CATALAN GRIEVANCES: DO FISCAL FLOWS MATTER?

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Abstract: The purpose of this article is to examine the fiscal flows produced by the actions of the Spanish central public sector concerned with Catalonia and their main determinants. We also compare the Catalan fiscal balance with that of rich territories in other countries (Australia, Belgium, Canada, the USA, Spain and Italy). To this aim the article examines, first, whether the methodology used in Catalonia meets international standards; second, whether the Catalan fiscal deficit is indeed among the largest in a sample of territories analysed; third, which are its main determinants. The methodology for calculating fiscal balances is found to be fairly standardised internationally, revealing that Catalonia has a structural fiscal deficit of between 6 and 8 percent of GDP, according to whether the benefit or the flow approach is applied. These figures are a consequence, to a large extent, of the Spanish system of financing the Autonomous Communities. Finally, we briefly discuss whether the fiscal flows can justify, at least partially, the current secessionist process of Catalonia.

Keywords: fiscal balances, territorial redistribution, secessionism, Catalonia, Spain.

1. Introduction

The actions of the central public administration produce fiscal flows between regions, inasmuch as taxes and public expenditure are distributed territorially applying different sets of criteria. The difference between the benefits that a population in a region receives in terms of central public expenditure and its fiscal contributions determines the sign and the size of the region's fiscal balance.

The study of the territorial influence of public sector actions, in general, and of the fiscal balance, in particular, has a long history. In this respect Spain is no exception and, arguably, the Spanish region (or Autonomous Community, AC) with the longest tradition of calculating the fiscal balance

with the central public sector [1] is Catalonia [2], which has a high fiscal deficit (reaching, in some years, 10% of the Catalan GDP). Unsurprisingly, this subject is a point of contention in Spanish public life, giving rise to considerable controversy, since it directly impacts people's interests (that is, how high their tax bill is and what they receive in return) and affects patriotic feelings. However, it is evident that the question of inter-territorial fiscal flows affects not only Spain but it is a more general issue, as illustrated by recent controversies in Germany and by the difficulties in building a true federal European Union.

The fiscal deficit has, inevitably, generated a sense of grievance among the Catalan people, who feel that the central government's territorial redistribution policy has a detrimental impact on Catalonia. In recent decades the Catalan government has tried to reduce this fiscal deficit by promoting various reforms of the ACs' financing system (Bosch and Durán, 2008; Bosch, 2010a). Nevertheless, none of these reforms has substantially reduced the fiscal deficit with the central public sector.

Various authors, most notably Spolaore (2010), Bolton and Roland (1997) and Alesina and Spolaore (2003), argue that inter-regional disagreements over income-based redistribution may be sufficient to induce a country breakup. However, Catalan grievances are not only economic in nature, as separatists would also point to constant attacks made by the central government on their culture and language (Comisión de Economia Catalana del Colegio de Economistas de Cataluña, 2014) and to the lack of national recognition and real political autonomy. The demands and attempts to politically structure the State in plurinational terms through a broad self-governing Generalitat (autonomous government of Catalonia) have never been accepted. This fact could justify the current levels of support among the Catalans for secession from Spain. According to the Centre d'Estudis d'Opinió [3] in June 2017 60% of the Catalan population considered that Catalonia had a low level of autonomy and 41.1% wanted an independent state. The consequence is that 80% of Catalan population agrees to the proposal to hold a referendum on self-determination.

The purpose of this article is to examine the fiscal flows produced by the actions of the Spanish central public sector concerning Catalonia and

[1] The general government sector is subdivided into four subsectors: central government, state government, local government, and social security funds. In this paper the concept «central public sector» includes two subsectors: central government and social security funds.

[2] Spain has three levels of government: central, intermediate (formed by 17 ACs) and local (municipalities and provinces).

[3] The Centre d'Estudis d'Opinió is a body of the autonomous government of Catalonia that carries out electoral studies and opinion surveys.

their main determinants. In doing so, the article examines, first, whether the methodology used to compute fiscal flows in Catalonia meets international standards; second, whether the Catalan fiscal deficit is indeed among the largest in an international comparison; third, which are its main determinants. Finally, we discuss whether the fiscal deficit issue can justify, at least partially, the current secessionist process of Catalonia.

The remainder of the paper is structured as follows. In section 2 we examine the methods used to compute fiscal balances in Australia, Belgium, Canada, the USA, Spain, and Italy, and assess their outcomes. In section 3 we analyse the Catalan fiscal deficit from 1986 to 2012. The specific objectives of these two sections are: *a*) to discuss the evolution of Catalan fiscal flows and their different estimates, *b*) to compare the size of the Catalan fiscal deficit with the results for regions in other countries, and *c*) to analyse the determinants of the Catalan fiscal deficit. Finally, we present our conclusions in section 4.

2. *Comparing fiscal flows in different countries*

In this section we carry out a comparative study of fiscal balances in different countries. Specifically, we refer to five countries: Australia, Belgium, Canada, Spain and the USA; we also examine the case of Italy, although the results are not completely comparable due to the computation of a *net* fiscal flow referred to all layers of government. Before comparing these countries, we briefly discuss the different methodologies that current literature proposes to estimate fiscal balances.

2.1. *Methodological approaches to the allocation of revenues and expenditure*

Fiscal flows are generally computed considering Central government revenues and expenditures. The main approaches for analysing the territorial distribution of central government revenues are the benefit approach and the flow approach (Bosch *et al.*, 2010). The benefit approach allocates revenues to the territory where those who must eventually support the fiscal burden live. For example, VAT can be transferred to final consumers' prices, which means that the tax burden falls on the final consumers. This effect is especially relevant when consumers and companies reside in different territories.

The flow approach allocates revenues to the territory in which the economic capacity subject to taxation is located. For example, a company tax paid by a firm with fiscal residence in region A and, therefore, collected in

region A, but with a factory in region B, will, according to this system, be allocated to region B, which is where the taxable object is located.

In the case of the territorialization of Central government expenditure, spending is attributed to the territory in which the receiver of the benefit lives according to the benefit approach, independently of where the public service is produced or where the investment is made. In this instance, assumptions have to be made about who the receivers are and what the benefits are.

In contrast, under the flow approach, expenditure is attributed to the territory where it is realized, irrespective of the geographical location of the final receivers of the benefits. As such, expenditure is attributed to where employees, the use of current goods and services, the receipt of transfers and the making of investments are located. This means that a conscious decision has been taken to endow the monetary flow with a «real» sense as opposed to considering it simply as «cash flow», which would result in public expenditure being attributed to the region in which the administration makes the payment. In the case of the remuneration of employees, the two approaches to monetary flows coincide; however, the results can vary greatly in the case of the other budgetary items. Thus, purchases of current goods and services are attributed to the territory in which they are used, not to the region where they were acquired; investments in the region in which they materialise; and transfers to the region where their final receivers reside.

In some studies, the flow approach is referred to as the «cash flow» approach, but in fact they only apply the «cash flow» method in the case of the remuneration of employees. Indeed, the assignment of public expenditure according to the flow approach can be relatively simple, as long as there exists a system of public accounts that allows all items of expenditure to be attributed to a region.

The above discussion begs the following question: What, therefore, is the best methodology to use to calculate a fiscal balance? The answer would seem to depend on the motives underpinning the estimation of the fiscal balance in the first place. If the aim is to measure the effects of central public sector actions on the welfare of people living in a given territory, the best approach would be the benefit method. The measurement of these effects is made in terms of the «equivalent» change in the disposable income of individuals. However, the flow approach would be more appropriate if the aim is to measure the economic impact that central public sector actions have on a specific territory, that is, determining the impact on production, consumption, public revenues and payments located in the territory (Bosch, 2010b).

2.2. *Countries case studies: Methodology and results*

It is necessary to point out that comparative analysis between countries should be treated with caution because of differences in the distribution of tax powers and responsibilities across levels of government (Montasell Piñol and Sánchez Rata, 2012). There are also differences in the methodologies applied. For example, Australia only applies the flow approach. Belgium, Canada and the USA combine the flow and benefit approaches. Spain estimates the fiscal balances using both methods. Finally, Italy uses the benefit approach.

Referring to the institutional environment, all the studies considered here include the fiscal flows between central public administrations and the territories of the federal states (Australia, Belgium, Canada and the USA) or the ACs (Spain). That is to say, the fiscal balance of each territory is the difference between the expenditure that central public administration (including social security) makes in a territory and the revenue paid by the same territory to the central administration. In the case of Italy, instead, the fiscal balance is the difference between what the residents of a region get from all levels of government (central, local and social security) and what they pay. This estimation responds more to the concept of «fiscal residuum».

As for the operations considered, the studies analysed exclude financial operations, that is, those carried out because of variations in financial assets and liabilities. Some studies include interest paid on debt while others do not.

Another relevant issue of fiscal balance estimations is the treatment of budget deficit or surplus. To analyse the outcomes arising from the fiscal balances of the different territories with the central government, its budget must be balanced. If this were not the case, the presence of either a surplus or deficit would influence the size of the fiscal balance. For example, if the central government budget deficit is very high, it might be the case that all the territories have a fiscal surplus. A central budget deficit/surplus causes a general improvement/deterioration in all the balances. For this reason, in order to analyse the redistributive effects of fiscal flows, the sum of the fiscal balances must be zero, and that is only possible when the central budget is balanced.

This correction is also necessary to compare the evolution of outcomes over time, as the financial situation of the central administration can differ from year to year and, as a consequence, variations might be introduced into the measurement of the fiscal balance.

Here, the studies of fiscal balances that we examine «neutralise» the central budgets. Technically, this can be achieved in one of three ways: *a*)

through revenues: in the case of deficit (or surplus), the budget is balanced by increasing (or reducing) revenues until they are equal to expenditure by adding (or deducting) the amount of the budget deficit (or surplus) in the different territories according to the pattern resulting from the territorial distribution of revenues; *b*) through expenditure: in the case of deficit (or surplus), the budget is balanced by reducing (or increasing) expenditure until it is equal to revenue, deducting (or adding) the budget deficit (or surplus) from (or to) the different territories according to the pattern resulting from the territorial distribution of expenditure; *c*) through a combination of the above two methods. Having discussed these issues, we now turn to the analysis of countries case studies.

2.2.1. *Australia*

In the case of the Australian Federation, the Treasury Department of the State of Western Australia annually calculates the fiscal balances of the various states and territories in the Federation with the federal public sector[4]. The method used is the flow approach (Western Australian Treasury, 1999).

All non-financial operations are computed, excluding only the fiscal flows with the rest of the world. Therefore, interest payments are accounted for, territorialising them according to population.

A specific aspect of the calculation of Australian fiscal flows is the treatment given to the revenues and expenditure of the Australian Capital Territory (ACT), which are distributed among the other territories according to population.

The results are presented assuming a balanced budget for the Federation. In the event of a budget deficit, the balance is achieved by increasing the revenue of the Federation by 50% of the deficit, with an allocation among the states according to the pattern of the territorial distribution of these revenues, and reducing expenditure in the Federation by 50% of the deficit, with an allocation in accordance with the pattern of the territorial distribution of these expenditures.

Table 1 shows the results of the Australian State fiscal balances with the Federation in three fiscal years: 2006-2007, 2010-2011 and 2015-2016. In the most recent estimates, the states with a negative balance are Western Austra-

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[4] The fiscal balances of the states and territories with the federal public sector are published annually in the documents accompanying the budget of Western Australia State (Budget paper no 3: Economic and Fiscal Outlook).

TAB. 1. *Fiscal balances of Australian States and Northern Territory with the central public sector*

	2006-2007*		2010-2011*		2015-2016*	
	Fiscal balance As % GDP	Per capita GDP index (Australia = 100)	Fiscal balance As % GDP	Per capita GDP index (Australia = 100)	Fiscal balance As % GDP	Per capita GDP index (Australia = 100)
Western Australia	−3.71	126.79	−7.54	131.53	−8.52	141.58
Northern Territory	15.50	125.05	21.09	125.66	19.64	140.20
Australian Capital Territory	137.82		140.12		132.78	
New South Wales	−1.30	100.63	−0.46	100.48	−0.87	99.85
Queensland	0.75	95.75	2.21	92.50	2.58	94.28
Victoria	0.10	95.25	0.39	94.20	−0.35	89.40
South Australia	5.36	84.37	5.41	88.60	9.18	86.20
Tasmania	10.73	76.60	13.61	76.56	21.63	72.83

Note: (*) The fiscal year in Australia begins on July 1 and ends on June 30.

Source: Government of Western Australia, Economic and Fiscal Outlook, Budget Paper No. 3, several years (2008-09, 2012-13, 2017-18) and Australian National Accounts, several years.

lia (–8.52% of GDP), New South Wales (–0.87%) and Victoria (–0.35%). The states with a positive balance are Tasmania (21.63% of GDP), North Territory (19.64%), South Australia (9.18%) and Queensland (2.58%). The states with the highest GDP per capita (Western Australia and New South Wales) have a negative fiscal balance, that is, they are contributors, with the exception of the North Territory, which has the second highest GDP per capita but a positive fiscal balance. This reflects the specific characteristics of this territory. The region produces oil and gas, but its population represents just 1.02% of the total population of Australia, a feature that increases the cost of providing public services.

Table 1 also shows that the state of Western Australia has seen a very high increase in its fiscal deficit in the last ten years, from –3.71% of GDP in 2006-2007 to –8.52% in 2015-2016. This fact could be explained by the increase of its GDP per capita, from 26.79% above the average in 2006-2007 to 41.58% in 2015-2016.

2.2.2. *Belgium*

In Belgium the Flemish government calculates the fiscal balances of the Belgian territories (ABAFIM, 2004; Van Rompuy, 2010). The methodology used combines the flow and benefit approaches. For example, the salaries of public employees are allocated to the region of their residence, a criterion

TAB. 2. *Fiscal balances of Belgian regions with the central public sector, 2005*

	As % GDP	Per capita GDP index (Belgium = 100)
Brussels-Capital Region	2.70	201.49
Flanders	−4.40	99.03
Wallonia	8.40	71.83

Source: Van Rompuy (2010). OECD. StatExtracts Database (on line), 2017, <http://stats.oecd.org> [consultation 30 Jan 2017].

that corresponds to the flow approach. In contrast, the purchase of current goods and services is territorialised according to GDP, which is more in line with the benefit approach.

Payments of interest on debt are excluded. The fiscal results are presented with the central budget balanced through, in the event of public deficit, the equalization of revenues to expenditure.

Table 2 shows the fiscal balances of the three Belgian regions. In the case of the Brussels-Capital region, we observe that despite being the region with the highest GDP per capita, its fiscal balance is nevertheless positive (2.70% of GDP). This reflects its low fiscal capacity, attributable to a large immigrant population with low incomes and the emigration of higher-income population towards the other regions.

In contrast, Flanders, with a GDP per capita around the average, has a negative fiscal balance (−4.40% of GDP) and Wallonia, the poorest region, has a positive fiscal balance (8.40% of GDP).

2.2.3. *Canada*

Ruggeri (2010) provides the fiscal balances of the Canadian provinces. Revenues are territorialised according to the benefit approach; in other words, the person who supports the burden of taxes is sought.

Allocation of expenditures follows the flow approach, with the exception of the territorialization of expenditure on goods and services. These are not allocated to the territory where they are consumed but rather to the territory in which they generate income, that is, where the goods and services are produced. Because of a lack of more detailed information, primary income is used as an indicator of the territorialization of this expenditure, which therefore excludes the public sector.

Fiscal flows with the rest of the world and the payment of interest on public debt are excluded.

TAB. 3. *Fiscal balances of Canadian provinces with the central public sector, 2004*

	As % GDP	Per capita GDP index (Canada = 100)
Alberta	−3.23	144.97
Ontario	−2.33	103.09
Saskatchewan	6.08	101.23
British Columbia	−0.90	93.92
Newfoundland and Labrador	10.93	92.83
Quebec	2.12	86.30
Manitoba	7.76	83.83
Nova Scotia	9.98	78.65
New Brunswick	11.02	78.18
Prince Edward Island	15.72	71.60

Source: Ruggeri (2010). OECD. StatExtracts Database (on line), 2017, <http://stats.oecd.org>. [consultation 30 Jan 2017].

The fiscal results are presented with the public budget balanced, neutralised through revenue, in Table 3. Alberta and Ontario, the regions with the highest GDP per capita, present negative fiscal balances (–3.23 and –2.33% of GDP, respectively), but Saskatchewan, also with a GDP per capita above the average, has a positive fiscal balance (6.08% of GDP). In contrast, the regions with a GDP per capita below the average show positive fiscal balances, with the exception of British Columbia (–0.90% of GDP).

2.2.4. *The United States of America*

The fiscal balances of the various states were calculated for the year 2005 by the Tax Foundation (2007). Revenues were territorialised according to the benefit approach and expenditure, basically, according to the flow approach.

All operations were included with the exception of fiscal flows with the rest of the world, interest on debt and other expenditure on federal public organizations (agencies).

The results were computed under the assumption that the budget was balanced. As there was a deficit in 2005, the level of revenues was therefore raised until it was equal to expenditure. The deficit was territorialised according to the pattern of territorial distribution of revenues.

Table 4 shows the fiscal balances of the States. In general, the ones with a GDP per capita above the average present a negative fiscal balance, and vice versa, but there are several exceptions. For example, Wyoming and Virginia, with an income above average, present a positive fiscal balance, while for Wisconsin and Oregon the opposite occurs. The largest negative fiscal

TAB. 4. *Fiscal balances of United States of America and the District of Columbia with the central public sector, 2005*

	As % GDP	Per capita GDP index (UEA = 100)		As % GDP	Per capita GDP index (UEA = 100)
District of Columbia	37.21	343.51	Pennsylvania	1.35	93.03
Delaware	–2.85	164.49	Wisconsin	–2.56	92.92
Alaska	10.70	140.92	Ohio	0.85	91.66
Connecticut	–7.26	131.31	North Dakota	11.01	91.61
Wyoming	1.79	125.18	Oregon	–1.24	91.43
New York	–4.03	118.58	Florida	–0.62	90.31
New Jersey	–8.81	118.28	Kansas	2.13	89.95
Massachusetts	–3.86	117.90	Tennessee	4.59	89.46
Nevada	–6.75	111.86	Indiana	0.87	89.26
Virginia	9.15	111.19	Michigan	–1.51	88.37
Colorado	–3.44	109.32	Vermont	1.51	88.14
Minnesota	–5.19	109.27	Missouri	5.49	87.99
California	–4.19	109.05	Arizona	3.31	86.33
Illinois	–4.87	104.57	Utah	1.09	85.46
Whasington	–2.32	104.41	New Mexico	15.37	85.05
Hawaii	7.07	103.86	Oklahoma	6.07	81.84
Maryland	6.38	103.67	Maine	7.43	81.23
Texas	–0.97	103.23	Kentucky	8.44	79.43
New Hampshire	–6.36	98.58	Alabama	11.11	79.41
Lousiana	9.49	97.54	Idaho	3.58	78.31
Rhode Island	0.00	97.11	South Carolina	5.99	78.06
Nebraska	1.64	97.09	Montana	8.39	76.38
North Carolina	1.26	96.32	Arkansas	6.85	74.72
Georgia	0.16	94.72	West Virginia	13.12	70.33
South Dakota	8.44	94.37	Mississipi	16.62	65.72
Iowa	1.60	94.08			

Source: Tax Foundation (2007), Federal Taxes Paid vs. Federal Sending Received by State, 1981-2005 [on line], Tax Foundation, 2007 <http://taxfoundation.org/tax-topics/federal-taxes-paid-vs-spending-received-state> [consultation 30 Set 2017]. OECD. StatExtracts Database (on line), 2017, <http://stats.oecd.org> [consultation 30 Jan 2017].

balances occurs in New Jersey (–8.81% of GDP) and Connecticut (–7.26% of GDP), both adjacent to New York State.

2.2.5. *Spain*

In 2008 the Spanish government calculated the fiscal balances of all ACs (Instituto de Estudios Fiscales, 2008). The methodology used followed both the benefit and the flow approaches. The literature provides several studies on fiscal balances in Spain[5].

[5] For example, see Castells *et al.* (2000), Barberán and Uriel (2007), López-Casasnovas and Rosselló Villalonga (2014a, 2104b), de la Fuente (2014) and IEB (2014).

Considering the most recent study, De la Fuente *et al.* (2014) estimated the territorial redistribution of the 2011 central budget for each Autonomous Community on behalf of the Ministry of Public Finance. This analysis of the territorial redistribution continued to be estimated in 2012, 2013 and 2014 [6]. However, the methodology employed is quite distinct from that used with the fiscal balances examined in this paper. In our view, a fiscal balance only analyses the redistributive impact of the central public sector activity in a territory, but De la Fuente *et al.* (2014) carry out an exercise that that does not correspond to this concept. The principal difference comes from the fact that they build an extended central public sector to which they attribute all the taxes of the Spanish fiscal system (central, autonomous and local). They also suppose the existence of fiscal spillovers from the autonomous taxes among ACs, but they do not consider the influence of autonomous expenditure (spillover effects). We therefore conclude that this study should not strictly be classified as a fiscal balance study.

In the fiscal balances calculated by the Spanish government in 2008, the following operations were excluded: *a*) revenues and expenditures that include financial operations; *b*) property income and revenues from real estate investments; *c*) operations with the European Union (EU); *d*) current and capital consolidation transfers. However, interest payments were included. This represents a difference in terms of the procedure adopted in some of the international studies described above. These payments are territorialised according to population. Finally, the calculation was made without balancing the budget.

Table 5 shows the results. Using the benefit approach, all ACs with an above average per capita GDP have a negative fiscal balance; however, the pattern changes when the flow approach is adopted. Regardless of the approach, Valencia presents a negative fiscal balance, even though it has a GDP per capita below the average. The same is true of Murcia when using the flow approach.

The Spanish territory with the largest fiscal deficit is the Balearic Islands (14.20% of GDP when applying the flow approach and 7.80% with the benefit approach). The second place is occupied by Catalonia, with a negative fiscal balance of 8.70% (flow) and 6.69% (benefit) of GDP. The community of Madrid has a largest fiscal deficit according to the benefit approach (9.08% of GDP), but occupies the fourth place when using the flow approach.

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[6] See also Ministerio de Hacienda y Función Públicas (2017), where the same estimation is conducted for 2013 and 2014.

TAB. 5. *Fiscal balances of the Spanish Autonomous Communities with the central public sector, 2005*

	Benefit approach		Flow approach	
	As % GDP	Per capita GDP index (Spain = 100)	As % GDP	Per capita GDP index (Spain = 100)
Madrid	−9.08	131.23	−5.57	131.23
Basque Country	−0.70	127.60	−1.35	127.60
Navarre	−2.37	126.29	−3.18	126.29
Catalonia	−6.69	118.37	−8.70	118.37
Balearic Islands	−7.80	112.15	−14.20	112.15
La Rioja	−2.24	107.49	0.66	107.49
Aragon	−1.15	107.00	1.83	107.00
Cantabria	2.30	98.27	5.03	98.27
Valencia	−3.42	95.99	−6.32	95.99
Castile and Leon	4.11	94.67	7.57	94.67
Canary Islands	5.95	90.56	1.60	90.56
Ceuta and Melilla	6.51	90.25	31.02	90.25
Asturias	10.82	88.18	14.33	88.18
Murcia	0.67	83.79	−2.13	83.79
Galicia	6.87	81.29	8.19	81.29
Castile-La Mancha	5.43	78.80	3.54	78.80
Andalusia	3.81	77.71	4.53	77.71
Extremadura	15.21	67.83	17.78	67.83

Source: Instituto de Estudios Fiscales (2008).

The cases of the Basque Country and Navarre are worth a note apart, since they enjoy a special status (Navarre is a *Comunidad Foral*, whereas three provinces in the Basque Country are *Diputaciones Forales*). These ACs present a high GDP per capita but relatively low negative fiscal balances compared to those recorded in the other wealthier ACs. This is due to the different system of financing applied in these two regions. According to this system, they levy all State taxes, but in return they just pay an annual quota for the public services provided by the State, as established by an agreement with the State. A controversial aspect of this system is that there is no effective mechanism of horizontal equalization between these ACs and the others.

2.2.6. *Italy*

In Italy, the poor quality of available data implied so far few academic exercises about the regional redistribution of public funds. Here we refer to Ambrosanio *et al*. (2010). Basically, they use the benefit approach for the localization of expenditure. In regionalizing national taxes, they follow in general terms the flow approach. A national tax is attributed to the region where the economic transaction that creates the tax burden takes place.

TAB. 6. *Net fiscal balances of the Italian regions, 2005. General government (central + local + social security)*

	As % GDP	Per capita GDP index (Italy = 100)
Valle d'Aosta	2.80	130.33
Lombardia	−11.56	129.51
Trentino Alto Adige	−1.28	124.59
Emilia-Romagna	−5.86	122.54
Lazio	−2.52	120.08
Veneto	−6.44	116.80
Friuli-Venezia Giulia	−0.79	110.66
Piemonte	−1.75	109.84
Toscana	−0.60	109.43
Liguria	5.57	102.05
Marche	0.60	100.41
Umbria	7.79	93.85
Abruzzo	6.94	82.38
Sardegna	12.36	78.28
Molise	14.10	72.95
Basilicata	13.69	69.26
Sicilia	16.53	65.98
Puglia	12.93	65.16
Campania	14.63	64.75
Calabria	17.83	64.75

Source: Ambrosanio *et al.* (2010).

This study has some particular characteristics that make comparison difficult with the others mentioned above. Firstly, the fiscal balance is the difference between what the residents of a region receive from all government tiers (central, local and social security) and what they pay. The results obtained represent the net fiscal balance of the residents of each region with the whole public sector. However, in the other studies analysed the fiscal balance of each territory is only the difference between the expenditure that central public administration (including social security) makes in a territory and the revenue paid by the territory to the central administration. That is to say, the fiscal relationship of the residents of a territory with the local government is omitted. Secondly, concerning data, Ambrosanio *et al.* (2010) only considers current revenues and current expenditures. So, on the expenditure side, they do not include capital payments.

As in the cases of Belgium, Canada and the USA interest payments are excluded. The Italian study also balances the public budget. Since it eliminates interest payments and capital expenditure, the result is a slight surplus in the current public budget. This surplus is then eliminated (subtracting it on a per capita basis from total revenue), by just assuming that it goes to financing the expenditure not considered in the computation.

Results are presented in Table 6. All the regions with a per capita GDP above the national average have a negative net fiscal balance, with three

exceptions: Valle d'Aosta, the richest region with a GDP per capita index equal to 130.33 and a net fiscal balance of 2.80% of GDP; Liguria, characterized by an index of 102.05 and a net fiscal balance of 5.57% of GDP; and Marche, with an index of 100.41 and a net fiscal balance of 0.60%. The other regions, with a GDP per capita below the national average, present a positive net fiscal balance. Among the regions with a negative fiscal balance, Lombardia stands out for its high fiscal deficit, –11.56% of GDP. Lombardia, with a GDP per capita index of 129.51, is also one of the richest regions together with Valle d'Aosta, but differently from Valle d'Aosta it does not enjoy a Special Statute. Hence, the situation in Valle d'Aosta reflects the same problems we discussed above with respect to Navarre and the Basque Country in Spain.

3. The fiscal balance of Catalonia: Results, evolution and determinants

3.1. Introduction to the Catalan case

Catalonia has a long tradition of calculating the fiscal balance of its territory with the central public sector. Unlike other territories of the Spanish State, quite a few academic studies have been produced in Catalonia over the years. The Catalan government has also promoted the estimation of fiscal balances, by both external and internal teams. The earliest data are from 1986 and the most recent from 2012.

The estimation of Catalan fiscal balances has always caused great controversy about the territorial redistribution of the central public budget. As Table 5 shows, Catalonia is one of the ACs with a high fiscal deficit, a fact that has contributed to generate an historical claim for better fiscal treatment from both the citizens and the government of Catalonia.

In 2005 the Catalan nationalist parties in the Spanish Parliament asked the government for an official estimation of the fiscal balances of all ACs. The government complied establishing a Commission of experts to establish the methodology for the estimation of the fiscal balances (Ministerio de Economía y Hacienda, 2006); the results of the estimation exercise were published in 2008 (Table 5). At present, the Ministry of Public Finance periodically estimates the territorial redistribution of the public budget, though with a methodology that, as mentioned above, it is closer to the one used in Italy to compute the «fiscal residuum».

It should be pointed out that the large Catalan contribution has not caused any convergence in growth rates among the Spanish regions. Table 7 shows the per capita GDP index in two years: 2000 and 2016. Despite the

TAB. 7. *Per capita GDP index (Spain = 100)*

Autonomous Communities and cities	2000	2016
Madrid	133.88	136.52
Basc Country	122.64	132.69
Navarre	127.31	124.35
Catalonia	121.64	119.27
Aragon	104.75	109.84
La Rioja	111.79	107.18
Balearic Islands	125.70	103.75
Castile and Leon	90.65	94.49
Cantabria	93.45	89.92
Galicia	77.64	89.10
Valencia	95.29	88.84
Asturias	83.98	87.23
Canary Islands	97.71	82.88
Ceuta	90.05	81.13
Murcia	83.64	80.98
Castile-La Mancha	78.01	77.56
Melilla	88.69	73.78
Andalusia	74.20	73.64
Extremadura	63.66	68.29
Total National	100.00	100.00
Standard deviation	20.42	20.61

Source: Instituto Nacional de Estadística (INE), (Spanish Statistical Office).

considerable territorial redistribution of the Spanish budget there has been no regional convergence in these 16 years. In 2000 the standard deviation of the GDP per capita index was 20.42 and in 2016, it was 20.61. This is one of the main criticisms levelled by the Catalan government against the territorial policy of the central government.

Indeed, Bosch *et al.* (2002, 2003) have demonstrated empirically that Spain is one of the countries in which the redistributive power of the central government budget is greater even compared with countries that are actually federal states, most notably Australia, Canada, the USA, and even the European Union. This redistributive power is primarily associated with expenditure more than it is with revenue and, specifically, with the system of financing the ACs.

3.2. Methodology

In this section we analyse the fiscal balances estimated by the Catalan government itself between 1986 and 2012. The methodology employed follows both the benefit and the flow approaches. During this period there have been methodological changes in the calculation of the fiscal balances aimed at enhancing the procedure and bringing it more closely in line with

the international canons presented above (Colldeforns, 1991; Martínez, 1997; López-Casasnovas and Martínez, 2000; Generalitat de Catalunya, 2009, 2012, 2013, 2014, 2016).

The institutional sector covered by Catalonia's fiscal balances includes the State, autonomous organizations, state agencies and other public organizations, the Social Security, the public companies that form part of the central administration sector according to the terms of the European System of Accounts (ESA), and other public companies that contribute to significantly increasing the stock of public capital, such as ADIF (railway infrastructures), the State Property Administration Company, water companies depending on the Ministry of the Environment, AENA (airports) and the State Ports.

As regards the operations considered, there are no substantial differences from those included in the methodology used by the Spanish government in 2008, but for the fiscal results of Catalonia's fiscal balance with the central public sector computed with the central budget balanced or «neutralised». This is achieved using the revenues method: in the event of deficit (or surplus), the budget is balanced increasing (or reducing) revenues until they match expenditures, adding (or deducting) the amount of the budgetary deficit (or surplus) to revenues according to the pattern resulting from their territorial distribution.

As mentioned, Catalonia has a long tradition of calculating its fiscal balance with the central public sector. In the case of calculations based on the flow approach, a methodologically homogenous time series is available from 1986 to 2012. In contrast, in the case of calculations based on the benefit approach, homogenous data only cover the period 2001-2012. Other studies have calculated the balance applying the criteria of the benefit approach, but as they present other significant methodological differences it was not considered appropriate to include them in the series examined in this article.

When analysing Catalonia's fiscal balance from a historical perspective, one specific technical issue needs to be borne in mind. While not detracting in any way from the results obtained, the various studies calculating the region's fiscal balance have incorporated a number of methodological changes, such as the inclusion of investments by public companies or the allocation of interest payments.

3.3. *Analysis of the results and evolution*

Table 8 presents the evolution of Catalonia's fiscal balance from 1986 to 2012, according to the flow approach. The neutralised fiscal balance is shown (in million of euros and as a percentage of Catalan GDP), according

TAB. 8. *Neutralised Fiscal Balance of Catalonia with the central public sector. Flow approach*

	Million of €	% Catalonia GDP
1986	−2,465	−6.8
1987	−2,868	−7.0
1988	−3,466	−7.5
1989	−4,056	−7.7
1990	−4,867	−8.3
1991	−5,174	−8.0
1992	−5,988	−8.6
1993	−7,263	−10.1
1994	−6,732	−8.8
1995	−6,416	−7.7
1996	−7,088	−7.9
1997	−7,018	−7.4
1998	−6,813	−6.8
1999	−8,124	−7.5
2000	−8,532	−7.2
2001	−8,565	−6.7
2002	−13,696	−10.1
2003	−13,036	−8.9
2004	−13,595	−8.7
2005	−14,186	−8.4
2006	−14,493	−7.9
2007	−15,913	−8.1
2008	−17,200	−8.6
2009	−16,409	−8.5
2010	−16,543	−8.5
2011	−15,006	−7.7
2012	−14,623	−7.5
Average		−8.0
Standard deviation		0.9

Source: Generalitat de Catalunya (2016).

to the criteria of equalising revenue to expenditure. In this way, the effects of variations in the financial situation of the central public sector are cancelled out and a comparison over time is feasible.

The results show that Catalonia has always presented a fiscal deficit with the central public sector, which is to be expected of a region with an economy stronger than the average. Moreover, it is only logical that there should be a redistribution in favour of the less prosperous communities. However, the problem is not so much the sign of the fiscal result, but its magnitude. According to the flow approach, Catalonia presents an average fiscal deficit for the period 1986-2012 of 8.0% of regional GDP. Furthermore, the deficit has been slightly higher (more negative) during the last decade than in previous years. Having said that, the deficit has remained remarkably stable over the period, oscillating between 6.7 and 10.1% of regional GDP, in spite of all the changes that have occurred during the last 27 years.

As mentioned above, these results are obtained applying the criteria of a balanced budget, because they allow an analysis to be made of the terri-

TAB. 9. *Neutralised Fiscal Balance of Catalonia with the central public sector. Flow approach*

| | Neutralised | | Non-Neutralised | |
	Million of €	% Catalonia GDP	Million of €	% Catalonia GDP
1986	–2,465	6.8	–2,724	–7.4
1987	–2,868	–7.0	–3,269	–7.9
1988	–3,466	–7.5	–3,357	–7.2
1989	–4,056	–7.7	–4,641	–8.7
1990	–4,867	–8.3	–5,129	–8.6
1991	–5,174	–8.0	–5,615	–8.6
1992	–5,988	–8.6	–5,028	–7.1
1993	–7,263	–10.1	–3,046	–4.2
1994	–6,732	–8.8	–4,485	–5.8
1995	–6,416	–7.7	–4,575	–5.4
1996	–7,088	–7.9	–5,500	–6.1
1997	–7,018	–7.4	–7,619	–7.9
1998	–6,813	–6.8	–7,725	–7.6
1999	–8,124	–7.5	–9,524	–8.7
2000	–8,532	–7.2	–10,972	–9.2
2001	–8,565	–6.7	–11,307	–8.8
2002	–13,696	–10.1	–12,674	–9.2
2003	–13,036	–8.9	–12,472	–8.5
2004	–13,595	–8.7	–13,448	–8.5
2005	–14,186	–8.4	–16,735	–9.8
2006	–14,493	–7.9	–18,979	–10.3
2007	–15,913	–8.1	–21,162	–10.7
2008	–17,200	–8.6	–11,576	–5.7
2009	–16,409	–8.5	–791	–0.4
2010	–16,543	–8.5	–5,385	–3.0
2011	–15,006	–7.7	–7,822	–4.0
2012	–14,623	–7.5	–7,573	–3.9
Average		–8.0		–7.2
Standard deviation		0.9		2.4

Source: Generalitat de Catalunya: Metodologia i càlcul de la balança fiscal de Catalunya amb el sector públic central, Barcelona, Departament de la Viceprsidència i d'Economia i Hisenda, several years.

torial redistribution attributable to the actions of the central administration. This corresponds to a territorial redistribution with a zero sum; i.e., what is gained by some communities is contributed by the others. Recall that to visualise the flows between territories correctly, a balanced budget for the central public sector has to be assumed. Therefore, the sum of all the balances is zero and the negative differences reflect contributions to territorial cohesion, while the positive differences indicate the receipt of resources.

Table 9 compares the previous neutralised results for the economic cycle with the non-neutralised outcomes. It can be seen that the latter variations in the balances are much greater and that the range of values is much wider.

However, given that in the medium term the public sector has to have a balanced budget, the average for the two series over the period is similar: in the case of the non-neutralised fiscal balance it stands at 7.2% of GDP,

while with the neutralised balance it stands at 8% of GDP. We can therefore deduce that the State budget balance introduces variability into the time series in the case of the non-neutralised fiscal balance, but it does not seem to have any significant effect on the average level of this balance across the cycle.

Taking this evidence into account, we can conclude that the average fiscal balance across the economic cycle (both in the neutralised and non-neutralised cases) is a reasonable measure of the structural level of imbalance in the flows of revenue and expenditure between the central administration and Catalonia. Similarly, given the lower variability presented by the neutralised series, we can conclude that, in any year, the structural level of the fiscal balance is better proxied by neutralising the public deficit of the central government.

In a situation of public deficit (surplus), the neutralised fiscal balance presents a higher (lower) deficit, compared to the initial result. As a result, in recent years, due to the economic crisis, which has meant a high level of deficit in the central public sector, Catalonia's non-neutralised fiscal deficit has been reduced significantly. However, the fiscal balance without neutralization gives a false image of the flows of territorial cohesion. For example, compare this with the fact that the difference between the percentage of revenue contributed by Catalonia and the percentage of expenditure it receives has remained unchanged.

Table 10 specifically shows the percentage represented by the revenue extracted from Catalonia by the central public sector and compares this with the percentage of expenditure allocated to the region in the period 1986-2012. Catalonia contributed, on average, around 19.4% of the revenues of the central and the social security administrations. These same administrations allocated an average of 14% of their expenditure to Catalonia. In fact, the central public sector extracts a percentage from Catalonia that corresponds to its weight in the Spanish GDP, but allocates expenditure according to a percentage below its weight in the population (16%).

In the case of the benefit approach, the results in Table 11 show that during the period 2001-2012 Catalonia had an average fiscal deficit of 6.0% of GDP. The difference with the result obtained when applying the flow approach criteria is unsurprising, given that there are major areas of expenditure for which the distribution according to one or other approach differ significantly. However, the results obtained from the benefit approach do not vary greatly. Here again, this should be expected if we bear in mind, for example, that in the case of public goods, one of the most frequently used criteria for distributing expenditure is a highly structural variable such as population.

TAB. 10. *Participation of Catalonia in the revenues and expenditure of central public sector. Flow approach*

	% of the total of the autonomous communities	
	% revenues	% expenditures
1986	18.9	14.2
1987	19.0	14.2
1988	19.0	14.0
1989	19.1	13.9
1990	19.2	13.8
1991	19.3	14.0
1992	19.4	14.1
1993	19.3	13.7
1994	19.3	14.0
1995	19.8	14.8
1996	19.9	14.7
1997	20.0	15.0
1998	19.6	15.0
1999	19.7	14.3
2000	19.7	14.4
2001	19.7	14.6
2002	19.8	13.0
2003	19.7	13.4
2004	19.6	13.3
2005	19.7	13.4
2006	19.6	13.7
2007	19.5	13.5
2008	19.3	13.5
2009	19.3	14.1
2010	19.4	14.2
2011	19.2	14.0
2012	18.4	13.6
Average	19.4	14.0
Standard deviation	0.4	0.5

Source: See Table 8.

The Catalan fiscal deficit does not therefore vary very much over time, whether it is calculated via an approach or another. This fact represents a big drag for the Catalan economy.

If the dimensions of the Catalan deficit are compared with those of the net contributor regions of the countries analysed in Section 3, we see that, with the exception of Western Australia State and the two states adjacent to New York State (New Jersey and Connecticut), no region presents a fiscal deficit in the order of 8% of annual GDP according to the flow approach. Nevertheless, in the case of Western Australia (with a fiscal deficit of 8.52% of GDP in 2015-2016) we can see that this state is much richer than Catalonia within the country (its GDP per capita is 40% above the federal average, Table 1), while Catalonia only is 19% above the national average (Table 7).

The case of Lombardia, with a net fiscal balance of 11.56% of GDP, deserves a separate mention. As discussed above, this result is not comparable with the others due to the different institutional environment. In addition,

TAB. 11. *Neutralised Fiscal Balance of Catalonia with the central public sector*

	Flow approach		Benefit approach	
	Million of €	% Catalonia GDP	Million of €	% Catalonia GDP
1986	–2,465	–6.8		
1987	–2,868	–7.0		
1988	–3,466	–7.5		
1989	–4,056	–7.7		
1990	–4,867	–8.3		
1991	–5,174	–8.0		
1992	–5,988	–8.6		
1993	–7,263	–10.1		
1994	–6,732	–8.8		
1995	–6,416	–7.7		
1996	–7,088	–7.9		
1997	–7,018	–7.4		
1998	–6,813	–6.8		
1999	–8,124	–7.5		
2000	–8,532	–7.2		
2001	–8,565	–6.7	–7,526	–6.1
2002	–13,696	–10.1	–10,225	–7.4
2003	–13,036	–8.9	–9,586	–6.5
2004	–13,595	–8.7	–10,123	–6.4
2005	–14,186	–8.4	–10,141	–6.0
2006	–14,493	–7.9	–10,320	–5.6
2007	–15,913	–8.1	–11,136	–5.6
2008	–17,200	–8.6	–11,860	–5.9
2009	–16,409	–8.5	–11,475	–5.9
2010	–16,543	–8.5	–11,258	–5.8
2011	–15,006	–7.7	–11,087	–5.7
2012	–14,623	–7.5	–10,030	–5.1
Average		–8.0		–6.0
Standard deviation		0.9		0.6

Source: See Table 8.

Lombardia is also one of the richest regions of Italy, with a GDP per capita almost 30% above the national average, that is, in a better position than Catalonia within the country (Table 6).

A further conclusion to be drawn from the comparative analysis is that the magnitude of the Catalan fiscal deficit is huge in relation to the ranking in terms of GDP within the country and is persistent over time. From the analysis carried out, we cannot draw conclusions about the degree to which this factor has caused the separatist movement, but there are two issues to point out. The first is the very different fiscal treatment of Catalonia and the Basque Country and Navarre. Both ACs are richer than Catalonia, but they have a very low fiscal deficit (Table 5). This factor has contributed to produce a feeling of grievance in Catalonia. The second issue to highlight is that there are many other factors which have also contributed towards creating the secessionist movement, such as the lack of a national recognition for Cat-

alonia, the absence of a real political autonomy and the actions of the Spanish central government against its language and culture.

3.4 *Determinants of Catalonia's fiscal deficit*

A question that immediately arises when analysing a region's fiscal balance concerns just what the drivers of the result are. To provide an answer we first present the results of the fiscal balance without Social Security, given that in this regard the central government has virtually no say in where to allocate the expenditure, as it is a non-discretionary payment related to an interpersonal redistribution performed by the government owing to people's acquired rights. These include both social and unemployment benefits that are financed, mainly, through contributions to the Social Security and its autonomous organizations [7].

In contrast, investment expenditure, made by the government, its autonomous organizations and its public companies, is much more optional in nature. The government has greater discretionary powers when deciding the level, composition and the territorial allocation of this item. A separate study of these policies provides a clearer vision of the financial relationship between Catalonia and the central administration.

In Table 12 we repeat the previous exercise, but this time we exclude the revenues and expenditure that belong to the Administration of the Social Security. Thus, we exclude the main items of interpersonal redistribution that are, likewise, of a markedly administrative nature. These items are characterised by a very low degree of discretion, since social security contributions are made on condition of the payment of the benefits which this entity manages (retirement, disability and widows pensions, unemployment benefit, etc.) that cannot be redirected. For all other policies, the central government enjoys many more options.

The results highlight a greater fiscal deficit as the State administration and its organizations obtain 19.6% of their total revenues from Catalonia, but only allocate 11.0% of their, largely discretionary, expenditure (i.e., the autonomous finance system, infrastructure investment policy, etc.) to this AC.

As a consequence, the difference between what Catalonia contributes and receives is equivalent to 40% of the resources extracted. It should be borne in mind, however, that part of this difference is due to the treatment of health expenditure. Between 1986 and 1994, health expenditure was man-

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[7] MUFACE, MUGEJU, ISFAS, FOGASA, INEM and SPEE.

| | % of the total of the autonomous communities | | | |
	% revenues	% expenditures	difference	difference/revenues
1986	19.1	10.3	8.8	0.5
1987	19.1	10.6	8.5	0.4
1988	19.1	10.6	8.4	0.4
1989	19.3	10.8	8.5	0.4
1990	19.4	10.6	8.8	0.5
1991	19.6	10.4	9.1	0.5
1992	19.8	10.8	9.0	0.5
1993	19.8	10.4	9.4	0.5
1994	19.8	10.2	9.6	0.5
1995	20.1	13.0	7.1	0.4
1996	20.4	12.9	7.5	0.4
1997	20.8	13.4	7.4	0.4
1998	19.9	13.6	6.3	0.3
1999	19.9	12.5	7.5	0.4
2000	19.9	12.6	7.2	0.4
2001	19.8	13.0	6.8	0.3
2002	20.0	9.7	10.3	0.5
2003	19.9	10.3	9.6	0.5
2004	19.7	9.8	9.9	0.5
2005	19.9	9.8	10.1	0.5
2006	19.8	10.5	9.4	0.5
2007	19.7	10.3	9.4	0.5
2008	19.4	10.5	8.9	0.5
2009	19.3	11.4	7.9	0.4
2010	19.5	11.3	8.2	0.4
2011	19.5	9.4	10.1	0.5
2012	17.8	9.1	8.7	0.5
Average	19.6	11.0	8.6	0.4

Source: See Table 8.

aged by the Social Security, whereas, between 1995 and 2001, it was included as central administration expenditure. However, since 2002, following the devolution of responsibilities in this area to the ACs, health expenditure has formed part of the ACs' budget.

For this reason, it is apparent that one of the conclusions that can be drawn is that Catalonia's fiscal balance depends to a great extent on policies over which the central government has greater decision-making powers.

Note that the discrepancy between the weights of Catalonia's contributed revenue and allocated expenditure remains stable, regardless of the size of the central government's budget surplus or deficit. These percentages highlight the imbalance that exists independently of whether the surplus/deficit is neutralised or not. As highlighted before, neutralisation is only relevant when reporting the fiscal deficit in absolute figures, but is unnecessary when the imbalance is reported as a percentage of revenue contributed and expenditure received.

This distribution of expenditure is particularly unfavourable for Catalonia in terms of the spending of the State (including the model for financing the ACs), the autonomous organizations and public bodies. However, this is partially offset by the expenditure of the Social Security.

Indeed, the system of financing the Autonomies determines, to a great extent, Catalonia's fiscal balance. These results present a markedly structural nature and coincide with the results reported by Espasa and Bosch (2010) in which the determinants of the fiscal balance with the central administration were estimated for all the ACs.

To calculate the main determinants of Catalonia's fiscal deficit, we employed the following methodology. First, State expenditure in Catalonia was broken down into the following components: infrastructure (roads and railways), defence, interest payments, Autonomous Community financing, and other expenditures (all the rest)[8]. Second, the theoretical fiscal balance was calculated for each component of expenditure. This is the difference between the expenditure on one specific budget component in Catalonia and the estimated revenues used to finance it, the latter being the product of total expenditure on this component in the State as a whole and the relative weight of the revenue contributed by Catalonia in relation to the central administration's total revenue.

This can be expressed as:

(1) $$SF_{i,m} = E_{i,m} - E_{t,m} (T_i/T_t)$$

where SF is the fiscal balance, E expenditure, T is the revenue contributed, i represents Catalonia, m the component of expenditure analysed, and t the total for the State.

Table 13 shows the components of expenditure that determine the fiscal deficit as measured for the period 2006-2012. It can be seen that the financing of the ACs accounts for 32 or 44% of the fiscal deficit, depending on whether we adopt the flow or benefit approaches, respectively. As such, the model of financing the autonomous community of Catalonia is one of the main causes of the fiscal deficit faced by Catalonia.

Successive reforms of the system of autonomous financing have been inspired by the notion that communities such as Catalonia are treated unfavourably and that steps were required to improve the situation. Yet, it is

[8] The weight of each component, as a percentage of the total, is as follows: infrastructure (roads and railways) 3%; defence 8%; interest payments on public debt 24%; autonomous community financing 29%; other expenditures (all the rest) 36%.

evident that none of these reforms have rectified these imbalances (Bosch, 2011; De la Fuente, 2012). Likewise, it has been demonstrated that the investment policies implemented by successive central governments have promoted a model that is extremely radial in nature, aimed at rebalancing Spain's territories. This has meant that investment has been largely directed towards the less developed ACs (De la Fuente, 2004; Castells and Solé-Ollé, 2005; Díaz and Martínez, 2006; Espasa, 2009; Bel, 2010).

TABLE 13

4. *Conclusions*

The purpose of this article has been to examine the fiscal flows produced by the actions of the Spanish central public sector concerning Catalonia and their main determinants. In doing so, we compare the Catalan fiscal deficit with that of rich territories of other countries. This analysis allows to examine, on the one hand, whether the methodology used in Catalan fiscal balances in general terms meets international standards and, on the other hand, whether the Catalan fiscal deficit is indeed among the largest in the sample of territories analysed, thus possibly justifying the current feeling of grievance among the Catalan people and the secessionist movement.

The analysis reported herein shows that the methodology for calculating fiscal balances is fairly standardized at the international level. This is evident as regards both the respective approaches adopted (flow approach or benefit approach) as well as in relation to some critical measurement issues in this field. The studies examined include Social Security within the institutional framework for analysis and also coincide in the fact they do not consider financial operations. However, there is considerable discrepancy with regard to the inclusion in the calculation of the interest payments on central government's debt. Another aspect on which the studies are in full agreement is the need to neutralise the budgetary surplus or deficit in order to be able to analyse the redistributive effects of the fiscal flows generated by central government. This neutralization is carried out mainly via the revenue channel.

The studies carried out in Catalonia over a period of many years follow almost the same methodological guidelines. The results of these calculations indicate that Catalonia has always had a pretty stable fiscal deficit with the central public sector. The results also show that the magnitude of the Cata-

lan deficit, when applying standard normative frameworks, is high in comparison to those found in other regions of some advanced countries. We can find some other territories with a similar deficit, but comparatively richer than Catalonia or with special characteristics.

When applying the flow approach, Catalonia reports an average fiscal deficit between 1986 and 2012 of 8% of regional GDP and this figure has been a little higher (more negative) during the last decade than in previous years. This is a direct consequence of the fact that Catalonia has contributed, on average, around 19.4% of central administration and Social Security revenues while these administrations have allocated to Catalonia an average of 14% of their expenditure. If the revenues and the expenditures that belong to the Administration of the Social Security are excluded, we find that Catalonia has contributed around 19.6% of central revenues but received only 11% of central expenditure. The distribution of expenditure is therefore particularly unfavourable for Catalonia, in terms of Spanish State spending, though there is a partial offsetting by Social Security spending.

Catalonia presented an average fiscal deficit of around 6.0% of GDP during the period 2001-2012 when applying the benefit approach.

These results are a consequence of the high level of redistributive power of the central government's budget in relation to those of other federal countries, this power being centred very directly on Spain's system of financing the ACs. Indeed, our results show that when Social Security is excluded on the grounds of its non-discretionary character, the difference between the percentage of revenue contributed and expenditure received widens. This indicates that it is the more discretionary elements of central government expenditure, particularly the system of financing the Autonomies, which are the main determinants of this fiscal deficit.

Finally, further research, in line with the contributions of Alesina and Spolaore (2003) and Spolaore (2010), is called for to test whether the Catalan fiscal deficit might partly explain the increase in separatist feelings among its population. It probably is an important factor, but Catalan grievances are not only economic in nature. Other factors surely have more relevance, such as the constant attacks made by the Spanish central government on the culture and language and the lack of national recognition and real political autonomy. To resolve these Catalan aspirations for self-government a new Statute of Autonomy was approved by referendum in 2006. Nevertheless, the binding nature of the entire document was removed by the State in a ruling handed down by the Spanish Constitutional Court in 2010. This was seen by many Catalans to be a proof that the autonomous model set out in the Constitution of 1978 was no longer applicable and it was also the trigger for the great increase of secessionism in Catalonia, that is to say the search

for new solutions to the problem implied by a huge increase in the number of citizens prepared to break away from Spain.

Acknowledgments

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