

## The uneasy coexistence of the Spanish foral and common regional finance systems

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**ABSTRACT:** This paper develops a model which integrates the *foral* or *cupo* system applied to the Basque Country and Navarre, the *common* system applied to the other fifteen Spanish autonomous communities and the central government budget. The model shows that the theoretical cupo it generates is nothing more than an indirect form of measuring the equalising transfer between the central government and the corresponding autonomous jurisdiction. The cupo form *per se* is completely neutral: the foral jurisdictions operate exactly under the same financial conditions as the non-foral jurisdictions, despite that in the latter case the transfer is directly measured as the difference between expenditure needs and fiscal capacity. In the context of our model, the cause of the foral economic advantage is the particular imputation procedure developed by the cupo law, which clearly biases the scales in favour of the foral and, therefore, against the non-foral communities. An economic advantage of the foral respect to the aggregate of the non-foral communities that, even if only referred to the design of the cupo, we have estimated at 29.8% in the case of the Basque Country and at 28.2% in the case on Navarre. These calculations should be interpreted as a lower bound on the foral advantage. The model has clear implications for reform.

**JEL Classification:** H77.

**Keywords:** regional finance; Spain; foral system, common system.

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## La difícil coexistencia de los sistemas foral y común de financiación autonómica

**RESUMEN:** El trabajo desarrolla un modelo que integra los sistemas común y foral de financiación autonómica y el presupuesto del nivel central. El modelo muestra que el cupo teórico que genera no es más que una forma indirecta de determinar la transferencia de nivelación entre el gobierno central y la correspondiente región. Que el cálculo del cupo se haga de forma directa o indirecta es *per se* completamente neutro: las jurisdicciones forales operan exactamente bajo las mismas condiciones financieras que las comunidades de régimen común, a pesar de que en estas últimas la transferencia se calcule directamente como la diferencia entre las necesidades de gasto y la capacidad fiscal. En el contexto de nuestro modelo, la causa de la ventaja económica de las jurisdicciones forales es el particular procedimiento de imputación desarrollado por la ley del cupo, que claramente establece un sesgo en favor de las jurisdicciones forales y, por tanto, en contra de las comunidades de régimen común. Una ventaja económica de las comunidades forales respecto del agregado de todas las comunidades de régimen común que, aun estando restringida al ámbito del diseño del cupo, hemos estimado en un 29,8% para el País Vasco y en un 28,2% para Navarra. Estos cálculos deben considerarse como un límite inferior de la ventaja foral. El modelo tiene claras implicaciones de reforma.

**Clasificación JEL:** H77.

**Palabras clave:** financiación regional, España, sistema foral, sistema común.

### 1. Introduction

Regional finance in Spain is not implemented by means of a unique system, but through two different systems that coexist with each other. One, known as the *foral* or *cupo* system, is applied to two autonomous communities —the Basque Country and Navarre— and the other, known as the *common* system is applied to the other fifteen autonomous communities<sup>1</sup>. This coexistence is not without problems. For equal responsibilities, the amount of per capita finance provided by the foral system is believed to be much larger than that of the common system. With respect to non-foral communities, available estimates range from 32% to 47% in favour of foral communities<sup>2</sup>. Considering that both the Basque Country and Navarre are among the richest Spanish regions, this generates a widespread sense of injustice among common communities. As Zubiri (2007) points out, the coexistence of these two systems is potentially the most serious threat to the stability of the overall process of political and economic decentralization in Spain.

<sup>1</sup> Strictly, there are three other jurisdictions with special regimes: the Canary Islands and the autonomous cities of Ceuta y Melilla, which are a hybrid between municipalities and autonomous communities.

<sup>2</sup> See Zubiri (2007), Buesa (2007 and 2009), Monasterio (2010) and De la Fuente (2011). In Section 8 below we analyse these estimates in more detail and compare them with our own results.

The origins of the Basque foral system go back to the end of the XIX century, and particularly to the Spanish central government «*Real Decreto*» of February 28<sup>th</sup>, 1878 that creates the precedent of the present foral system. Concerning Navarre, the birth of the foral regime is associated to the «*Ley Paccionada*» of August 16<sup>th</sup>, 1841. During the Spanish Civil War, the foral regime was abolished in two of the three provinces that form the Basque Country (Guipúzcoa and Vizcaya) but retained in the third (Álava) and also in Navarre. And after the Franco regime it was re-instituted in the two foral autonomous communities through what is known as the Economic Concert (*Concierto Económico*) for the Basque Country and the Economic Agreement (*Convenio*) for Navarre<sup>3</sup>.

The legal foundations of the Economic Concert are, first, the Spanish Constitution (*Boletín Oficial del Estado, BOE, 1978*), which in its First Additional Provision «protects and respects» these traditional arrangements for the Basque Country and Navarre; second, the Statute of Autonomy of the Basque Country (*Estatuto de Autonomía del País Vasco, BOE 1979*), the basic institutional rule of this region that determines its tax and expenditure responsibilities and sets the principles for, among other matters, the political and economic relations with the central administration of the Spanish State; third, the law that regulates the Economic Concert (*BOE 2007a*); and fourth, the law (*BOE 2007b*) that determines the way to calculate the amount (the *cupo*) that the Basque Country has to pay the central administration «to contribute to the finance of the general expenses of the State»<sup>4</sup>.

Regarding the Navarre Agreement, in addition to the Constitution, the legal foundations are the Organic Law of Reintegration and Improvement of the Foral Regime of Navarre (*BOE 1982*), which is the equivalent of the Statute of Autonomy of Navarre, and the law that establishes the Economic Agreement between the State and the Foral Community of Navarre (*BOE 2007c*) and determines the way to calculate the amount that Navarre has to pay the central administration (the *aportación*). In what follows, and whenever there is no need to be specific, we will call all this set of legal texts, «the law», and use the term *cupo* to refer to both the Basque Country *cupo* and the Navarre *aportación*, and the term *concerted taxes/revenues* to refer both the Basque *concerted* and the Navarre *agreed taxes/revenues*.

Both the Constitution and the Statute of Autonomy of the Basque Country are very vague as to the concrete design of the Economic Concert. The Statute of Autonomy, however, in its article 41.2.f states that the Economic Concert «will be applied in accordance with the principle of solidarity referred to in articles 138 and 156 of the Constitution». Article 138.1 states that «the State guarantees the effective realization of the principle of solidarity [...], insuring the establishment of a proper and just economic balance among the various parts of Spanish territory [...]»; and article 138.2 states that «The differences between the Statutes of the Autonomous Communities will, in no case, imply economic or social privileges». Article 156 ac-

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<sup>3</sup> See Alonso-Olea (1995) for the historical precedents of the foral system.

<sup>4</sup> See Statute of Autonomy of the Basque Country (*BOE 1979*), article 41.2.d).

knowledges the principle of financial autonomy of the regions in conformity with the principles of coordination and solidarity. Also, the Spanish Constitutional Court clearly states that solidarity is a central competence and that it comprises the procurement of regional development as well as fiscal equalization (Constitutional Court Judgment No. 31/2010, of June 28)<sup>5</sup>.

The basic elements of the foral system are presented in the law that regulates the Economic Concert, which defines the tax responsibilities of the Basque autonomous community and refers to a further law that sets the concrete procedure to calculate the cupo. In particular, the Basque Country, subject to some harmonizing restrictions, has a considerable degree of responsibility for the design, administration, collection and inspection of all taxes accrued in its territory except for customs tariffs<sup>6</sup>. The final piece of legislation is the law that establishes the calculation procedure and the actual amount of the cupo. The cupo is meant to measure the cost of the general expenses of the State. To that end, the procedure adopted is to apply a fraction representative of the relative size of the Basque Country to the Spanish budget entitlements associated to those responsibilities that have not been transferred to the community.

The Navarre legislation is less precise as to the solidarity requirements, but the basic law of the system, *BOE* (1982), in its articles 1 and 45, establishes as well that Navarre will maintain a relationship of solidarity with respect to all other communities of the Spanish nation. In any case, the Navarre legislation is subject to the Spanish Constitution and to its articles 138 and 156. Essentially, the elements of the foral system and the procedure to calculate the cupo are the same in both Navarre and the Basque Country. We discuss this procedure in more detail below.

The legal base of the common system of regional finance is the LOFCA (*BOE* 2009a), the basic law that establishes the principles of the system, and the concrete provisions of the present regional finance model are set in the Common Regime Regions Financing Law (*BOE*, 2009b). The system of regional finance for the fifteen common regime autonomous communities consists of ceded national taxes, and a variety of equalization transfers, and its aim is the equalization of normative resources per unit of need, so that the same service level can be provided by all regions irrespective of their fiscal capacity<sup>7</sup>. Differently from the foral system, ceded taxes do not cover the whole range of taxes accrued in the territory of the respective community. From 1997, several degrees of discretion were granted to regional governments vis-à-vis some of the ceded taxes, allowing autonomous communities to set tax rates and establish tax credits and allowances. Thus, progressively, ceded taxes have in fact become own taxes for regional governments, from an economic point of view<sup>8</sup>.

<sup>5</sup> See López-Laborda (2011).

<sup>6</sup> Social Security contributions are excluded from the system. Actually, tax competences do not correspond to the autonomous community, but to the three historical territories, that is to say, the three provinces.

<sup>7</sup> Until 2009 the objective was the full equalization of regional services. Since then, with the last reform, the aims of the system are more confused. In this work we assume, as an approximation, that the common system is one of full equalization. See Zabalza and López-Laborda (2011).

<sup>8</sup> See Zabalza and López-Laborda (2011) and López-Laborda and Monasterio (2007) for a more detailed description of the common system of regional finance.

Past attempts to account for the larger amount of resources that the foral system generates have been based on the identification of measurement errors of the concepts involved and/or a faulty design of the cupo formula. Castells *et al.* (2005), Buesa (2009 and 2010) and Monasterio (2010) identify both types of deficiencies in their respective works, De la Fuente (2011) concentrates on the first one and López-Laborda (2007) on the second.

In this paper we show that even restricting ourselves to the problems posed by the faulty design of the cupo formula, it is possible to identify a substantial positive difference in the amount of resources that the foral system generates vis-à-vis the common system of regional finance. We formally show how the foral system stands in relation to the non-foral system and to the central jurisdiction budget, thus modelling the whole Spanish regional finance system. To measure the economic advantage of the foral system we compare it with a *reference position* in which foral jurisdictions, despite using the cupo formula, have no economic advantage over non-foral jurisdictions. Holding constant tax effort and the set of expenditure responsibilities that foral and non-foral communities have, we measure the unjustified advantage of the foral over the non-foral system by the difference in economic resources that the actual, legal cupo generates with respect to the reference cupo.

The rest of the paper is organized as follows: In Section 2 we develop a formal model which integrates the foral or cupo system applied to the Basque Country and Navarre, the common system applied to the other fifteen Spanish autonomous communities, and the central government budget. Using this model, we derive the *reference cupo*, a transfer consistent with what is established by the Constitution and the Statutes of Autonomy of the foral communities. In Section 3 we show how expenditure and tax responsibilities are distributed between foral, non-foral and central jurisdictions. In Section 4, still keeping with the formal development of the model, we identify the *reference cupo* in terms of the expenditure and tax responsibilities of the different levels of government and compare it with the actual, *legal cupo*. In Section 5 we calibrate empirically the model, and in Section 6 we evaluate the *reference position* of the whole regional finance system and see how this position changes when the *legal cupos* of the two foral jurisdictions are introduced. In Section 7 we measure the advantage granted to the foral jurisdictions and identify the sources of that advantage. In Section 8 we compare our results with others obtained in the literature and in Section 9 we examine the normative implications of our results. Section 10 concludes.

## 2. The model

The purpose of this section is to develop a model that captures the main characteristics of the foral and common systems and shows how they fit in the overall framework of regional finance. We start with a very simple model, which helps to identify the nature of the foral system and the *reference cupo*, and then add more realistic features to it in order to analyse the coexistence of the two systems.

## 2.1. The simple logic of the foral system: the *reference cupo*<sup>9</sup>

Consider the budget of a unitary economy,

$$E = T + D, \quad (1)$$

where  $E$  is expenditure,  $T$  is tax revenue and  $D$  is the public deficit. In order to reduce the argument to its essential elements, suppose this economy decides to decentralize expenditure and revenue, and for that purpose establishes two overlapping jurisdictions over the whole of the national territory: the central jurisdiction which we index with the exponent  $c$ , and the autonomous jurisdiction which we index with the exponent  $a$ . Together with decentralization, it is decided to assign the recourse to debt finance exclusively to the central jurisdiction. After decentralization, the consolidated budget of the two jurisdictions is:

$$E^a + E^c = T^a + T^c + D. \quad (2)$$

Expenditure,  $E^a$  and  $E^c$ , and revenue,  $T^a$  and  $T^c$  are the exogenous variables of this model, established normatively as part of the decentralization decision.  $E^a$  and  $E^c$  are the normatively assigned expenditures; that is, the *expenditure needs* that allow to provide services at a given standard level.  $T^a$  and  $T^c$  are the normative tax revenues; that is, the *tax/fiscal capacity* of the two jurisdictions, in terms of the revenues that at a standard tax effort can be collected from the corresponding basis.  $D$  is, as in the unitary economy, the endogenous deficit that results from the normatively chosen levels of expenditure and revenue for the two jurisdictions. That is,

$$D = E - T, \quad (3)$$

where  $E = E^a + E^c$  and  $T = T^a + T^c$ .

To motivate the actual situation of the two foral communities, suppose that the distribution of responsibilities is not uniform across jurisdictions. The autonomous jurisdiction is assigned a tax capacity which is larger than its expenditure needs. Therefore, in the central jurisdiction expenditure exceeds the resources obtained via tax and debt. That is,

$$E^a < T^a \quad \Rightarrow \quad E^c > T^c + D. \quad (4)$$

Given this distribution of responsibilities, a transfer from the autonomous to the central jurisdiction is needed so that both of them can finance their expenditure needs. Call this transfer  $C$  (for *cupo*). To get the definition of this transfer is useful to rewrite the consolidated budget (2) as

$$T^a - E^a = E^c - T^c - D.$$

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<sup>9</sup> This section is largely based on Zabalza (2011).

Written like this, and account taken of (4), the consolidated budget restriction is telling us that the vertical fiscal gap of the two jurisdictions must be the same in absolute terms:

$$T^a - E^a = C = E^c - T^c - D. \quad (5)$$

The transfer  $C$ , therefore, can be measured in two different ways: one that opts for the left hand side of expression (5),

$$C = T^a - E^a, \quad (6)$$

and another that opts for the right hand side of expression (5),

$$C = E^c - T^c - D. \quad (7)$$

We call (6) the direct measure of the transfer, which we associate to a «common system», and (7) the indirect measure of the transfer, which we associate to a «foral system». Any of the two options obviously yields the same result, but the second —expression (7)— is a rather cumbersome and indirect way of approaching the problem: it defines the transfer (the *cupo*), which is an endogenous variable, in terms of the deficit, which is also an endogenous variable, while it could have been directly defined in terms of only exogenous variables of the autonomous jurisdiction as the difference between tax capacity and expenditure needs, as shown in expression (6).

In the context of this overlapping jurisdictions model, as expression (7) states, the *cupo* that the autonomous jurisdiction has to pay to the central jurisdiction equals the expenditure of the central jurisdiction (that is, the expenditure that has not been decentralized) minus the sum of resources that this jurisdiction obtains from tax revenue and new debt. Given that in this simple model the territory of both jurisdictions is the same, this is the tax revenue obtained by the central government in the territory of the autonomous jurisdiction, and the deficit that has been generated by the shortfall of revenue respect expenditure also in the territory of the autonomous jurisdiction. The model thus identifies the *cupo* that covers the vertical fiscal gap of the central jurisdiction (the cost of the common national expenses net of the taxes and new debt raised by the central government) and at the same time allows the autonomous jurisdiction to finance its expenditure needs given its assigned tax capacity: we call this *cupo*, the *reference cupo*.

This can also be seen by noticing that the model we are in fact using is formed by the respective budgets of the two jurisdictions,

$$E^c = T^c + C + D, \quad (8)$$

$$E^a = T^a - C. \quad (9)$$

This is a sequential system of two equations in two unknowns,  $C$  and  $D$ . In terms of exogenous variables, the *cupo* is obtained from equation (9),  $C = T^a - E^a$  and, given the *cupo*, the deficit is obtained from equation (8) as  $D = E - T$ .

Despite its simplicity, the model generates an equalizing transfer from the autonomous to the central jurisdiction, the *reference cupo*, that —as we shall see below—

shares the structure of the actual cupo, but not its results. The model also unveils the dual character of this transfer. It can be defined following the cupo-type structure—expression (7)— but it can also be defined more directly—expression (6)— as the difference between tax capacity and expenditure needs. This duality is independent of the assumption that the tax revenue of the autonomous jurisdiction exceeds its normative expenditure. It would still exist if the assumption was the opposite, only that then the transfer would go from the central to the autonomous jurisdiction.

## 2.2. The foral and common systems of regional finance

The purpose of this section is to show that the above results follow through when instead of only one autonomous jurisdiction we more realistically consider the existence of a plurality of autonomous jurisdictions. Concretely, suppose that in addition to the central jurisdiction considered in the previous section, we now consider two foral jurisdictions, indexed by  $bc$  (for Basque Country) and  $n$  (for Navarre), and one non-foral jurisdiction, indexed by  $nf$ , which represents the aggregate of the other fifteen autonomous communities. Territorially, these three autonomous jurisdictions, which do not overlap, cover the whole of the national territory. The consolidated budget is:

$$E^{bc} + E^n + E^{nf} + E^c = T^{bc} + T^n + T^{nf} + R^c + D, \quad (10)$$

where  $E^{bc}$ ,  $E^n$ ,  $E^{nf}$  and  $E^c$  are the normatively established levels of expenditure of the four jurisdictions (i.e., the expenditure needs);  $T^{bc}$ ,  $T^n$ ,  $T^{nf}$  the normative tax revenue of respectively the Basque Country and Navarre and the aggregate of the fifteen non-foral autonomous communities (i.e., the tax capacity);  $D$  the public deficit; and  $R^c$  the central jurisdiction revenue, also in normative terms, which we assume is obtained not only from taxation,  $T^c$ , but also from sources other than taxes, which we denominate  $OR^c$ . In addition, the tax revenue of the central government,  $T^c$  comes from taxes partially transferred to the autonomous jurisdictions,  $PTT^c$ , and not transferred taxes,  $NTT^c$ . That is,

$$R^c = T^c + OR^c; \quad T^c = PTT^c + NTT^c; \quad \therefore R^c = PTT^c + NTT^c + OR^c \quad (11)$$

We also assume that the recourse to debt finance is assigned exclusively to the central government.

Again, to take into account the fact that foral communities are relatively richer than the average of the non-foral communities and that the extent of tax capacity that has been ceded to them is much larger than that ceded to non-foral communities, we assume that the distribution of tax capacity is not uniform across jurisdictions: in the two foral jurisdictions tax revenue exceeds expenditure, while in the non-foral jurisdiction it falls short. And regarding the central jurisdiction we assume that tax revenue, plus non-tax revenue, plus resources obtained through debt exceed expenditure. That is,

$$E^{bc} < T^{bc}, \quad E^n < T^n, \quad E^{nf} > T^{nf} \quad \text{and} \quad E^c < T^c + OR^c + D.$$



This is an assumption that adds empirical content to our model, but in no way conditions the results obtained. Had we disaggregated the non-foral jurisdiction into the fifteen autonomous communities of which it is composed, we would see that for the richest of them, despite a much lower level of cession of tax capacity, the transfer generated: *a)* would be negative, as it happens in the case of the two foral communities; and *b)* could perfectly well be represented in terms of the cupo-type structure, as it is the case for all communities, consistently with the duality result unveiled in the simple model of Section 2.1.

Suppose the central jurisdiction is the administrator of the whole system of regional finance. Given the above vertical fiscal gaps, to enable the four jurisdictions to finance their expenditure needs, two transfers (*cupos*) from the foral communities to the central jurisdiction,  $C^{bc}$  and  $C^n$ , and another transfer from the central to the non-foral jurisdiction, which we denote by  $S$ , are needed. With these transfers, the budgets of the four jurisdictions are:

$$E^{bc} + C^{bc} = T^{bc}, \tag{12.1}$$

$$E^n + C^n = T^n \tag{12.2}$$

$$E^{nf} = T^{nf} + S, \tag{12.3}$$

$$E^c + S = R^c + C^{bc} + C^n + D. \tag{12.4}$$

The model thus considers the whole central jurisdiction budget, expression (12.4), but regarding the three autonomous jurisdictions, expressions (12.1) to (12.3), only the budgets that correspond, in normative terms, to their respective regional finance system. This asymmetry is needed to represent actual legal arrangements, according to which while the regional finance system of the non-foral jurisdiction is defined only in terms of expenditure needs and ceded fiscal capacity, the cupo paid by the two foral communities is defined making use (through the public deficit) of the full budget of the central administration.

Equations (12) form a sequential system of four equations in four unknowns,  $C^{bc}$ ,  $C^n$ ,  $S$  and  $D$ , where the exogenous variables are the expenditure needs,  $E^{bc}$ ,  $E^n$ ,  $E^{nf}$  and  $E^c$ , and the tax/revenue capacities,  $T^{bc}$ ,  $T^n$ ,  $T^{nf}$ , and  $R^c$ . The first equation gives the solution for  $C^{bc}$ ; the second, the solution for  $C^n$ ; the third, the solution for  $S$ ; and, given  $C^{bc}$ ,  $C^n$  and  $S$ , the fourth solves for  $D$ .

$$C^{bc} = T^{bc} - E^{bc}, \tag{13.1}$$

$$C^n = T^n - E^n \tag{13.2}$$

$$S = E^{nf} - T^{nf}, \tag{13.3}$$

$$D = E - R, \tag{13.4}$$

where  $E = E^{bc} + E^n + E^{nf} + E^c$  and  $R = T^{bc} + T^n + T^{nf} + R^c$ .

Can the dual property unveiled by the simple model of Section 2.1 be also predicated of the present, more complex structure? The answer is yes. Take the consolidated budget (10) and rewrite it as follows:

$$\begin{aligned} & (T^{bc} - E^{bc}) + (T^n - E^n) + (T^{nf} - E^{nf}) \\ & = (E^{cbc} - R^{cbc} - D^{bc}) + (E^{cn} - R^{cn} - D^{cn}) + (E^{cnf} - R^{cnf} - D^{nf}), \end{aligned} \quad (14)$$

where,

$$D^f = E^{cf} - R^{cf} = (E^f + E^{cf}) - (T^f + R^{cf}), \quad (f = bc, n) \quad (15)$$

and

$$D^{nf} = E^{mf} - R^{mf} = (E^{nf} + E^{cnf}) - (T^{nf} + R^{cnf}). \quad (16)$$

$E^{cf}$  is total expenditure in the corresponding foral territory by both foral and central jurisdictions and  $R^{cf}$  total (tax and non-tax) revenue obtained by both jurisdictions in the corresponding foral territory;  $E^{mf}$  and  $R^{mf}$  are the equivalent concepts for the non-foral territory.  $E^{cf}$  is central government expenditure in the corresponding foral territory and  $E^{cnf}$  that in the non-foral territory;  $R^{cf}$  is central revenue obtained from or imputed to the corresponding foral territory and  $R^{cnf}$  that obtained from or imputed to the non-foral territory. By construction,  $E^{cbc} + E^{cn} + E^{cnf} = E^c$  and  $R^{cbc} + R^{cn} + R^{cnf} = R^c$ , and therefore  $D^{bc} + D^n + D^{nf} = D$ .

As we found in the simple model of Section 2.1, it turns out that in expression (14) the three parentheses on the left hand side (LHS) of the equality sign, which from expressions (13.1) to (13.3) are respectively the reference cupos for the Basque Country and Navarre, and (the negative of) the transfer to the non-foral jurisdiction, are equal to the three parentheses on the right hand side (RHS) of the equality sign. This can readily be seen by substituting (15) and (16) in (14). Thus, the two cupos,  $C^f$ , ( $f = bc, n$ ), and the non-foral transfer,  $S$ , can in fact be expressed in two different ways:

$$\begin{aligned} T^f - E^f &= C^f = E^{cf} - R^{cf} - D^f, \quad (f = bc, n) \\ E^{nf} - T^{nf} &= S = -(E^{cnf} - R^{cnf} - D^{nf}) \end{aligned}$$

Of these two possibilities, and to depict the actual arrangements of the Spanish regional finance system, we define the non-foral transfer  $S$  on the basis of the LHS option,

$$S = E^{nf} - T^{nf}, \quad (17)$$

and the two cupos on the basis of the RHS option,

$$C^f = E^{cf} - R^{cf} - D^f, \quad (f = bc, n) \quad (18)$$

The non-foral transfer  $S$ , expression (17), is simply the amount needed to cover the vertical fiscal gap of the non-foral community measured in normative terms. And expression (18) are the two reference cupos.

The consolidated budget (14) with the non-foral transfer and the two foral cupos shown explicitly is

$$(T^{bc} - E^{bc}) + (T^n - E^n) - S = C^{bc} + C^n + (E^{cnf} - R^{cnf} - D^{nf}). \quad (19)$$

Under the assumptions made so far, equation (17) for the non-foral jurisdiction and the two equations (18) for the two foral jurisdictions are the three transfers of the system, and (19) is the formal representation of the way in which the two regimes of regional finance coexist within the consolidated budget of the public sector.

The two reference cupos and the non-foral transfer are equalising transfers inasmuch as they ensure that all jurisdictions, given their fiscal capacity, can finance their expenditure needs. But observe that the model does not say anything about the extent of this equalization, since up to this point we have not defined the terms on which expenditure needs and fiscal capacity are determined in each of the three autonomous jurisdictions. Given that the aim of the present model is to serve as the reference to which the actual, legal cupos are to be compared, it is important to set out explicitly the terms on which the normative expenditure and revenue of each autonomous jurisdiction are defined. We do that in the following section.

### 3. Distribution of expenditure and tax responsibilities

So far, responsibilities for each jurisdiction, both in expenditure and tax revenue, have been identified only by means of their institutional dimension. This is too general for the purpose of this exercise, as it does not allow us to define precisely the *reference position* of the Spanish regional finance system and, with respect to this reference, to evaluate the economic advantage that the actual system grants the two foral communities. To these ends we need to be more precise as to the nature of responsibilities and how they are linked between jurisdictions.

#### 3.1. National equivalent levels of expenditure and tax revenue

We specify the model in the simplest terms, assuming that given the total, national levels of the relevant concepts of both expenditure and taxes, the distribution of these totals between jurisdictions follows an explicit rule. Denote the national equivalent of expenditure at the level of responsibilities of the two foral communities as  $NE^f (f = bc, n)$ , and the corresponding concept for the non-foral community as  $NE^{nf}$ , where these three levels are not necessarily equal<sup>10</sup>. Then, we assume that the normative expenditure assigned to each jurisdiction is distributed between the foral and non-foral communities according to relative population. Population is thus the indicator of needs that we adopt for our model. Therefore,

$$E^{bc} = \alpha_{bc} NE^{bc}, E^n = \alpha_n NE^n \text{ and } E^{nf} = \alpha_{nf} NE^{nf}, \quad (20)$$

<sup>10</sup> As we shall see below, in the Spanish system of regional finance,  $NE^{bc} > NE^n > NE^{nf}$ .

where  $\alpha_{bc}$ ,  $\alpha_n$  and  $\alpha_{nf}$  are the population shares of the Basque Country, Navarre and the non-foral jurisdiction respectively, and  $\alpha_{bc} + \alpha_n + \alpha_{nf} = 1$ .

Although a simplification, this is approximately the criterion used to define expenditure needs in the fifteen common autonomous communities and, given this, also the criterion to define the expenditure of the two foral communities if we want to construct a reference position in which the foral system does not generate any situation of advantage respect the non-foral jurisdiction.

Regarding taxes, denote the national equivalent of the tax revenue at the level of tax responsibilities of the two foral communities, corresponding to a given tax figure or to a given bundle of tax figures, as  $NT^f (f = bc, n)$  and the corresponding concept at the level of responsibilities of the non-foral community as  $NT^{nf}$ . Then normative tax revenue is assumed to be distributed between foral and non-foral communities according to relative income, which again is approximately the criterion used to define tax capacity of the non-foral communities. Thus,

$$T^{bc} = \beta_{bc} NT^{bc}, T^n = \beta_n NT^n \text{ and } T^{nf} = \beta_{nf} NT^{nf}, \quad (21)$$

where  $\beta_{bc}$ ,  $\beta_n$  and  $\beta_{nf}$  are the income shares of the Basque Country, Navarre and the non-foral jurisdiction respectively, and  $\beta_{bc} + \beta_n + \beta_{nf} = 1$ .

By doing this we ensure that, for the same level of tax responsibilities, tax effort is the same in all jurisdictions. This is important in order to rule out that any position of advantage that may be identified is due to a higher tax effort by the foral jurisdictions. Also, by assuming that (21) gives the accrued normative levels of tax revenue, we rule out the need to use adjustments in order to transform actual revenue obtained within a territory into accrued revenue according to the nature of the tax<sup>11</sup>.

These strong assumptions are needed to ensure the manipulability of the model. They also set a reference of comparison which is clear, reasonable and totally representable in formal terms. Specified like this, the model: *a*) shows that the indirect form of measuring the transfer between foral and central jurisdictions is not the reason why the foral communities obtain more resources than the non-foral communities; and *b*) is prepared to identify the cause of the economic advantage that foral communities enjoy over non-foral communities, subject to full equalization, and the extent of this advantage.

### 3.2. Expenditure responsibilities

We distinguish four types of responsibilities, which measured by their respective national level are: *EA*, those expenditure responsibilities that because of their nature

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<sup>11</sup> The model could be made more realistic by assuming that the distribution criteria are different for each tax. For example, by using the aggregate consumption share for VAT and the specific consumption shares for each of the different excise duties. But in order to keep the model simple we maintain our assumption since in the aggregate (19) turns out to be a fairly good approximation of the territorial distribution of normative tax revenue.

cannot be decentralized;  $EB$ , those responsibilities that can be decentralized and are assigned to both foral and non foral autonomous jurisdictions;  $EC$ , those responsibilities that can be decentralized and are only assigned to the two foral jurisdictions; and  $ED$ , those responsibilities that can be decentralized and are only assigned to the Basque Country.

Using assumption (20), this yields a convenient way of defining expenditure needs. In particular,

$$E^{bc} = \alpha_{bc}(EB + EC + ED), \quad (22.1)$$

$$E^n = \alpha_n(EB + EC), \quad (22.2)$$

$$E^{nf} = \alpha_{nf}EB, \quad (22.3)$$

$$E^c = EA + \alpha_{nf}EC + (\alpha_n + \alpha_{nf})ED. \quad (22.4)$$

It is easy to see that total assigned expenditure,  $E$ , is the sum of the four types of expenditure needs. Namely,

$$E = E^{bc} + E^n + E^{nf} + E^c = EA + EB + EC + ED. \quad (23)$$

Also, the national equivalents of  $E^{bc}$  and  $E^n$  (which the law calls «assumed charges») are  $NE^{bc} = EB + EC + ED$  and  $NE^n = EB + EC$ , and the national equivalent of  $E^{bc}$  and  $E^{cn}$  (which are called «not assumed charges»),  $NE^{bc} = EA$  and  $NE^{cn} = EA + ED$ .

Whereas  $E^{bc}$ , and  $E^n$  are  $E^{nf}$ , as a matter of fact, defined restrictively within the set of expenditure responsibilities that have been decentralized (the principal ones being education, health and social services),  $E^c$  is a much wider concept that refers to the whole expenditure budget of the central government, including the purchase of financial assets (Chapter VIII of the Budget) and the amortization of financial liabilities (Chapter IX). The central government expenditure budget also includes the transfer  $S$  to the non-foral jurisdiction, but we consider this item separately from  $E^c$ . Thus, the formal representation of the expenditure side of the central government budget in our model is  $E^c + S$ .

### 3.3. Tax responsibilities and other revenues

We assume that the whole tax system, measured at the national level and in terms of tax capacity, is composed of four groups of tax figures:  $ST$  (*shared taxes*), taxes the revenue of which is shared between jurisdictions (these are Income Tax, VAT and excises);  $CT$  (*corporation tax*);  $OT$  (*own taxes*), taxes fully ceded to the autonomous jurisdictions (these include, among others, the net wealth tax, the inheritance and gift tax and the capital transfer tax). The fourth group of taxes is  $NTT^c$  (*not transferred taxes*), which are central taxes (mainly custom tariffs and fees, and civil servants pension contributions) not transferred to any of the three autonomous jurisdictions.

In addition to the four tax groups, we consider as well the concept already defined  $OR^c$  (*other revenue*), which as stated above corresponds to revenue obtained by the central jurisdiction from non-tax sources or from transfers other than the foral cupos. Consistently with the expenditure side, the revenue side of the central budget also takes its most extensive form, including the sale of financial assets (Chapter VIII). Formally, the revenue side of the central budget in our model is represented as  $R^c + C^{bc} + C^n$ .

Using assumption (21) that states that tax capacity is distributed territorially according to income, the correspondence between these tax concepts and those of the model is the following:

$$T^{bc} = \beta_{bc}(ST + CT + OT), \quad (24.1)$$

$$T^n = \beta_n(ST + CT + OT), \quad (24.2)$$

$$T^{nf} = \beta_{nf}(\gamma ST + OT), \quad (24.3)$$

$$R^c = PTT^c + NTT^c + OR^c = \beta_{nf}[(1 - \gamma)ST + CT] + NTT^c + OR^c, \quad (24.4)$$

where  $\beta_{bc} + \beta_n + \beta_{nf} = 1$ , and  $\gamma$  is the average proportion of  $ST$  shared by the non-foral autonomous jurisdiction with the central government. An implication of (24.4) is that, expressed in terms of the different types of taxes, central government revenue obtained from partially transferred taxes is:

$$PTT^c = \beta_{nf}[(1 - \gamma)ST + CT] \quad (25)$$

The model shows the enormous extent of tax decentralization that the foral communities enjoy. They are the only jurisdictions that have full control over the collection, management and regulation of own taxes, shared taxes and the corporation tax<sup>12</sup>. In comparison, the non-foral communities only have full control over own taxes and have no responsibility over the corporation tax, and the central jurisdiction has responsibility over the corporation tax and shared taxes, but only within non-foral territory. The only tax revenue that escapes the control of the foral jurisdictions is that from not transferred taxes,  $NTT^c$ , which are a relatively small part of the total tax base<sup>13</sup>. It is easy to see that the sum of the tax capacity of the four jurisdictions is equal to the sum of the four national groups of taxes considered. That is,

$$T = T^{bc} + T^n + T^{nf} + T^c = ST + CT + OT + NTT^c. \quad (26)$$

<sup>12</sup> In general, no regulation responsibilities exist in the case of VAT and excise duties.

<sup>13</sup> The sum  $NTT^c + OR^c$ , the national equivalent of  $R^{cf}$  ( $f = bc, n$ ), is called in the law «total not concerted taxes and other revenue». So,  $NR^{cf} = NTT^c + OR^c$  ( $f = bc, n$ ). Also, the national equivalent of foral tax revenue,  $NT^f = ST + OT + CT$  ( $f = bc, n$ ), is called «total concerted taxes».

### 3.4. The central government budget

Using equations (22.4) and (24.4) and adding the corresponding transfers to and from the autonomous jurisdictions, the central government budget is:

$$\begin{aligned} & EA + \alpha_{nf}EC + (\alpha_n + \alpha_f)ED + S \\ & = \beta_{nf} \left[ (1 - \gamma)ST + CT \right] + NTT^c + OR^c + C^{bc} + C^n + D \end{aligned} \quad (27)$$

Notice that the deficit shown is the deficit of the whole system, since by assumption the normative budgets of the three autonomous jurisdictions are balanced<sup>14</sup>.

### 3.5. Consolidated budget

The added detail about the different levels of expenditure and tax responsibilities yields a new form of the consolidated budget, which in order to see the correspondence we show together with the previous forms. That is, the whole system can be represented indistinctively by the three following equivalent forms:

$$\begin{aligned} E &= R + D, \\ E^{bc} + E^n + E^{nf} + E^c &= T^{bc} + T^n + T^{nf} + T^c + OR^c + D, \\ EA + EB + EC + ED &= ST + CT + OT + NTT^c + OR^c + D. \end{aligned} \quad (28)$$

## 4. Reference and legal cupos compared

### 4.1. Reference and legal cupos

The *reference cupo* is the cupo that follows from the model developed so far. That is, the cupo of a system in which expenditure needs are assigned to autonomous jurisdictions according to population and tax capacity according to income. With the reference cupo, the non-foral jurisdiction and the two foral jurisdictions have at their disposal the same amount of normative resources per unit of need. Therefore, with the reference cupo, differences in resources per unit of need between foral and non-foral communities can only arise from differences in the extent of expenditure responsibilities.

However, as we shall see below, this is not the case with the actual, *legal cupo* that in addition to the difference in resources justified by different levels of responsibilities, generates as well an unjustified economic advantage over non-foral jurisdictions.

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<sup>14</sup> Call the deficit of the central government budget  $D^c$ . Using the budget of this jurisdiction given by (12.4),  $D^c = E^c - R^c + [S - (C^{bc} + C^n)]$ . The square bracket is equal to the net balance of the three autonomous jurisdictions. Therefore,  $D^c = (E^c - R^c) + (E - R) - (E^c - R^c)$ , from which it follows that  $D^c = E - R = D$ .

## Basque Country

The *reference cupo* of the Basque Country —expression (18) above—, which for commodity we reproduce here

$$C^{bc} = E^{cbc} - R^{cbc} - D^{bc}, \quad (18)$$

expressed in terms of the expenditure and tax concepts of equations (22) and (24), reads:

$$C^{bc} = \alpha_{bc}EA - \beta_{bc}(NTT^c + OR^c) - (\alpha_{bc}E - \beta_{bc}R), \quad (29)$$

where  $E = EA + EB + EC$  and  $R = ST + CT + OT + NTT^c + OR^c$ .

The *legal cupo*, BOE (2007b), instead of using the expression (18) that comes out from the model, prescribes that its three terms be raised to their national equivalents, and the cupo be calculated as the resulting number times a given coefficient (called the imputation coefficient) which is meant to approximate the relative income of the foral jurisdiction.

Therefore, calling the legally prescribed cupo  $C^{bcL}$ , the formula is,

$$C^{bcL} = i_{bc}(NE^{cbcL} - NR^{cbcL} - ND^{bcL}), \quad (30)$$

where  $i_{bc}$  is the imputation coefficient and  $NE^{cbcL}$ ,  $NR^{cbcL}$  and  $ND^{bcL}$  the national equivalents of, respectively,  $E^{cbc}$ ,  $R^{cbc}$  and  $D^{bc}$ <sup>15</sup>.

Expressed in terms of the expenditure and tax concepts of equations (22) and (24), the legal cupo reads:

$$C^{bcL} = i_{bc}EA - i_{bc}(NTT^{cL} + OR^{cL}) - i_{bc}[(1 + \pi)E - R], \quad (31)$$

where  $NTT^{cL}$  and  $OR^{cL}$  are the legal revenue measures of not transferred central taxes and non-tax central sources; and  $\pi$ , expressed as a fraction of  $E$ , is the resource premium (extra expenditure capacity) that the legal definition of the cupo bestows on the foral communities as compared to the reference definition.

## Navarre

Following the same procedure, the *reference* and *legal cupos* of Navarre are:

$$C^n = \alpha_n(EA + ED) - \beta_n(NTT^c + OR^c) - (\alpha_nE - \beta_nR), \quad (32)$$

and

$$C^{nL} = i_n[EA + (\alpha_n + \alpha_{nf})ED] - i_n(NTT^{cL} + OR^{cL}) - i_n[(1 + \pi)E - R]. \quad (33)$$

<sup>15</sup> In the law,  $NE^{cbcL}$  is called «total not assumed charges».



## 4.2. Comparison

Clearly, the reference and legal cupos —expressions (29) and (31) for the Basque Country, and (32) and (33) for Navarre— are not the same: there are differences regarding the imputation coefficients and differences caused by the specification of the second and third terms. These differences are therefore *prima facie* evidence of the origin of the economic advantage enjoyed by the foral communities versus the non-foral communities.

### Basque Country

For reference purposes, and to use the terminology of the legal cupo, let us call the three terms in these four expressions: the «not assumed expenditure» element; the «not concerted revenue» element and the «deficit» element. Subtracting (31) from (29),  $C^{bc} - C^{bcL}$ , we have a measure of the extent to which the reference cupo exceeds the legal cupo, and thus an estimate of the overprovision of resources that the foral jurisdiction enjoys as compared to the non-foral jurisdiction. This difference is, in its turn, generated by a not assumed expenditure effect,  $NAEE^{bc}$ , a not concerted revenue effect,  $NCRE^{bc}$ , and a deficit effect,  $DE^{bc}$ .

In particular, the not assumed expenditure effect is

$$NAEE^{bc} = (\alpha_{bc} - i_{bc})EA, \quad (34)$$

which is clearly negative since  $\alpha_{bc} < i_{bc}$ . Therefore, the legal cupo overestimates the not assumed expenditure element of the reference cupo. This is at variance with previous results in the literature. Castells *et al.* (2005) and De la Fuente (2011) conclude that the legal cupo underestimates this element, among other things because the legal cupo does not take into account the amount  $S$  that the central jurisdiction transfers to the non-foral jurisdiction. But, as seen in (29), it is correct that  $S$  should not appear in this term. Indeed, transfers should be no part of the definition of expenditure responsibilities as they are essentially different. When all things wash out, as the consolidated budget shows, transfers no longer play a role as they do not use up resources, they simply move them from one jurisdiction to another to redistribute expenditure capacity (that is, capacity to use up resources).

The not concerted revenue effect is

$$NCRE^{bc} = -(\beta_{bc} - i_{bc})(NTT^c + OR^c) + i_{bc} \left[ (NTT^{cL} + OR^{cL}) - (NTT^c + OR^c) \right]. \quad (35)$$

The first term measures the effect of the difference in imputation coefficients; and the second, the effect of the difference between the measure of not concerted revenue used by the law and the reference not concerted revenue implied by the model. Given the proximity of the coefficients  $\beta_{bc}$  and  $i_{bc}$ , the first term is bound to be small, while

the value of the second depends on the difference between the legal and correct measures of not concerted revenue.

Finally, the deficit effect is

$$DE^{bc} = -(\alpha_{bc} - i_{bc})E + (\beta_{bc} - i_{bc})R + i_{bc}\pi E. \quad (36)$$

Since  $\alpha_{bc} < i_{bc}$  and consolidated expenditure  $E$  is positive and large, the first component of this expression is bound to be positive and large. Given that  $\beta_{bc} < i_{bc}$ , the second component must be negative but, given the similarity of these two parameters, small. The third component, given the multiplication of two fractions,  $i_{bc}\pi$ , must be positive and also small<sup>16</sup>.

## Navarre

Following the same procedure for Navarre we find:

$$NAEE^n = (\alpha_n - i_n)EA + [\alpha_n - i_n(\alpha_n + \alpha_{nf})]ED, \quad (37)$$

$$NCRE^n = -(\beta_n - i_n)(NTT^c + OR^c) + i_n[(NTT^{cL} + OR^{cL}) - (NTT^c + OR^c)], \quad (38)$$

and

$$DE^n = -(\alpha_n - i_n)E + (\beta_n - i_n)R + i_n\pi E, \quad (39)$$

which, although to a smaller scale, have the same properties as those discussed for the equivalent expressions of the Basque Country.

## 5. Empirical calibration of the model

The data to calibrate the model developed here are readily available: *BOE* (2007b and 2007c) give the required information to estimate the foral system as applied in the Basque Country and Navarre; the data on regional finance for non-foral autonomous communities are in *MINHAP* (2013b); and the Spanish central budget can be found in *MINHAP* (2013a). Based on these sources we present an empirical calibra-

<sup>16</sup> The upshot of this comparison is that the two most significant elements are the not assumed expenditure effect (34) and the first component of the deficit effect (36). That is, under these simplifying assumptions,  $C^{bc} - C^{bcL} = (\alpha_{bc} - i_{bc})EA - (\alpha_{bc} - i_{bc})E = (\alpha_{bc} - i_{bc})(EA - E)$ . This is the strategy followed in López-Laborda (2007) to measure the difference between the transfer to the non-foral jurisdiction and the foral cupo. In terms of our model, from (23),  $EA - E = -(EB + EC + ED) = -NE^{bc}$ , the national equivalent of the «assumed charges» by the Basque Country. Thus, the most significant part of the difference between  $C^{bc}$  and  $C^{bcL}$  can be measured as  $C^{bc} - C^{bcL} = -(\alpha_{bc} - i_{bc})NE^{bc}$ , which essentially is the result obtained by López-Laborda (2007). Given that  $\alpha_{bc} < i_{bc}$  and foral expenditure large, this is clearly positive and large: the legal cupo significantly underestimates the correct cupo.

tion of the model for 2007, which corresponds to the last year in which the foral system was specified<sup>17</sup>.

### 5.1. Calibration strategy

The strategy is as follows: First we identify the reference position of the whole regional finance system, with respect to which the actual legal cupo of the foral jurisdictions can be compared. As shown above, the reference position is defined so that, for equal expenditure responsibilities, normative expenditure per capita of the foral jurisdictions is the same as average normative expenditure per capita of non-foral jurisdictions. Therefore, the differences in resources per capita between foral and non-foral jurisdictions observed in this position are due, and can be traced, to differences in responsibilities.

In defining the reference position we aim for consistency between different jurisdictions, and thus follow strictly the formal model above. An implication of the assumptions of the model is that there are no problems with the actual allocation of tax revenue to each jurisdiction and therefore that no adjustments are needed to transform actual revenue obtained within the territory of the community in question into accrued revenue according to the nature of the tax. In reality, in addition to the cupo, there are other transfers aimed at this purpose, which, consistently with the way tax revenue is imputed to each jurisdiction, are not considered in the present model. This of course does not mean they are not important<sup>18</sup>. It only means that in addition to the measure of foral advantage identified by the present model, all of it generated by the particular design of the imputation procedure prescribed by the law, there are other significant sources. To this extent, the measure of foral advantage found here must be considered a minimum estimate.

### 5.2. Calibration of the model

In the explanation of the calibration exercise we proceed first with tax responsibilities, then with expenditure responsibilities and finally we calculate the reference cupos, the transfer to the non-foral jurisdictions and the deficit of the system.

#### Tax responsibilities

Referring to equations (24.1) to (24.4), from INE we know that in 2007 relative income in the three autonomous jurisdictions was  $\beta_{bc} = 0.0619$ ,  $\beta_n = 0.0168$  and  $\beta_{nf} = 0.9213$ .

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<sup>17</sup> As with the non-foral system, the foral cupo undergoes a major revision about every five years and in the interim is annually updated according to some agreed rule. The last year in which this major revision took place in the Basque Country was 2007, and in Navarre 2005.

<sup>18</sup> A particular transfer that presents serious problems is the one destined to adjust VAT tax revenue from the production base under which it is collected to the consumption base under which it accrues. See Zubiri (2007), Monasterio (2010), De la Fuente (2011) and Zabalza (2012).

The data provided by the Spanish State budget of 2007 (MINHAP, 2013a) allows us to estimate practically all the tax revenue elements of the model, and not only for the central government jurisdiction but also for the three decentralized jurisdictions. This is so because this source—in particular, Table IV.2.1 of the «Yellow Book»—gives information, by tax figures, not only about the tax revenue shared by the central government, but also about total tax revenue budgeted within the non-foral territory.

Total tax revenue budgeted for 2007 in the non-foral territory for the three groups of shared taxes (Income Tax, VAT and Excises) is €138,880 million. From this, it follows that  $\beta_{nf}ST = €138,880$  million. Also, the share of this total that remains with the central government is  $\beta_{nf}(1 - \gamma)ST = €86,973$  million. These two pieces of information imply that the amount of shared taxes for the whole Spanish territory and the average proportion in which these taxes are shared between the central and the non-foral jurisdictions are<sup>19</sup>:  $ST = €150,747$  million and  $\gamma = 0,37$ . From the same source (MINHAP, 2013a), we also know that  $\beta_{nf}CT = €41,641$  million. Therefore, the implied corporate tax revenue for the whole Spanish territory is  $CT = €45,199$  million. Finally, from MINHAP (2013b), we know that  $\beta_{nf}OT = €29,481$  million and  $OT = 32,000$  million.

Then using equations (24.1), (24.2) and (24.3) we find, in € million, the tax revenue of the three autonomous jurisdictions:  $ORC T^{bc} = 14,106$ ;  $T^n = 3,839$  and  $T^{nf} = 81,388$ .

To find out the tax and non-tax revenue of the central government—expression (24.4)—we need to identify the values of  $NTT^c$  and  $OR^c$ . Central government revenue from not transferred taxes equals total central government tax revenue,  $T^c$ , which from MINHAP (2013b) is €137,151 million, minus central government tax revenue from tax figures transferred and shared with the foral and non-foral jurisdictions,  $PTT^c$ . That is,

$$NTT^c = T^c - \beta_{nf} \left[ (1 - \gamma)ST + CT \right] = 137,151 - 128,614 = 8,537 \text{ million.}$$

To calculate the central government revenue from non-tax sources,  $OR^c$ , we must first identify central government total revenue,  $R^c$ , which is equal to total revenue as figured in the central government budget, €147,545 million, minus the sum of the two legal cupos, which is €3,046 million. Thus

$$R^c = 147,545 - (C^{bcL} + C^{nL}) = 147,545 - 3,046 = 144,500 \text{ million,}$$

where the two cupos,  $C^{bcL}$  and  $C^{nL}$  are obtained, respectively, from *BOE* (2007b) and *BOE* (2007c). Then,

$$OR^c = R^c - T^c = 144,500 - 137,151 = 7,348 \text{ million.}$$

To summarize, the revenue side of the central government budget is

$$R^c + (C^{bcL} + C^{nL}) = \beta_{nf} \left[ (1 - \gamma)ST + CT \right] + NTT^c + OR^c + (C^{bcL} + C^{nL}),$$

<sup>19</sup> The equivalent, all Spanish territory, tax revenue figures in €million for Income Tax, VAT and Excises are, respectively, 67,244; 62,858; and 20,645.

or

$$R^c + (C^{bcL} + C^{nL}) = 128,614 + 8,537 + 7,348 + 3,046 = 147,545 \text{ million.}$$

As expressions (31) and (33) indicate, the definitions of the two legal cupos incorporate the concepts «revenue from central government not transferred taxes»,  $NTT^c$ , and «other non-tax central government tax revenue»,  $OR^c$ , but the values given by the law for these two concepts, particularly that for  $NTT^c$ , differ somewhat from the values implied here. In particular,

$$NTT^{cL} = 3,943 \text{ million and } OR^{cL} = 7,589 \text{ million.}$$

For consistency, we use the values implied by the calibration exercise:  $NTT^c = 8,537$  million and  $OR^c = 7,348$  million.

Panel A of Table 1 summarizes the tax revenue results obtained from this calibration exercise.

### Expenditure responsibilities

Referring to equations (22.1) to (22.4), we know from the regional data provided by INE (National Statistics Institute) that  $\alpha_{bc} = 0.0474$ ,  $\alpha_n = 0.0134$  and therefore  $\alpha_{nf} = 0.9392$ . From *BOE* (2007b) and *BOE* (2007c) we know that  $i_{bc} = 0.0624$  and  $i_n = 0.0160$ .

Also, we know from MINHAP (2013a) that total expenditure in the Spanish State budget,  $E^c + S = EA + \alpha_{nf}EC + (\alpha_n + \alpha_{nf})ED + S$ , is €188,417 million; and from *BOE* (2007b) that the value in the Spanish State budget of expenditure associated to the responsibilities of the Basque Country plus the transfer to the non-foral jurisdiction —article 4.3.b of *BOE* (2007b)—, the so called «assumed» expenditure  $\alpha_{nf}EC + (\alpha_n + \alpha_{nf})ED + S$ , is €102,665 million. Therefore, using (22.4) we conclude that the value of non-decentralized expenditure, (also known as «not assumed» expenditure), is  $EA = €85,753$  million, ( $= 188,417 - 102,665$ ).

Regarding the value of  $EB$ , we know from MINHAP (2013b) that  $S = €32,615$  million, and from our calculations above that  $T^{nf} = €81,388$  million. Therefore, the total expenditure capacity normatively given to the non-foral jurisdiction is  $E^{nf} = €114,003$  million ( $= 81,388 + 32,615$ ). Then, from equation (22.3) it follows that  $EB$  is equal to €121,381 million.

In equation (22.4),  $\alpha_{nf}EC$  is the Spanish State budget expenditure associated to Navarre responsibilities. We know from the law that establishes the Navarre cupo, *BOE* (2007c), that the value of the assumed charges of this community plus the transfer to the non-foral jurisdiction —article 54.2.b of *BOE* (2007c)— is €75,723 million<sup>20</sup>. Therefore,  $\alpha_{nf}EC + S = 75,723$  million and  $EC = €45,899$  million.

<sup>20</sup> This figure refers to 2005 and has been updated to 2007 using the State expenditure budget in order to make it temporally consistent with the data of the Basque Country cupo.

Finally, and using again (22.4), from the above it must be the case that  $(\alpha_n + \alpha_{nf})ED$  is €26,942 million, (= 102,665 – 75,723), the difference between the Spanish State budget expenditure associated to the Basque Country and that associated to Navarre. Therefore,  $ED = €28,282$  million.

Panel B of Table 1 summarizes the expenditure results of the calibration exercise.

**Table 1.** Calibration of the model, reference position 2007

<b>A. Tax Revenue (Million €)</b>			
<b>By type of tax</b>		<b>By jurisdiction</b>	
<i>ST</i>	150,747	<b>1. <math>T^{bc}</math></b>	14,106
<i>CT</i>	45,199	<b>2. <math>T^n</math></b>	3,839
<i>OT</i>	32,000	<b>3. <math>T^{nf}</math></b>	81,388
<i>NTT<sup>c</sup></i>	8,537	<b>4. <math>T^c</math> (4=4a+4b)</b>	137,151
<b>1. <math>T</math></b>	<b>236,484</b>	<b>4a. (PTT<sup>c</sup>)</b>	(128,614)
		<b>4b. (NTT<sup>c</sup>)</b>	(8,537)
		<b>5. <math>T</math> (5= +2+3+4)</b>	<b>236,484</b>
<b>Non-tax revenue</b>		<b>6. <math>OR^c</math></b>	<b>7,349</b>
<b>2. <math>OR^c</math></b>	<b>7,349</b>		
<b>Total revenue</b>		<b>7. <math>R</math> (7=5+6)</b>	<b>243,832</b>
<b>3. <math>R</math> (3=1+2)</b>	<b>243,832</b>		
<b>B. Expenditure (Million €)</b>			
<b>By type of expenditure</b>		<b>By jurisdiction</b>	
<i>EA</i>	85,753	<i>E<sup>bc</sup></i>	9,267
<i>EB</i>	121,381	<i>E<sup>n</sup></i>	2,242
<i>EC</i>	45,899	<i>E<sup>nf</sup></i>	114,003
<i>ED</i>	28,282	<i>E<sup>c</sup></i>	155,803
<b><i>E</i></b>	<b>281,314</b>	<b><i>E</i></b>	<b>281,314</b>
<b>C. Deficit, and cupos and transfer. Position of reference (Million €)</b>			
<b>Deficit</b>		<b>Cupos and Transfer</b>	
<i>E</i>	281,314	<i>C<sup>bc</sup></i>	4,839
<i>R</i>	243,832	<i>C<sup>n</sup></i>	1,597
<b><i>D=E-R</i></b>	<b>37,482</b>	<i>S</i>	32,615
		<b>Net Transfer<sup>1</sup></b>	<b>26,179</b>
<b>D. Parameters of the model</b>			
$\beta_{bc}$	0.0619	$\alpha_{bc}$	0.0474
$\beta_n$	0.0168	$\alpha_n$	0.0134
$\beta_{nf}$	0.9213	$\alpha_{nf}$	0.9392
$\sum \beta_i$	1.0000	$\sum \alpha_i$	1.0000
$i_{bc}$	0.0624	$\gamma$	0.3738
$i_n$	0.0160	$\pi$	0.0121

<sup>1</sup> Net Transfer =  $S - C^{bc} - C^n$ .

## Reference cupos, $C^{cb}$ and $C^n$ , transfer, $S$ , and deficit, $D$

The way they have been calculated, the normative values of expenditure and tax revenue given above define a position of the system in which foral communities do not enjoy any economic advantage over the non foral communities. Thus the reference cupos for the Basque Country and Navarre, given by expressions (29) and (32), respectively, and the transfer to non-foral communities, given by expression (13.3), are (in €million) 4,839, 1,597 and 32,615 respectively.

Finally, the deficit generated by this reference position can be found from expression (13.4) as the difference between consolidated expenditure,  $E$ , and consolidated revenue,  $R$ . Consolidated expenditure is €281,314 million and consolidated revenue €243,832 million. Therefore, the deficit of the whole regional system (which normatively coincides with the deficit of the central jurisdiction), expressed in €million, is  $D = 37,482$ . Panel C of Table 1 presents these results, and Panel D the value of the parameters of the model.

## 6. Reference and actual positions

### 6.1. Reference position

Table 2 shows the reference position. Expenditure per capita in the two foral jurisdictions, €4,327 in the case of the Basque Country and €3,701 in the case of Navarre, is the result of €2,685 received on account of the *EB* responsibilities that they share with the non-foral jurisdiction, plus €1,015 received on account of the *EC* specific responsibilities held by the two foral communities, plus €626 on account of the *ED* responsibilities held exclusively by the Basque Country. Therefore, in this comparison, where all jurisdictions are at their reference position, the 61.1% excess of resources that the Basque Country enjoys over the non-foral communities, and the 37.8% excess held by Navarre, have to be seen as excesses justified by the larger set of expenditure responsibilities they hold.

These justified excesses may seem fairly large, in special for the Basque Country, but account has to be taken that foral communities have responsibilities, over and above those of non-foral communities, in areas, among others, such as the finance of Local Administrations, certain infrastructure expenditures or the tax administration of practically all taxes. Nevertheless, the possibility that the extra expenditure responsibilities of the foral jurisdictions are overvalued must be acknowledged. As shown in Section 5.2 above, the estimation of the non-foral transfer  $S$  and of *EC* and *ED*, which are the extra responsibilities of the Basque Country (*EC+ED*) and Navarre (*EC*), comes from a system of the following three equations:

$$\begin{aligned} S &= 32,615 \\ \alpha_{nf}EC + S &= 75,723 \\ \alpha_{nf}EC + (\alpha_n + \alpha_{nf})ED + S &= 102,665 \end{aligned}$$

The first is the non-foral transfer that comes from the budget of the Autonomous Communities, MINHAP (2013b), and offers little doubt. The second corresponds to the assumed charges of Navarre that comes originally from the cupo law of this community, BOE (2007c) that corresponds to 2005 and has been updated to 2007. So here we have two possible sources of error measurement: the update from 2005 to 2007, and a possible over valuation of the €75,723 million assumed charges. And the third equation corresponds to the assumed charges of the Basque Country, BOE (2007b), which is also subject to possible over valuation<sup>21</sup>. An over valuation of the assumed charges of any of these two communities, or of the two of them, would necessarily lead to a corresponding over valuation of our estimates of *EC* and *ED*. Since in his article we take official data at face value, the reader must keep in mind that this might lead to overestimate the justified differences due to extra expenditure responsibilities, and therefore to underestimate the economic advantage of foral versus non-foral jurisdictions.

**Table 2.** The Spanish system of regional finance. Year 2007.  
Reference cupos: expressions (29) and (32) (Million €)

	Jurisdiction				
	<i>Basque C.</i>	<i>Navarre</i>	<i>Non Foral</i>	<i>Central</i>	<i>Consolidated</i>
Expenditure	9,267	2,242	114,003	155,803	281,314
Revenue	14,106	3,839	81,388	144,500	243,832
<i>C</i>	4,839	1,597		6,436	0
<i>S</i>			32,615	32,615	0
Deficit	0	0	0	37,482	37,482
<i>E/N</i> (€/N)	4,327	3,701	2,685	3,447	6,224
<i>T/GDP</i> (%)	21.7	21.7	8.4	13.3	
<i>R/GDP</i> (%)				14.9	23.2

*E*: Expenditure; *N*: Population; *T*: Decentralized tax revenue; *R*: Total revenue; *GDP*: Gross Domestic Product.

If we call *T* the set of taxes that have been decentralized (that is, *ST*, *CT* and *OT*) the national territory can be divided in two parts where the jurisdictions involved have the same tax responsibilities (precisely *ST*, *CT* and *OT*): one the foral territory (Basque Country and Navarre), and the other the non-foral territory, where the relevant tax revenue is the *sum* of that of the non-foral jurisdiction and that of the central jurisdiction. As the second row from the bottom of Table 2 shows, these two parts have the same average effective tax rate over GDP: 21.7% for each of the two foral jurisdictions, and also 21.7% for the *sum* of the non-foral and the central jurisdiction ( $21.7 = 8.4 + 13.3$ ). This naturally is the result of assumption (21) used to assign tax

<sup>21</sup> See Monasterio (2010) and De la Fuente (2011) for an explanation of the reasons why these official data may be over valued.



capacity between jurisdictions according to income, and tells us that the measure of foral advantage that our model identifies is calculated for a given equal fiscal effort of the jurisdictions involved. In addition to the decentralized taxes that enter into the regional system, the central government obtains revenue from other taxes,  $NTT^c$ , and from non-tax sources,  $OR^c$ . As the last row of the table shows, when these items are added to the revenue of the central jurisdiction, the effective rate over GDP increases 1.6 percentage points to a total of 14.9%.

## 6.2. Actual position

The actual position is shown in Table 3, where the cupos of the Basque Country and Navarre, instead of being calculated with the reference formulas (29) and (32) respectively, are calculated with the legally prescribed formulas (31) and (33).

**Table 3.** The Spanish system of regional finance. Year 2007.  
Legal cupos: expressions (31) and (33) (Million €)

	Jurisdiction				
	Basque C.	Navarre	Non Foral	Central	Consolidated
Expenditure	12,025	2,874	114,003	155,803	284,704
Revenue	14,106	3,839	81,388	144,500	243,832
C	2,081	965		3,046	0
S			32,615	32,615	0
Deficit	0	0	0	40,872	40,872
$E/N$ (€/N)	5,614	4,744	2,685	3,447	6,299
$T/GDP$ (%)	21.7	21.7	8.4	13.3	
$R/GDP$ (%)				14.9	23.2

*E*: Expenditure; *N*: Population; *T*: Decentralized tax revenue; *R*: Total revenue; *GDP*: Gross Domestic Product.

Two comments are in order concerning these two legal cupos. First, whereas the values in the Basque cupo are exactly the ones of year 2007 that figure in *BOE* (2007b), the values of the Navarre cupo, as mentioned above, are updated from the 2005 values that figure in *BOE* (2007c). Second, we only consider the *cupo* affected by the imputation coefficient. To this, the legally calculated cupos add other adjustments (the most important of which concerns direct taxes) for a total value of –€516 million in the Basque Country case and –€123 million in the Navarre case. Consistently with our assumption above that the reference tax figures are correctly allocated to each territory, we ignore these adjustments in what follows.

Table 3 shows approximately how in 2007 the whole regional finance system must have looked like with these legal cupos. In fact, Table 3 presents the actual 2007 observed position for central and non-foral jurisdictions, the actual legal cupos and, given

normative revenue, the implied levels of expenditure. Since the legal cupos are lower than the correct ones, expenditure of the foral communities is larger than in the reference position, and so is the deficit of the system. The way the reference position has been defined, the deficit of the actual position is precisely the actual 2007 budget deficit of the central jurisdiction. Since by assumption we keep revenue of all four jurisdictions, and expenditure of all jurisdictions except the foral ones, unchanged, the extra resources assigned to foral communities are all absorbed by the deficit of the system. With this, we ensure the correspondence between the actual position of Table 3 and observed data.

## 7. Foral advantage and its sources

### 7.1. Foral advantage

With the legally prescribed cupos, the Basque Country obtains €5,614 per capita and Navarre €4,744, while the non-foral jurisdiction obtains €2,685. The Basque Country has 109.1% and Navarre 76.7% more resources per capita than those of the non-foral jurisdiction. Of these excesses, and as we have seen above, 61.1% are justified by the larger set of the Basque Country expenditure responsibilities, and 37.8% by those of Navarre.

**Table 4.** Economic advantage of the foral system  
Excess of resources per capita over those of non-foral system  
(Percentages)

	<i>Basque C.</i>	<i>Navarre</i>	<i>BC+N</i>
Total excess	109.1	76.7	101.9
Justified excess*	61.1	37.8	56.0
Unjustified excess	29.8	28.2	29.5

\* Justified because of the larger set of expenditure responsibilities of foral over non-foral jurisdictions.

Therefore, as Table 4 shows, the unjustified excess, the economic advantage that the foral system enjoys over the non-foral system of regional finance, is 29.8% in the case of the Basque Country and 28.2% in the case of Navarre. In all, the two foral communities have at their disposal 29.5% more resources per capita than the foral communities. These are the unjustified differences in resources that result from the present exercise.

### 7.2. The sources of foral advantage

Having empirically calibrated the model, we can now evaluate the components of these differences. Beginning with the Basque Country, the difference between refer-

ence and legal cupos,  $C^{bc} - C^{bcL}$ , is €2,758 million. The legal cupo (€2,081 million) is 57.0% smaller than what it should be (€4,839 million). With reference to Table 5, the not assumed expenditure effect,  $NAEE^{bc}$ , is -€1,288 million. On this account, therefore, legal provisions overestimate the Basque Country cupo. The same, although with a much smaller absolute size (-€263 million), occurs with the not concerted revenue effect,  $NCRE^{bc}$ , which is generated in its practical totality by the difference between the revenue of not transferred taxes considered in the legal definition of the cupo and the revenue that for these taxes figures in the 2007 central government budget. Finally, the deficit effect,  $DE^{bc}$ , is €4,309 million, thus meaning that these same legal provisions, in net terms, severely underestimate the cupo of this autonomous community.

**Table 5.** Decomposition of the difference between reference and legal cupos in the Basque Country (Million €)

1. Not assumed expenditure effect, $NAEE^{bc}$	
$(\alpha_{bc} - i_{bc})EA$	-1,288
Total $NAEE^{bc}$	-1,288
2. Not concerted revenue effect, $NCRE^{bc}$	
$-(\beta_{bc} - i_{bc})(NTT^c + OR^c)$	8
$+i_{bc}[(NTT^{cL} + OR^{cL}) - (NTT^c + OR^c)]$	-272
Total $NCRE^{bc}$	-263
3. Deficit effect, $DE^{bc}$	
$-(\alpha_{bc} - i_b)E$	4,224
$+(\beta_{bc} - i_{bc})R$	-126
$+i_{bc}\pi E$	212
Total $DE^{bc}$	4,309
Total $C^{bc} - C^{bcL}$ difference (1+2+3)	2,758

In all, the legal cupo of the Basque Country is €2,758 million smaller than what it should be if the normative resources per capita of this community were, for equal responsibilities, the same as those of the non-foral jurisdiction. The three effects correspond respectively to expressions (34), (35) and (36). The results of this decomposition are in agreement with Monasterio (2010), for whom the main problem lies in the existence of a sizeable deficit effect, but somewhat different from those of De la

Fuente (2011), who identifies the not assumed expenditure effect as the main culprit of the foral economic advantage.

Table 6 shows the decomposition for the case of Navarre. Although with much lower absolute numbers, we see that the general pattern of effects is similar to that found for the Basque Country. Again, the not assumed charges effect is negative, –€275 million; the not concerted revenue effect is also negative but relatively small in absolute terms, –€83 million; and by far the largest is the deficit effect, €990 million. In total, the legal Navarre cupo (€965 million) is 39.6% smaller than what it should be (€1,597 million) if the normative resources per capita of this community were, for equal responsibilities, the same as those of the non-foral jurisdiction.

**Table 6.** Decomposition of the difference between reference and legal cupos in Navarre (Million €)

1. Not assumed expenditure effect, $NAEE^n$	
$(\alpha_n - i_n)EA$	–223
$+[\alpha_n(1 - i_n) - i_n\alpha_{nj}]ED$	–52
Total $NAEE^n$	–275
2. Not concerted revenue effect, $NCRE^n$	
$-(\beta_{bc} - i_n)(NTT^c + OR^c)$	–13
$+i_n[(NTT^{cl} + OR^{cl}) - (NTT^c + OR^c)]$	–70
Total $NCRE^n$	–83
3. Deficit effect, $DE^n$	
$-(\alpha_n - i_n)E$	730
$+(\beta_n - i_n)R$	205
$+i_n\pi E$	54
Total $DE^n$	990
Total $C^n - C^{nL}$ difference (1+2+3)	632

## 8. Comparison with other results

In the comparison of our results with those of other authors, we must keep in mind the different approaches and methodologies used, and the variety of questions posed. For instance, the present exercise only looks at the problems caused

by the design of the legal cupo (and particularly by the imputation procedure legally prescribed) and does not consider other transfers such as the VAT adjustment, nor does look into the way official figures for the not assumed charges have been arrived at. For these reasons, as has been pointed out above, our measure of foral advantage must be taken as a minimum estimate. Having said that, we believe it is informative to put our results side by side with those obtained by other authors.

As Table 7 shows, in general and consistently with our previous comment, our exercise yields estimates which are below those found by other authors. The difference is not very large with respect to Buesa (2007 and 2009) and Monasterio (2010):  $-6.6\%$  and  $-9.1\%$  respectively; but quite significant with respect to Zubiri (2007) and De la Fuente (2011):  $-53.4\%$  and  $-36.3\%$  respectively.

**Table 7.** Comparison with other estimates of foral advantage  
Excess of resources per capita over non foral system  
(Percentages)

	<i>Table 4</i> <sup>1</sup>	<i>Zubiri</i> <sup>2</sup>	<i>Buesa</i> <sup>3</sup>	<i>Monasterio</i> <sup>4</sup>	<i>De la Fuente</i> <sup>5</sup>
BC total	109.1		112.5	114.0	97.6
N total	76.7		88.8		
BC+N total	101.9		107.3		
BC unjustified	29.8	64.0	31.9	32.8	46.8
N unjustified	28.2	65.0	37.0		
BC+N unjustified	29.5	65.0	32.9		

<sup>1</sup> Year 2007.

<sup>2</sup> Zubiri (2007). Year 2002. Original estimates of excess in terms of resources per capita. Gross of effect of VAT adjustment.

<sup>3</sup> Buesa (2007) for Basque Country cupo (year 2007) and Buesa (2009) for Navarre cupo (year 2005). Original estimates in terms of cupo advantage, which are applied to reference position (Table 1) to convert the excess in resources per capita.

<sup>4</sup> Monasterio (2010). Year 2002. Original estimate in terms of cupo advantage, which is applied to reference position (Table 1) to convert the excess into resources per capita. Net of effect of VAT adjustment that would explain an additional 14.5% of excess of resources per capita.

<sup>5</sup> De la Fuente (2011). Year 2007. Original estimate of excess in terms of resources per capita. Net of effect of VAT adjustment that would explain an additional 8.2% of excess resources per capita.

The difference between ours and Zubiri’s results is in part due to the fact that his estimates include the effect of the VAT adjustment while ours, as explained above, do not. Although Zubiri’s paper gives no information on the extent of this effect, if we assume that it explains 14.5% of excess resources per capita—following the Monasterio (2010) estimate, which also refers to the year 2002— then the Zubiri’s measure of the foral advantage of the Basque Country, net of the VAT effect, would be a 43.2% excess of resources per capita, which is closer to our result.

Regarding the difference with De la Fuente's (2011) result, account must be taken of the fact that our estimates are generated exclusively by the deficient design of the legal cupo, and that, without questioning them, we have taken official data as valid. In his work, on the other hand, De la Fuente identifies deficiencies in these official data, particularly in the official measure of the not assumed charges, which he examines and reconstructs in a reasoned fashion<sup>22</sup>.

## 9. Normative implications

The model developed here has well defined normative implications regarding the design of the cupo/aportación. The first is that the legal definition incurs in a lot of redundancies that serve no purpose and should be eliminated. Perhaps the most intriguing feature of the cupo is the ample manner in which the deficit is defined. This affects both the reference and the legal cupos; let us illustrate the issue with the reference cupo of the Basque Country. Using the definitions of  $E$  and  $R$  given in (28), expression (29) reads

$$C^{bc} = \alpha_{bc}EA - \beta_{bc}(NTT^c + OR^c) - \alpha_{bc}(EA + EB + EC + ED) + \beta_{bc}(ST + CT + OT + NTT^c + OR^c).$$

Clearly, there are a lot of redundant variables that can be cancelled out without altering the value of the cupo. Indeed, if we do that we are left with the direct form of measuring the cupo, which is much simpler than the indirect one:

$$C^{bc} = \beta_{bc}(ST + CT + OT) - \alpha_{bc}(EB + EC + ED) = T^{bc} - E^{bc}.$$

But even if, for whatever reason, the indirect form is preferred, there is plenty of room to define all three terms of (29) much more parsimoniously: First, the  $NTT^c$  and  $OR^c$  elements in the not transferred revenue term cancel out with those in the revenue side of the deficit term. And second,  $EA$ , which includes all the financial operations of the central government, can be likewise narrowed down by excluding these operations both in the not assumed charges term and in the expenditure side of the deficit. Then, although still with one redundancy, the cupo would be defined in an indirect form but based only on the non-financial operations of the expenditure budget and the set of taxes involved in the foral finance system:

$$C^{bc} = \alpha_{bc}EA' - \left[ \alpha_{bc}(EA' + EB + EC + ED) - \beta_{bc}(ST + CT + OT) \right],$$

<sup>22</sup> In addition to those presented in Table 7, there are other estimates of foral advantage which are not included in the table due to comparability issues. Castells *et al.* (2005) presents results with data that belongs to a much earlier year (1999) and the excesses (76.9% for the Basque Country and 73.3% for Navarre) are calculated with respect to a subset of the non-foral communities (Andalucía, Canary Islands, Catalonia, Galicia and Valencia). De la Fuente *et al.* (2014), provide measures of foral advantage referred to 2005, significantly larger than any of those considered in Table 7 (115.2% for the Basque Country and 85.2% for Navarre), which are obtained in the context of the calculation of a system of territorial public accounts.

where  $EA'$  are the expenditure responsibilities that cannot be decentralized, excluding those of financial nature (Chapters VIII and IX).

The second implication is that to determine the national equivalent of not assumed charges,  $NE^{cbc}$ , which in terms of our model is  $EA'$ , the national equivalent of assumed charges,  $NE^{bc}$ , which in our model is  $(EB + EC + ED)$ , should be subtracted not from the total expenditure budget of the central jurisdiction (as the law prescribes), but from the total expenditure of the whole consolidated budget of the system,  $E$ . Indeed, doing that, we have

$$NE^{cbc} = E - NE^{bc} = EA' + EB + EC + ED - (EB + EC + ED) = EA'$$

which, as desired, retrieves the national equivalent of the expenditure responsibilities not held by the foral community.

## 10. Conclusion

This paper has shown that, if correctly calculated, the foral cupo would be nothing more than an indirect form of measuring the equalising transfer between the central government and the corresponding autonomous jurisdiction. The cupo form *per se* is completely neutral: the foral jurisdictions would operate exactly under the same financial conditions as the non-foral jurisdictions, despite that in the latter case the transfer is directly measured as the difference between regional expenditure needs and fiscal capacity. In the context of our model, holding constant the expenditure responsibilities of the foral and non-foral jurisdictions, and for the same tax effort, the reason why the two foral communities obtain more resources is the particular way in which this indirect form is measured: in other words, the cause of the foral economic advantage is the particular imputation procedure established by the law, which clearly biases the scales in favour of the foral and, therefore, against the non-foral communities. An economic advantage of the foral respect to the aggregate of the non-foral communities that, even if only referred to the design of the cupo, we have estimated at 29.8% in the case of the Basque Country and at 28.2% in the case on Navarre.

We feel that our approach contributes significantly to the understanding of the relationship between foral, non-foral and central jurisdictions. For instance, our model establishes without ambiguity that the solidarity of the foral communities has nothing to do with the aggregate transfer to the non-foral communities being considered as a not assumed charge. Being formally much more explicit than previous representations of the foral system, our model is also capable of identifying with precision the sources of the difference between the actual cupo and a cupo measured by means of an imputation procedure that gives no economic advantage to the foral communities. In particular, we have found that the measurement of the imputed deficit is by far the most important source of the economic advantage granted to the two foral communities, the other two possible sources (not assumed charges and not concerted revenue) counteracting to some extent this gain.

Analytical power always comes at the cost of strong assumptions. We feel that the ones we have put forward to specify our model are the minimum ones needed to retain the essential elements of the Spanish regional system, and in particular, of the foral system, while at the same time allowing a sufficiently simple representation to facilitate the understanding and measurement of the substantive issues under investigation. We acknowledge that this simplification has left out aspects of the actual foral system, like the VAT adjustment or the official calculation of assumed and not assumed charges, which are, or may be, also sources of foral advantage. And for this reason we point out that the measures of foral advantage here obtained should be seen as minimum estimates. Also, we recognize that the empirical calibration of the model, which is based on the logical implications of official data, including those data given by the cupo laws, may have introduced an upward bias in our measure of the extra expenditure responsibilities of the Basque Country and Navarre. But on the other hand we would like to emphasize that the figures we come out with lead to a consistent empirical model which is manageable, has the global dimension of the real system and displays all the essential features of the actual Spanish composite formed by the foral/non-foral jurisdictions. We cannot discard that some of the official data used are, as some authors sustain, subject to errors of measurement. But our point here is that, *even taking these data at face value*, there are compelling reasons to believe that the design of the actual cupo, and in particular of the imputation procedure prescribed by the law, is the source of a significant level of economic advantage of the foral over the non-foral system.

We would further like to remark the relative easiness with which our model can be put to work in order to gain understanding and generate insights about an issue so complex as the foral cupo and its incidence into the finance of the rest of the Spanish regional system. We are convinced that this type of analysis opens promising venues of productive research, particularly if in the future it is complemented with more detailed and consistent data regarding the foral system.

Our exercise has clear implications for reform. The Spanish Constitution, at the same time that «protects and respects» the foral system, requires that no Autonomous Community (including the two foral communities) should enjoy economic advantages on account of their financing arrangements. These two provisions can only be accommodated, on the one hand, by accepting the much larger degree of tax capacity that foral communities presently enjoy, but, on the other, by redefining the actual cupo so that it gives the foral community the same amount of normative resources per unit of need as that of non-foral communities. From a technical perspective, as the present article shows, this is perfectly possible. Also, it is relevant to point out that the laws that establish the overall financial relationship between the central government and the foral communities, and that define the cupo, are ordinary laws that can be changed by other ordinary laws after, of course, the mandatory negotiations between central and foral governments.



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