report McDougall (1977), the coefficients of elasticity are obtained through a regression, where regional and national taxes and expenditure are the dependent variables and the initial income is the independent variable. Initial income is defined like the income existing before the activity of the public sector. The difference between our method and the one used by McDougall is that we take the variables as logarithms. Consequently, the coefficients of the slopes are the estimated elasticities.

The estimated equation is:

$$\ln \frac{X_i^j}{X_m^j} = a + b \ln \frac{Y_i}{Y_m} + e_i \quad (1)$$

where,

X are the taxes or expenditures in each region per capita terms.

Y is the initial income of the regions (or countries) in per capita terms.

j refers to different types of revenues and expenditures.

i refers to the regions (or countries).

m refers to average values for the total of regions (or countries).

It should be mentioned that the used variables are average values for the period 1995-97.

As the familiar reader might have noticed this method is very similar to that one used by Sala-i-Martin and Sachs (1992). However, they used time series in their estimations while we use cross-section data.

Thus, the obtained elasticities indicate the change in regional (or national) revenues and expenditures when the regional (or national) income changes. If the slope is equal to one, the tax or expenditure is neutral, which means that it varies from one region (or country) to another in the same proportion as initial income. Consequently, those fiscal instruments do not modify the initial differences in relative regional (or national) income. Taxes with elasticities above one are progressive, while expenditures with elasticities above one are regressive.

For the case of fiscal balances, the elasticity-income is estimated using the equation developed by Castells (1998a), where the dependent variable is the ratio between fiscal balance and regional (or national) income. We should add one to this ratio to avoid negative values. Thus, we estimate the following equation:

$$\ln \left( 1 + \frac{SF_i}{Y_i} \right) = a + b \ln \frac{Y_i}{Y_m} + e_i \quad (2)$$

where,

SF is the regional (or national) fiscal balance with the European Union budget.

Once the degree of progressivity of the different instruments of revenues, expenditures and fiscal balance is analysed, we study its redistributive capacity which depends not only on the degree of progressivity but also its relative importance on the regional (or national) income. It might appear that an item revenue or expenditure is very progressive but, its importance on regional (or national) income is very small. In this case, the redistributive effect of this instrument is very low. Likewise, an item revenue or expenditure could be not very progressive but, its importance on regional (or national) income is large, in this case the redistributive effect can be more important.

Therefore, it is necessary to consider the progressivity of the instruments and their incidence in reducing territorial income disparities.

For the analysis of this second aspect we use the Bayoumi and Masson (1995) methodology, which was used by these authors to examine the redistributive and stabilizer effects of the central government of the United States and Canada. This methodology has been used for many authors and it has been applied to various countries<sup>12</sup>.

Using cross-section regression analysis we estimate the following equation:

$$\frac{YF_i}{YF_m} = \mathbf{a} + \mathbf{b} \frac{Y_i}{Y_m} + e_i \quad (3)$$

where,

Y is the initial income, in other words, it is the income existing before the activity of the public sector, in our case the European Union. We use Gross Domestic Product (GDP) as initial income since it is the primary magnitude of income for the European regions.

YF is the final income, which is equal to the initial income (Y) modified by the activity of the European Union. To obtain the final income, revenue obtained by the public sector is subtracted from the initial income and public expenditure is added.

i refers to regions or countries.

m refers to average values for all regions or countries.

The variables Y and YF are average values in per capita terms for the period considered, 1995-97.

The estimated value for the coefficient “ $\beta$ ” indicates the relationship between the final income (YF) and the initial income (Y) and it is understood in redistributive terms. For example, a coefficient of 0.70 indicates that 70 percent of the initial differences in

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<sup>12</sup> See Melitz y Zumer (1998), Duboz y Nicot (1998) and Barberán-Bosch-Castells-Espasa (2000).



relative per capita incomes remains after public sector activity, and that this reduces 30% of every ecu of difference between the regions or the countries. Therefore,  $(1-\beta)$  represents the amount of income redistribution caused by fiscal flows derived from the European Union budget.

The estimation of equation (3) was carried out departing from various calculations of the final income. They were the following:

- $YF = Y - \text{European Union Revenue}$  (distinguishing between the various typologies of revenues). The value  $(1-\beta)$  shows the redistributive power of public revenue as a whole and its different categories.
- $YF = Y + \text{European Union Expenditures}$  (also distinguishing the larger categories of public expenditure). The value  $(1-\beta)$  indicates the redistribution derived from total public expenditure and from its main categories.
- $YF = Y + \text{Regional or National Fiscal Balance}$  with the European Union. In this case, the value of  $(1-\beta)$  indicates the total redistributive power of the European Community budget.

### 3. CHARACTERISTICS OF DATA

The data relating to revenue and expenditure, as well as fiscal balances, used in this study have been taken from a previous study, carried out by the author. Fiscal flows derived from the activity of the European Union in all countries and regions during the 1995-97 period were quantified<sup>13</sup>.

In the mentioned study, the territorial data for income and expenditure is the result of the estimation of the territorial incidence of the resources and the expenditure of the European Union. The territorial assignation carried out is based on economic incidence and it uses information from the Annual Reports of the Court of Auditors. Specifically, we use effective revenues and realised payments.

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<sup>13</sup> See Espasa (2000).

### 3.1. Territorial assignment of the revenues

Revenues are assigned territorially using the existing methodology which is based on the hypotheses of tax incidence most suitable for each of the types of revenue. Hence, we distributed total revenue between territories using the most appropriate statistical indicators corresponding with those hypotheses of tax incidence. This procedure is necessary due to the possibility of ‘shifting’ the tax burden between individuals, which means that the collection of taxes in a certain area does not necessarily correspond to the taxes paid by its residents.

The hypotheses of incidence of the tax burden established to assign the revenue of the European Union territorially are those commonly used in the majority of theoretical and empirical studies. Below, the hypotheses of tax incidence that we use to distribute revenues between countries and regions are briefly exposed:

- *Net Traditional Own Resources*. These resources comprise customs duties, agricultural duties and sugar and isoglucose levies less collection costs. It is considered that these taxes are passed through prices to the final consumer, and therefore they are the ones supporting the tax burden. Consequently, total revenues by traditional own resources have been distributed among regions and countries according to the final consumption of households and not according to the collected revenue in each area.
- *VAT resources* is a direct contribution of the states members to the European Union. Consequently we have supposed that translation of the tax burden among countries does not exist. However, the contribution by VAT inside every State is assumed to be borne by consumers to the extent they suffer the tax burden. Thus, we have assigned to each country its effective contribution, and this contribution has been distributed among regions according to the regional distribution of the national consumption.
- The *GNP resource* is also a direct transfer from States members to the European Union, thus we have considered that the tax burden of this resource is totally internalized inside of every member State. Thus it has been assigned to every

country its effective contribution and this contribution has been assessed among the European regions in function of the regional distribution of the tax burden state to be borne.

- Finally, the revenues obtained through wages and salaries taxes on the Community Institutions' personnel have been distributed among countries and regions according to the territorial distribution of the administrative expenditure.

### **3.2. Territorial assignment of the expenditures**

The analysis of the territorial assignation of the public expenditure is as important as of the revenues, but its estimation is less studied and, it is more difficult to carry out. Following Castells (1998b) the reason rests on the all act that public expenditure, as far as it is directed towards the production of services for their public provision, produces two different effects. On the one hand, public expenditure finances services that are provided to consumers without compensation and, on the other hand, it makes payments to acquire the necessary resources (labour, supplies, equipment, installations, etc.) to produce those public services. The first is a unilateral effect, without compensation, typical of the public sector. The second is a bilateral effect, with compensation, as the recipients of the payments always deliver something in exchange.

Consequently, studies of territorial aspects of expenditure can be focused upon taking the geographical location of the expenditure as a reference or the place of residence of the individuals that benefit from the service provided. The first one is the so called flow approach, and the second one is the determining benefit approach.

These both approach are not exclusive but they explain different questions. In the case of the flow approach the purpose is to analyse the expenditure incidence in the economic activity of the territory where the provision of public goods and services is executed. The benefit approach quantifies the impact of public consumption (public good or public service). Consequently, the territorial assignment of the Community's expenditure among countries and regions is carried out following those two criteria.

The usual practice in the territorial assignation of expenditure, according to the flow approach, it is based on attributing the public expenditure to the region in which the expenditure materialises, that is where the personnel, the use of current goods and services, the receipt of the transfers and the investments are located. That was the adopted criteria. Hence we gave to the flow approach a sense of 'reality' as instead at against that alternative of giving to it a sense of 'cash flows', which would lead us to attribute the public expenditure to the region in which the Administration makes its payment.

The territorial assignation of public expenditure following the previous approach can be relatively straight forward as far as there is an accounting system which would allow all categories of expenditure to be regionalised. When that happens the territorial assignation of the expenditure is direct and immediate. Otherwise, it is necessary to establish hypotheses about the territory where this expenditure is made and to select the more suitable statistical indicators. Concretely, according to that approach the expenditure is assigned to the territory where the personnel is localised, the purchase of current goods and services are ascribed to the territory in which they are used instead of to the territory where they are acquired, investments to the region where they materialise, and transfers to the territory where their final recipients reside.

The Annual Reports of Court of the Auditors provides information concerning the expenditure at the States members. However, regional information is only available for expenditure on structural actions. Therefore, we should establish some hypothesis to determine the assignation of the rest of regional expenditures.

According to the benefit approach, the assignation of community expenditure depends on the beneficiary resides, regardless of the allocation of the public production and public investment. It is also necessary to establish some assumptions about the allocation of the beneficiaries and about the quantification of the benefits that beneficiaries receive. Finally, it is necessary to select the statistical indicators that better represent to the beneficiaries of public goods and services.

Summarising, the territorial distribution of the main items of the European Union expenditures has been carried out following the criteria exposed bellow:

- Administrative expenditures of the European Union is the only category of expenditure for which the Court of Auditors does not provide information specified by States members. The motive is that the Court considers that administrative expenditure have an indivisible character and produce external effects that reach the population as a whole. However the Commission produced a Report where the geographical distribution of the administrative expenditures corresponding to the fifth rubric of the financial perspectives by States members appears. Its distributive rule has been used for assigning the administrative expenditures by countries following the flow approach. The decomposition of this expenditure by regions is carried out following the distribution of the personnel of the different Community Institutions.

On the contrary, under the benefit approach we have considered that those expenditures finance a public pure good of community scope, since they produce indivisible profits and external effects that reach the population as a whole. Consequently, under this approach, those expenditures have been distributed among countries and regions in function of their population.

- The results of the territorial assignation of European Agricultural Guidance and Guarantee Fund (EAGGF) following the benefit approach are coincident with results obtained using the flow approach. This coincidence of results occurs since the finality of this fund is to guarantee a certain income to farmers. Because at this reason we suppose that farmers are the direct beneficiaries of those transfers. Territorial distribution of these expenditures by countries is obtained directly from the Financial Report of EAGGF, while the regional distribution is obtained from the application of intervention's criteria used for every subsidised product, like the area cultivated, the production, number of heads cattle, etc..
- On the territorial imputation of structural actions' expenditures we have also assumed that the results from both approaches are coincident. In this case, the reason is that we have considered that the benefits from this actions remains inside the territory which receives the transfers. Obviously, the financed projects can provoke external effects whether residents in another regions. However, in practice

it is very difficult to know what kind of project is financed in every region and also which is the percentage of community share in every one of them. This information is essential to establish hypothesis of incidence on the possible overflow effects.

Information about payments realised by European Union in every country and region is disposable, consequently in most at the concepts of expenditure the assignment is immediate. In the rest of cases imputation's indicators related with the objectives of these expenditures have been used.

- Finally, when we consider the rest of the European Union expenditures like expenditures on research and development, external affairs and international assistance and for the rest of internal politics the results obtained with both approaches are very different. The reason for this outcome is that these actions generate benefits that, in general, affect the whole population. Therefore, following the benefit approach the population distribution is one of the main indicator of allocation. However, in the case of the flow approach, the expenditure corresponding to those policies are assigned to the territory where they are destined.

## **4. ESTIMATION AND RESULTS**

### **4.1. The redistributive power of European Union revenue**

The analysis of the redistributive capacity of the communitary revenue is realised for five categories of revenue:

1. *Tradicional Own Resources (TOR)*. These resources comprise customs duties, agricultural duties and sugar and isoglucose levies less collection costs.
2. *VAT resources*. This category includes the resources originated by VAT, the excess revenues of previous budgets by VAT and the British check or compensation.
3. *GNP Resources (GNP)*. It is correspondent to revenues by this resource and the excess of previous budgets by GNP contribution.

4. *Own Resources (OR)*. These revenues are defined like the aggregation of the three previously revenues categories ( $OR = TOR + VAT + GNP$ ).
5. *Total revenues (TR)*. There are determined as the sum of own resources plus the “other revenues”, which basically are taxes on wages and salaries of the community personnel ( $TR = OR + \text{other revenues}$ ).

We have not been able of estimating the elasticity to “other revenues” because the number of observations with value different from zero is very low. Nevertheless, its effect can be analysed using the difference between the elasticity of own resources and the elasticity of total revenues.

The elasticity of the European Union revenues for 1995-97 period has been estimated using the equation (1). The results are showed in table 1, which is divided in two parts, one correspondent to the regional sample and other to the country sample. Both estimations have been carried out getting the variables in ecus and PPS.

All the estimated income elasticities in the regional sample have value lower than the unity. Thus, all and also each of the community revenues are showed regressive and the estimations are lower when the variables are in PPS. Concretely, the estimated income elasticity of total revenues is 0.969 when all variables are expressed in ecus and 0.876 when they are in PPS. In the national sample, the income elasticity of total revenues is higher than one (1.210 in ecus and 1.551 in PPS). Therefore, it is possible to affirm that the financial system of the European Union has certain degree of progressivity at national level, while it is slightly regressive when it is analysed at regional level.

When we look at different types of revenues, we should that the VAT resource is regressive in the regional sample, while it appears progressive in the national sample. This outcome responds to own logic of the financial system which in the last decade has shown a reduction of its regressivity. This has been achieved through the reduction of the maximum tax rate and also changing the structure of the VAT resource (limitation of its tax base and financing the British compensation through GNP). However, those reductions are only undertaken at national level and they do not affect the regions. The

GNP resource is the type of revenue that shows an income elasticity closest one either in the regional sample ( $b = 0.975$  when the variables are expressed in ecus and  $b = 0.949$  in PPS), or in the national sample (in this case, its elasticity is  $0.983$  in ecus and  $1.003$  in PPS). On the contrary, the traditional own resources has an elasticity larger than one. Clearly, they are regressive in the two analysed sample.

The sum of traditional own resources, VAT resource and GNP resource, composes forms the own resources. The income elasticity of these resources is quite low in the regional sample ( $b = 0.891$  in ecus and  $b = 0.742$  in PPS) and it increases to  $0.965$  and  $0.968$ , respectively, in the national sample. Finally, it can be checked that taxes on personnel's wages assigned to Institutions of the Community are the most progressive. This result is due to the difference of the elasticities of the own resources and the total revenues.



**Table 1**  
**Estimation of the income elasticity of the European Union revenues**

Dependent variables	Variables in ECUS			Variables in PPS		
	Constant	Ind. V.: $\ln(Y_i/Y_m)$ Coefficient b	R <sup>2</sup>	Constant	Ind. V.: $\ln(Y_i/Y_m)$ Coefficient b	R <sup>2</sup>
<b>a) Regional sample (n = 118)</b>						
$\ln(T_i^{OWN}/T_m^{OWN})$	-0.005 (-0.37)	0.750 (23.29)***	0.82	-0.002 (-0.14)	0,598 (13,99)***	0.63
$\ln(T_i^{VAT}/T_m^{VAT})$	-0.003 (-0.08)	0.926 (11.41)***	0.53	-0.013 (-0.40)	0,712 (6,29)***	0.25
$\ln(T_i^{GNP}/T_m^{GNP})$	-0.022 (-1.27)	0.975 (23.04)***	0.82	-0.017 (-0.98)	0,949 (15,75)***	0.68
$\ln(T_i^{OR}/T_m^{OR})$	0.002 (0.12)	0.891 (22.65)***	0.82	-0.001 (-0.04)	0,742 (14,05)***	0.63
$\ln(T_i^{TR}/T_m^{TR})$	0.022 (1.04)	0.969 (19.01)***	0.76	0.021 (1.00)	0,876 (12,16)***	0.56
<b>b) National Sample (n = 15)</b>						
$\ln(T_i^{OWN}/T_m^{OWN})$	-0.067 (-2.29)**	0.816 (10.64)***	0.90	-0.059 (-1.98)*	0.704 (5.10)***	0.67
$\ln(T_i^{VAT}/T_m^{VAT})$	0.030 (0.65)	1.016 (8.50)***	0.85	0.036 (0.78)	1.037 (4.97)***	0.66
$\ln(T_i^{GNP}/T_m^{GNP})$	0.009 (0.598)	0.983 (25.32)***	0.98	0.015 (1.02)	1.003 (14.60)***	0.94
$\ln(T_i^{OR}/T_m^{OR})$	0.010 (0.39)	0.965 (14.88)***	0.84	0.016 (0.65)	0.968 (8.47)***	0.85
$\ln(T_i^{TR}/T_m^{TR})$	0.067 (1.08)	1.210 (7.43)***	0.81	0.071 (1.26)	1.551 (5.95)***	0.73

OWN: Traditional Own Resources

VAT: VAT Resources

GNP: GNP Resources

OR: Own Resources

TR: Total Revenues

i : regions or countries

m: average of the regions or countries

The redistributive power of the community's revenue is analysed using the equation (3) and adjusting the final income as follows:

$$YF = Y - \text{Community Revenue} \quad (4)$$

In table 2 the obtained results are shown.

The redistributive effect of total revenue at regional level is very small: 0.26% when variables are in ecus and 0.27% when they are in PPS. This outcome is due exclusively to "other revenues", since the own resources (traditional own resources, VAT resources and GNP resources) enlarge regional income differences. Thus, the global effect is an increase of regional disparities of -0.11% and 0.25%, depending whether variables are expressed in ecus or PPS.

The results of the redistributive power of revenues by countries are completely different. In this ambit, except for the case of traditional own resources, the rest of revenues shows a certain redistributive capacity, being the VAT the one which has the greatest impact. Its redistributive power is 0.15% and 0.22%, respectively. The redistributive effect of total revenue among countries is 1.37% when variables are in ecus and 2.45% when they are in PPS. They are higher values than those obtained in the regional sample. Obviously, these results are on line with the income elasticities estimations obtained previously. Consequently, it is deduced that the financing community system have more ability to redistribute among countries than among regions.

**Table 2**  
**The redistributive power of the European Union revenues**

Dependent Variable: Final income ( $YF_i/YF_m$ )	Variables in ECUS				Variables in PPS			
	Constant	Indep.V.: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	% (1- $\beta$ )	Constant	Indep.V.: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	% (1- $\beta$ )
<i>a) Regional sample (n = 118)</i>								
Y – OWN	-0.001 (-7.86)***	1.0006 (135566)***	1.00	-0.06	-0.001 (-9.61)***	1.0008 (11364.9)***	1.00	-0.08
Y – VAT	-0.005 (-1.62)	1.0003 (3497)***	1.00	-0.03	-0.002 (-4.22)***	1.0015 (2692.1)***	1.00	-0.15
Y- GNP	-0.001 (-1.12)	1.0001 (12089)***	1.00	-0.01	-0.000 (-1.14)	1.0002 (7884.2)***	1.00	-0.02
Y- OR	-0.001 (-3.13)**	1.0011 (2736)***	1.00	-0.11	0.003 (-5.62)***	1.0025 (2183.2)***	1.00	-0.25
Y – Total Revenues	0.002 (1.51)	0.9974 (842.7)***	1.00	0.26	0.002 (1.28)	0.9973 (655.3)***	1.00	0.27
<i>b) National sample (n = 15)</i>								
Y – OWN	-0.000 (-1.53)	1.0004 (6522.1)***	1.00	-0.04	-0.001 (-1.74)	1.0006 (3959.0)***	1.00	-0.06
Y – VAT	0.001 (1.53)	0.9985 (1382.3)***	1.00	0.15	0.002 (1.60)	0.9978 (883.4)***	1.00	0.22
Y- GNP	0.000 (0.80)	0.9998 (7120.2)***	1.00	0.02	3.059 (1.41)	0.9996 (4823.9)***	1.00	0.04
Y- OR	0.001 (1.18)	0.9988 (1196.0)***	1.00	0.12	0.002 (1.31)	0.9981 (781.1)***	1.00	0.20
Y – Total Revenues	0.012 (2.13)**	0.9863 (192.2)***	1.00	1.37	0.023 (3.61)**	0.9755 (160.9)***	1.00	2.45

OWN: Traditional Own Resources

VAT: VAT Resources

GNP: GNP Resources

OR: Own Resources

TR: Total Revenues

i : regions or countries

m: average of the regions or countries

## 4.2. The redistributive power of European Union expenditure

The estimation of the income elasticity of expenditures is carried out using equation (1) and analysing four categories of expenditure: the expenditure derived from the EAGGF (AGR), the expenditure on structural actions (STR), the expenditure on research and development (R+D), and other internal politics expenditure (IP), where expenditure on external affairs and administrative expenditure are included. Finally, we also estimate the income elasticity for the whole of the community expenditure.

The redistributive power analysis has been carried out using the flow approach and the benefit approach. Table 3 and 4 show the estimations of income elasticities of expenditures following the flow approach and the benefit approach, respectively.

As it is known values of the income elasticity higher than one mean that expenditures are regressive, since an increase on the share of regional income increases more than proportionally the expenditure in that region with respect the community average. On the contrary, elasticities lower than one mean that these expenditures are progressive.

We find out that the income elasticity for the whole of the community expenditure in the regional sample is always negative and therefore we can say that the expenditures is progressive. This result is the same either under the flow or the benefit approach and regardless variables are in ecus or PPS. Concretely, the income elasticity of total expenditure when we use the flow approach is  $-1.061$  in ecus and  $-1.901$  in PPS, and it is  $-1.294$  and  $-2.248$  when we use the benefit approach. Thus, we observe that the expenditure is more progressive under this last approach.

The coefficient of the income elasticity under the flow approach is not statistically significative in the national sample. On the other hand, when the estimation is carried out following the benefit approach the coefficient has values clearly significatives and negatives ( $b=-0.800$  if the variables are in ecus and  $b=-2.082$  if they are in PPS). Hence, the European Union expenditure is progressive when it is assigned according to the benefit approach.

The most progressive expenditures in both samples are derived from structural actions. Estimated coefficient is  $-2.519$  and  $-3.886$  in the regional sample, depending on whether variables are defined in ecus or in PPS, and  $-1.947$  and  $-3.648$  in the national sample. In this case, the results according the flow and benefit approach are coincident, since it is considered that benefits remain inside the territory where expenditures are destined. The agricultural expenditure coefficient is, in all the cases, lower than the unity, while in the member States sample is not statistically significant. At the regional level it is progressive but the coefficients are smaller ( $b = -1.182$  in ecus and  $b = -2.346$  in PPS) than those obtained for structural expenditures.

Expenditure in research and development is regressive in both samples when income elasticities are estimated according to the flow approach. However, when this expenditure is territorialized under the benefit approach it becomes slightly progressive. Expenditures associated to the rest of internal politics presents trustworthy statistical problems, because the values of R are extremely low. Consequently, the formulated model has very little explicative capacity. Still so, it should be said that the coefficient of the estimated elasticity is lower than unity under both approaches when using the regional sample. And in the national sample, these expenditures are very regressive.

**Table 3**  
**Estimation of the income elasticity of the European Union expenditures**  
**Flow approach**

Dependent variables	Variables in ECUS			Variables in PPS		
	Constant	V.ind.: ln (Y <sub>i</sub> /Y <sub>m</sub> ) Coefficient b	R <sup>2</sup>	Constant	V.ind.: ln (Y <sub>i</sub> /Y <sub>m</sub> ) Coefficient b	R <sup>2</sup>
<i>a) Regional sample (n = 118)</i>						
ln ( G <sub>i</sub> <sup>AGR</sup> / G <sub>m</sub> <sup>AGR</sup> )	-0.441 (-3.89)**	-1.182 (-4.29)***	0.14	-0.436 (-4.05)***	-2.346 (-6.22)***	0.25
ln ( G <sub>i</sub> <sup>STR</sup> / G <sub>m</sub> <sup>STR</sup> )	-0.611 (-8.36)***	-2.519 (-14.17)***	0.63	-0.548 (-6.92)***	-3.886 (-14.01)***	0.63
ln ( G <sub>i</sub> <sup>R+D</sup> / G <sub>m</sub> <sup>R+D</sup> )	-0.410 (-5.68)***	1.005 (5.73)***	0.22	-0.374 (-5.29)***	1.399 (5.65)***	0.22
ln ( G <sub>i</sub> <sup>IP</sup> / G <sub>m</sub> <sup>IP</sup> )	-1.044 (-8.29)***	0.908 (2.96)***	0.07	-1.031 (-8.25)***	0.947 (2.17)**	0.04
ln ( G <sub>i</sub> <sup>TE</sup> / G <sub>m</sub> <sup>TE</sup> )	-0.127 (-1.68)*	-1.061 (-5.77)***	0.22	-0.094 (-1.23)	-1.901 (-7.11)***	0.30
<i>b) National sample (n = 15)</i>						
ln ( G <sub>i</sub> <sup>AGR</sup> / G <sub>m</sub> <sup>AGR</sup> )	0.045 (0.26)	-0.397 (-0.89)	0.06	0.068 (0.41)	-1.556 (-2.07)*	0.25
ln ( G <sub>i</sub> <sup>STR</sup> / G <sub>m</sub> <sup>STR</sup> )	-0.203 (-1.22)	-1.947 (-4.46)***	0.61	-0.146 (-0.68)	-3.648 (-3.73)***	0.52
ln ( G <sub>i</sub> <sup>R+D</sup> / G <sub>m</sub> <sup>R+D</sup> )	0.127 (0.74)	1.123 (2.49)**	0.32	0.126 (0.76)	1.766 (2.32)**	0.29
ln ( G <sub>i</sub> <sup>IP</sup> / G <sub>m</sub> <sup>IP</sup> )	0.163 (0.40)	2.515 (2.37)**	0.30	0.151 (0.39)	4.340 (2.46)**	0.32
ln ( G <sub>i</sub> <sup>TE</sup> / G <sub>m</sub> <sup>TE</sup> )	0.354 (1.54)	0.139 (0.23)	0.00	0.378 (1.56)	0.203 (0.18)	0.00

AGR: EAGGF-Guarantee

STR: Structural Actions

R+D: Research and Development

IP: Internal Politics (include also administrative expenditures and external affairs)

TE: Total Expenditures

i : regions or countries

m: average of the regions or countries

**Table 4**  
**Estimation of the income elasticity of the European Union expenditures**  
**Benefit approach**

Dependent variables	Variables in ECUS			Variables in PPS		
	Constant	V.ind.: ln (Y <sub>i</sub> /Y <sub>m</sub> ) Coefficient b	R <sup>2</sup>	Constant	V.ind.: ln (Y <sub>i</sub> /Y <sub>m</sub> ) Coefficient b	R <sup>2</sup>
<i>a) Regional sample (n = 118)</i>						
ln ( G <sub>i</sub> <sup>AGR</sup> / G <sub>m</sub> <sup>AGR</sup> )	-0.441 (-3.89)***	-1.182 (-4.29)***	0.14	-0.436 (-4.05)***	-2.346 (-6.22)***	0.25
ln ( G <sub>i</sub> <sup>STR</sup> / G <sub>m</sub> <sup>STR</sup> )	-0.611 (-8.36)***	-2.519 (-14.17)***	0.63	-0.548 (-6.92)***	-3.886 (-14.01)***	0.63
ln ( G <sub>i</sub> <sup>R+D</sup> / G <sub>m</sub> <sup>R+D</sup> )	0.010 (6.05)***	0.223 (53.34)***	0.96	0.032 (2.48)**	-0.000 (-0.00)	0.00
ln ( G <sub>i</sub> <sup>IP</sup> / G <sub>m</sub> <sup>IP</sup> )	-0.063 (-4.54)***	0.024 (0.70)	0.00	-0.036 (-1.66)*	-0.249 (-3.31)***	0.09
ln ( G <sub>i</sub> <sup>TE</sup> / G <sub>m</sub> <sup>TE</sup> )	-0.161 (2.96)***	-1.294 (-9.80)***	0.45	-0.132 (-2.39)*	-2.248 (-11.62)***	0.54
<i>b) National sample (n = 15)</i>						
ln ( G <sub>i</sub> <sup>AGR</sup> / G <sub>m</sub> <sup>AGR</sup> )	0.045 (0.26)	-0.397 (-0.89)	0.057	0.068 (0.41)	-1.556 (-2.07)*	0.25
ln ( G <sub>i</sub> <sup>STR</sup> / G <sub>m</sub> <sup>STR</sup> )	-0.203 (-1.22)	-1.947 (-4.46)***	0.61	-0.146 (-0.68)	-3.648 (-3.73)***	0.52
ln ( G <sub>i</sub> <sup>R+D</sup> / G <sub>m</sub> <sup>R+D</sup> )	0.013 (3.13)***	0.233 (22.16)***	0.97	0.026 (0.92)	-0.255 (-1.94)*	0.22
ln ( G <sub>i</sub> <sup>IP</sup> / G <sub>m</sub> <sup>IP</sup> )	0.165 (1.68)	0.395 (1.53)	0.15	0.176 (1.86)*	-0.151 (-0.35)	0.01
ln ( G <sub>i</sub> <sup>TE</sup> / G <sub>m</sub> <sup>TE</sup> )	0.117 (0.96)	-0.800 (-2.51)**	0.33	0.144 (1.14)	-2.082 (-3.59)***	0.50

AGR: EAGGF-Guarantee

STR: Structural Actions

R+D: Research and Development

IP: Internal Politics (include also administrative expenditures and external affairs)

TE: Total Expenditures

i : regions or countries

m: average of the regions or countries

Tables 5 and 6 show the redistributive power of the whole of community expenditures and its main categories, using the flow approach and the benefit approach respectively. In their calculation, the estimation of equation (3) was carried out obtaining the final income as follows:

$$YF = Y + \text{Community expenditures} \quad (5)$$

The estimations made show that the community expenditure presents at regional level a redistributive effect of the 1.59%, when the assignment of expenditure is made according to the flow approach and variables are expressed in ecus and 5.84%, when the territorial assignment is carried out under the benefit approach and the data are defined in PPS. At level of member States, the whole of expenditure only results significant when its territorial imputation is realised according to benefit flow. In this case, the redistributive effect is 2.55% when the variables are defined in ecus and 4.51% in PPS.

We find out different results depending on the followed approach because of the variation of research and development expenditures and specially of internal politics expenditures. According to the flow approach both expenditures present a negative redistributive power, whose estimated value is -5.60% in ecus and -10.03% in PPS. Under the benefit approach they have little redistributive capacity: 0.07% in ecus and 0.17% in PPS. We obtain similar results although less intense when using the regional sample. This is due to relative size of the samples and to the fact that these expenditures have a relevant weight in countries like Luxembourg and Belgium in relation to the rest of States members.

The expenditure with the greatest regional redistributive capacity (a 2.29% and a 3.90% depending whether variables are expressed in ecus or in PPS) is that one made on structural actions. Agricultural expenditures occupy the second place with a redistributive power of the 1.11% and 1.75%. The same behaviour present these two categories of expenditures at national level. Moreover these expenditures are always more redistributive when using variables expressed in PPS than when they are defined in ecus.



**Table 5**  
**The redistributive power of the European Union expenditure**  
**Flow approach**

Dependent Variable : Final income ( $YF_i/YF_m$ )	Variables in ECUS				Variables in PPS			
	Constant	Indep.V.: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	%(1- $\beta$ )	Constant	Indep.V.: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	%(1- $\beta$ )
<i>a) Regional sample (n = 118)</i>								
Y + AGR	0.012 (7.50)***	0.9889 (600.9)***	1.00	1.11	0.019 (7.99)***	0.9825 (403.7)***	1.00	1.75
Y + STR	0.025 (6.37)***	0.9771 (248.1)***	1.00	2.29	0.042 (5.39)***	0.9610 (119.8)***	1.00	3.90
Y + (R+D)	-0.0002 (-1.79)*	1.0001 (10646.5)***	1.00	-0.01	-0.000 (-3.17)***	1.0003 (8469.6)***	1.00	-0.04
Y + IP	-0.015 (-3.05)***	1.0180 (212.373)***	1.00	-1.80	-0.022 (-3.75)***	1.0252 (172.7)***	1.00	-2.52
Y + Total Expenditure	0.022 (3.35)***	0.9841 (146.308)***	1.00	1.59	0.0389 (3.62)***	0.9691 (88.0)***	0.99	3.09
<i>b) National sample (n = 15)</i>								
Y + AGR	0.012 (2.31)**	0.9900 (208.2)***	1.00	1.00	0.021 (2.29)**	0.9822 (114.4)***	1.00	1.78
Y + STR	0.017 (4.58)***	0.9853 (297.7)***	1.00	1.47	0.029 (3.61)**	0.9747 (129.0)***	1.00	2.53
Y + (R+D)	-0.001 (-1.52)	1.0009 (2360.3)***	1.00	-0.09	-0.002 (-2.89)*	1.0017 (1945.3)***	1.00	-0.17
Y + IP	-0.049 (-2.24)**	1.0560 (53.6)***	1.00	-5.60	-0.093 (-4.00)***	1.1003 (49.3)***	0.99	-10.03
Y + Total Expenditure	-0.020 (-0.83)	1.0318 (46.6)***	0.99	-3.18	-0.045 (-1.38)	1.0582 (33.8)***	0.99	-5.82

AGR: EAGGF-Guarantee

STR: Structural Actions

R+D: Research and Development

IP: Internal Politics (include also administrative expenditures and external affairs)

TE: Total Expenditures

i : regions or countries

m: average of the regions or countries

**Table 6**  
**The redistributive power of the European Union expenditure**  
**Benefit Approach**

Dependent Variable : Final income ( $YF_i/YF_m$ )	Variables in ECUS				Variables in PPS			
	Constant	Indep.V.: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	%(1- $\beta$ )	Constant	Indep.V.: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	%(1- $\beta$ )
<i>a) Regional sample (n = 118)</i>								
Y + AGR	0.012 (7.50)***	0.9889 (600.9)***	1.00	1.11	0.019 (7.99)***	0.9825 (403.7)***	1.00	1.75
Y + STR	0.025 (6.37)***	0.9771 (248.1)***	1.00	2.29	0.042 (5.39)***	0.9610 (119.8)***	0.99	3.90
Y + (R+D)	0.000 (3284.6)***	0.9997 (9858700)***	1.00	0.03	0.000 (21.66)***	0.9996 (47135.5)***	1.00	0.04
Y + IP	0.001 (16.1)***	0.9986 (11673.8)***	1.00	0.14	0.002 (13.29)***	0.9981 (6858.5)***	1.00	0.19
Y + Total Expenditure	0.039 (9.01)***	0.9645 (223.7)**	1.00	3.55	0.063 (7.50)***	0.9416 (109.3)***	0.99	5.84
<i>b) National sample (n = 15)</i>								
Y + AGR	0.012 (2.31)**	0.9900 (208.2)***	1.00	1.10	0.021 (2.29)**	0.9822 (114.4)***	1.00	1.78
Y + STR	0.017 (4.58)***	0.9854 (297.7)***	1.00	1.47	0.029 (3.61)**	0.9747 (129.0)***	1.00	2.53
Y + (R+D)	0.000 (4509)***	0.9997 (15122778)***	1.00	0.03	0.000 (8.65)***	0.9995 (16535.6)***	1.00	0.05
Y + IP	0.001 (1.49)	0.9993 (1467.9)***	1.00	0.07	0.002 (2.28)**	0.9983 (1110.8)***	1.00	0.17
Y + Total Expenditure	0.030 (3.80)***	0.97455 (136.1)***	1.00	2.55	0.051 (3.45)**	0.9550 (67.1)***	1.00	4.51

AGR: EAGGF-Guarantee

STR: Structural Actions

R+D: Research and Development

IP: Internal Politics (include also administrative expenditures and external affairs)

TE: Total Expenditures

i : regions or countries

m: average of the regions or countries

### **4.3. Global redistributive power of the European Union Budget**

Following the same proceeding than in the community revenue and expenditure, first is examined the income elasticity of fiscal balance, because this variable gathers the territorial effects of the global activity of the European Union Budget. The regional fiscal balance was obtained from the difference between the expenditure made (entry of resources) and the income obtained (exit of resources) by the European Union in every regions and countries.

The analysis of fiscal balance is using both the flow and the benefit approach to impute expenditures among territories. The results of the estimation of equation (2) are shown in Table 7. In this case, the coefficients of the independent variables represent the income elasticities of fiscal balance generated by the community budget. If the coefficient is lower than one indicates that the whole of community budget is progressive since a proportional increase on income reduces the proportion of fiscal balance more than proportionally. And it is regressive when the estimated coefficient is lower than one.

The results of the estimations show that the regional fiscal balance derived of the activity of the European Union is progressive, either whether the analysis is done according to the flow approach (-0.062 in ecus and -0.079 in PPS) or whether it is realised following the benefit approach (-0.071 in ecus and -0.0094 in PPS). The same occurs when the income elasticity of the fiscal balance is examined by Member States. However the magnitude of this elasticity is lower and is not statistically significative when the fiscal balance is calculated following the flow approach.

**Table 7**

**Estimation of the income elasticity of the fiscal balance generated by European Union budget**

Dependent Var.	Variables in ECUS			Variables in PPS		
	Constant	Ind. V.: $\ln(Y_i/Y_m)$ Coefficient b	R <sup>2</sup>	Constant	Ind. V.: $\ln(Y_i/Y_m)$ Coefficient b	R <sup>2</sup>
<b>a) Regional sample (n = 118)</b>						
$\ln(1 + SF_i^{FM} / Y_i)$	0.003 (0.85)	-0.0621 (-6.62)***	0.27	0.005 (1.22)	-0.079 (-5.67)***	0.22
$\ln(1 + SF_i^{FB} / Y_i)$	0.002 (0.51)	-0.0712 (-8.00)***	0.36	0.0034 (0.897)	-0.094 (-7.05)***	0.30
<b>b) National sample (n = 15)</b>						
$\ln(1 + SF_i^{FM} / Y_i)$	0.010 (1.98)*	-0.019 (-1.45)	0.14	0.011 (1.95)*	-0.018 (-0.74)	0.04
$\ln(1 + SF_i^{FB} / Y_i)$	0.005 (1.59)	-0.043 (-5.30)***	0.68	0.006 (1.76)	-0.075 (-5.20)***	0.68

FM: Flow Approach

FB: Benefit Approach

i: regions or countries

m: average of the regions or countries

The analysis of the redistributive effect generated by the European Union budget is done estimating equation (3), and calculating the final income as that resulting of the global activity of the European Union, that is:

$$YF = Y + SF \quad (6)$$

where,

SF is the fiscal balance generated by the community budget.

Table 8 shows the estimation of the redistributive capacity of the European Union under the two approach for allocated community expenditure by regions and countries and in variables expressed in ecus and PPS.

The obtained results show that the regional redistribution capacity of the European Union through its revenue and expenditure policies is relatively small, and it always results higher when expenditures are territorially allocated under the benefit approach. Concretely, at regional level the redistributive power goes to 1.87% when expenditures

are assigned according to the flow approach and variables are taking in ecus, and it goes to 6.19% when expenditures are allocated following the benefit approach and variables are expressed in PPS.

Nevertheless, at national level the redistributive impact of the fiscal balance is negative when we assign expenditures according to the flow approach (-1.87% in ecus and -3.46% in PPS). However, when we use the benefit approach the redistributive power is slightly higher than that one obtained in the regional sample (3.94% in ecus and 6.98% in PPS).

**Table 8**

**The redistributive power of the fiscal balance generates by European Union budget**

Dependent Var.: Final Income ( $YF_i/YF_m$ )	Variables in ECUS				Variables in PPS			
	Constant	Indep.V: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	%(1- $\beta$ )	Constant	Indep.V: $Y_i/Y_m$ Coefficient $\beta$	R <sup>2</sup>	%(1- $\beta$ )
<i>a) Regional sample (n = 118)</i>								
Y + SF <sub>FM</sub>	0,024 (4,09)***	0,9813 (163,5)***	1,00	1,87	0,041 (4,09)***	0,9660 (93,6)***	0,99	3,40
Y + SF <sub>FB</sub>	0,041 (9,40)***	0,9614 (220,1)***	1,00	3,86	0,0657 (7,778)***	0,9382 (108,4)***	0,99	6,19
<i>b) National sample (n = 15)</i>								
Y + SF <sub>FM</sub>	-0,009 (-0,45)	1,0187 (57,6)***	1,00	-1,87	-0,023 (-0,84)	1,0346 (39,2)***	0,99	-3,46
Y + SF <sub>FB</sub>	0,043 (4,71)***	0,9606 (117,9)***	1,00	3,94	0,075 (5,57)***	0,9302 (72,6)***	1,00	6,98

FM: Flow Approach

FB: Benefit Approach

i : regions or countries

m: average of the regions or countries

## 5. CONCLUSIONS

In this study, we analyse the power of the European Union to diminish territorial disparities in per capita income between regions and countries through budget policy.

Although, the redistributive capacity of the community revenue is very low, we show that is higher between countries than between regions. It is evident because the in the regional sample all of own resources (traditional own resources, VAB resources and GNP resources) are regressive and increase the income regional disparities, while that in the national sample only the traditional own resources are clearly regressive.

This behaviour responds to the own logic of the financing system, due that the limitations stabilised at the national level for to reduce regressive does not extend to regional level. A clearly example of this is the VAB resource behaviour, since while in the regional sample this resource increases territorial disparities, at the national level it shows a capacity to reduce them. The GNP resource is for its design and structure, practically neutral, while the traditional own resources are very regressive in two samples, although its capacity to increase the territorial disparities is very low due its specific weight is very small. Consequently, the only source of revenue that shows a progressive character is the tax on the wage and salaries of the personnel of the Institutions of the European Union.

The power of the community expenditures to diminish regional income disparities is very low, being higher when the territorial assignation of expenditure is done under the benefit approach. Nevertheless, the community expenditure has much more redistributive power than revenues.

Under the benefit approach, the capacity of the community expenditures to redistribute income among regions is of 3.55%, when the variables are defined in ecus and of 5.84% when are expressed in PPS. On the other hand, when we adopt the flow approach for the territorial assignation of expenditure, this percentages are 1.59% and 3.09%, respectively.

The redistributive power decreases when the analysis is carried out at national level. In this case, the redistributive capacity is 2.55% and 4.51%, according to the benefit approach and whether the variables are taken in ecus or in PPS. On the contrary, when we assign the expenditure to the country where the expenditure materialises, the community expenditure increases the national income disparities to 3.18% if the variables are in ecus and to 5.82% if they are in PPS.

The expenditure with the greatest redistributive capacity is that made in structural actions, specially in the regional sample, since it shows the biggest coefficient of the estimated income elasticity. The actual redistribution power is low since the expenditure on Structural Actions has a relatively low weight on regional income. Although the agricultural expenditure shows a income elasticity lower than one in both samples and absorbs more of the 50% of the European Union budget, its redistributive power is very short. It is estimate around 2%. The expenditures on research and development and on the rest of internal politics are regressive when these expenditures are territorially allocated following the flow approach. Consequently, they increase the national and regional income disparities. However, when these expenditures are territorially assigned according to the benefit approach they have a small redistributive power.

The redistributive power of the fiscal balance generated by the activity of the European Union is lower, specially when the territorial assignation of expenditure is done under the flow approach. In this case, the power of the European Union budget to diminish regional disparities is of 1.87% and of 3.40%, according to whether the variables are in ecus or in PPS. At national level, the activity of the European Union increases the disparities to 1.87% when the variables are defined in ecus and to 3.46% when they are expressed in PPS.

The estimations made under the benefit approach evidence that the power to diminish territorial disparities of income through the European Union budget is more intensive: at regional level is 3.86% in ecus and 6.19% in PPS and at national level is 3.94% in ecus and 6.98% in PPS. This occurs due to the behaviour of the expenditures on research and development and on internal politics since they become progressive when we assign these expenditures under the benefit approach.

Definitively, the empirical analysis brings out that the territorial redistributive power is quite low (around a mean value of 3.5%) of comparing to other central governments. However, the redistributive power is very high if we consider that the relative size of the European Union budget, in GDP terms, (less than 2%) is rather small with respect to federal governments (in the United States the federal budget represents around the 20% of the GDP, in Canada the 18%) and the budgets of central governments of unitary countries (in France is around 45%, in the United Kingdom 34% and in Spain 34%).

Thus, the community budget has some instruments which are very progressive like structural actions and agricultural expenditures. Consequently, the redistributive power can increase by various ways, we only mention three of them: i) increasing the more redistributive categories of expenditure ii) increasing the progressivity of the European Union financing system iii) increasing the size of the European Union budget.



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