



## **SPOOR A2: TOEKOMSTSCENARIO'S VOOR DE VLAAMSE BEGROTING EN FISCALITEIT**

***The incentive effects of the Belgian Financial  
Arrangements For The Regions***

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## 1. Introduction

Equalization transfers from central to sub-central governments are a pervasive feature of nearly all systems of multi-level government. Not surprisingly, in many federal countries, e.g. Canada and Germany, major programs transfer resources from more wealthy jurisdictions to those with relatively small tax bases/tax revenues.

The literature mentions both equity and efficiency reasons for these equalization transfers. They may be an instrument for achieving horizontal equity among residents of different regions, that is, for ensuring that persons of a given income can obtain comparable public services at comparable tax rates in all regions. Equalization might also serve as a stabilization device, insuring regions against adverse idiosyncratic shocks with which they may not be able to cope themselves. Finally equalization transfers may provide a more “level playing field” for interjurisdictional competition (Oates, 2006).

However, equalization schemes may have unintended consequences due to the usual moral hazard problems of insurance.

Rodden et al. (2003) point out that the mandated German formula for fiscal equalization makes it clear to the smaller and poorer states that poor fiscal performance will be rewarded with increased transfers. This is obviously a recipe for undermining fiscal discipline.

Oates (2006) refers to a forthcoming study of Fabio Padovano that looks at the process of income convergence among regions. He contrasts the experience of the U.S., a country with essentially no fiscal equalization by the federal government, with that of Italy, where there have been large fiscal transfers from the wealthy North to the South. Padovano finds that in the U.S. the process of income convergence has proceeded expeditiously as economic theory would predict with a movement of industry and employment to relatively low-wage areas and a consequent narrowing of inter-regional income differentials over time. This process of income convergence has not happened in Italy. Padovano argues that this is largely the result of the transfer system which has muted the incentives for the factor movements that generate convergence.

Cattoir-Verdonck (2002) have analysed the incentive effects of the Belgian financial arrangements for the Regions<sup>1</sup>. Besides a paradox concerning revenues,

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<sup>1</sup> Belgium maintains a twofold federalism, oriented on the one hand towards cultural (linguistic) Communities, on the other hand to regional or territorial divisions. The *Communities* are organized on linguistic lines and are responsible for services pertaining to individuals, such as education, culture and health. There are three Communities, i.e. the Flemish Community, the French-speaking Community and the German-speaking Community. The *Regions* are organized on territorial lines and are responsible for matters such as the economy, agriculture and employment. There are three Regions, i.e. the Flemish Region, the Walloon Region, and the Brussels-Capital Region. But Belgium maintains also an asymmetric federalism. Flanders preferred the community option, absorbing the Flemish Region into the Flemish-speaking Community. Thus Flanders has only one parliament and one government. The corollary is that deputies of the Flemish parliament who come from the Brussels Capital Region cannot vote on laws concerning regional competences, but only on laws concerning community competences. In contrast, the Walloon Region, the

i.e. an inversion of per-capita revenues relative to the Regions following the implementation of equalization, they also found a base tax back problem. The vertical equalization system in conjunction with the grant financing system, leads to a poverty trap for the Regions benefiting from equalization. Any economic catching-up that increases tax revenues in one of the two Regions leads to a loss of the Region's revenues.

These are some illustrations of the in the literature well-known base tax-back problem<sup>2</sup>. Fiscal equalization grants will tend to reduce a recipient government's marginal cost of public funds, leading to higher tax rates, excessive spending on consumptive public services, underprovision of tax base-enhancing expenditures such as education and infrastructure and a biased tax mix in favour of those taxes where its tax base is below the standard tax base (Dahlby, 2001). For fairly elastic bases, regions will have an incentive to set tax rates too high since the revenue loss from the lower base caused by the high tax rate will be largely offset by increased equalization entitlements. They will perceive their marginal cost of public funds to be lower than it actually is from a social perspective. The disincentive associated with base tax-back effects is a classic incentive equity trade-off.

The purpose of this paper is to analyse the effects of equalizing transfers on subfederal governmental behavior in Belgium. We therefore derive the sensitivity of the Regions' budget with respect to a change in Gross Domestic Product (GDP). Cattoir-Verdonck (2002) calculated the budgetary return for the Regions of an increase in (federal) personal tax revenues. The increase is implicitly assumed to be the result of an increase in GDP. Here the exogenous variable is a change in regional GDP. Hence we calculate the own and cross GDP-elasticity of the Region's budget. Moreover, we account for the commuting effect. This is relevant especially for The Brussels Capital Region characterized by a considerable divergence between Gross Domestic and Gross Regional Product. Finally, the sensitivity of own regional taxes to GDP can be taken into account.

Besides an analysis of the incentive effects of the Belgian financial arrangements for the Regions, this paper complements the literature on determining the degree of fiscal autonomy of subcentral governments. The OECD (2004) proposes a strict set of cumulative criteria in order to determine the degree of fiscal autonomy of subcentral governments. These criteria include the revenue risk that sub-central governments are exposed to, the freedom of use of the revenue obtained, the rules and formulas that define the distribution of financial revenue, and the institutional decision mechanisms that define each subcentral government's annual share.

Determining the degree of fiscal autonomy of subcentral governments is useful. But given the moral hazard problems, the budgetary impact of subcentral (economic) policy measures also matters. The GDP-elasticity of subcentral

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Brussels Capital Region and the French-speaking community all have their own parliament and government.

<sup>2</sup> There is also a rate tax back problem: taxes of subcentral governments can affect the parameters of the grant formula, thereby affecting the size of their grant.

revenues indicates whether the financing system of subcentral governments, i.e. the degree and kind of fiscal autonomy together with possible vertical and/or horizontal equalization systems, is well-designed. Therefore, the sensitivity of subcentral revenues with respect to economic growth complements the indicators of fiscal autonomy.

Section 2 briefly describes the key features of the Belgian financial arrangements for the Regions. In section 3 the volume and substitution-effects of a change in a Region's GDP are discussed. Section 4 derives the GDP-elasticities whereas the results are given in section 5. Section 6 concludes.

## **2. Financing of the Regions**

The federal personal income tax transfer is, besides the own tax revenues, the main financing source of the Regions. The federal personal income tax transfer is a vertical lump sum payment, defined in 1989 and being tied to the consumer price index and GDP growth.

Since 1990 the federal personal income tax transfer is horizontally attributed to the Regions according to each Region's contribution to federal personal income tax revenues (=the derivation principle of taxation).

Before 1990 the horizontal shares were defined in light of three identically weighted criteria, i.e. population, revenues generated by personal income tax and surface area (the so-called "three-thirds" rule). As compensation for the change in the horizontal allocative formula, an equalization grant has been attributed to the Regions. A Region whose per-capita revenues from personal income tax are lower than the national average receives each year a 11.6 € indexed transfer per inhabitant per percentage point difference between the per-capita revenues from personal income tax and the national average.

The state reform of 2001 has increased tax autonomy of the Regions. For some specific taxes, the discretion of defining the tax base and its tariffs were transferred to the Regions together with the revenues. This was intended to be a vertical budgetary neutral operation. Given the transfers of revenues from the new regional taxes, the federal government has been compensated by a reduction in the personal income tax transfer granted to the regions, i.e. the so-called negative term. The negative term of each region was defined as the average of revenues from newly transferred taxes collected in 1999, 2000 and 2001 (the averages were expressed in 2002 prices). Subsequently, the negative terms have been linked to inflation plus 91% of real GDP growth. An exception to this rule are the Radio-TV licence fees which became from 2002 onwards a regional instead of a community tax. The personal income tax transfers to the Regions are reduced by the average amount of radio-TV fee revenues within their territory between 1999 and 2001, expressed in 2002 prices but indexed only to inflation in subsequent years. The amount recovered by the federal government through this reduction in the personal income tax transfer is transferred to the Communities.

We introduce the following notation in order to describe formally, as in Cattoir-Verdonck but taking into account the state reform of 2001, the personal income tax transfer for Region  $i$  in year  $t$ :

$PIT_t^i$  = the personal income tax revenues of the Region  $i$  in year  $t$ ,

$PIT_t$  = the personal income tax revenues of Belgium as a whole in year  $t$ ,

$P_t$  = the overall consumer price index in year  $t$ ,

$POP_t^i$  = the number of residents in Region  $i$  in year  $t$ ,

$POP_t$  = total population in year  $t$ ,

$GDP_t$  = gross domestic product in year  $t$ ,

$\sigma_t$  = the solidarity transfer per capita in year  $t$ ,

$NT_t^i$  = the negative term for Region  $i$  in year  $t$ ,

$RTF_t^i$  = the radio and television licence fee for Region  $i$  in year  $t$

The personal income tax transfer to Region  $i$  in year  $t$ , denoted by  $d_t^i$ , now equals, depending on whether or not the national solidarity measure comes into play,

$$d_t^i = d_t \cdot \frac{PIT_t^i}{PIT_t} - NT_t^i - RTF_t^i \quad (1)$$

or

$$\begin{aligned} d_t^i &= d_t \cdot \frac{PIT_t^i}{PIT_t} - NT_t^i - RTF_t^i + \sigma_t \cdot \left[ 1 - \frac{PIT_t^i / POP_t^i}{PIT_t / POP_t} \right] \cdot 100 \cdot POP_t^i \\ &= \sigma_t \cdot 100 \cdot POP_t^i + \left[ d_t - \sigma_t \cdot 100 \cdot POP_t \right] \cdot \frac{PIT_t^i}{PIT_t} - NT_t^i - RTF_t^i \end{aligned}$$

(1bis)

We have the following difference equations (given the initial amounts  $d_{1989}$ ,  $NT_{2002}^i$ ,  $RTF_{2002}^i$ ):

$$\begin{aligned} d_t &= \left( 1 + \frac{P_t - P_{t-1}}{P_{t-1}} \right) \cdot \left( 1 + \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \right) \cdot d_{t-1} \\ &\equiv (1 + \pi_t) \cdot (1 + \gamma_t) \cdot d_{t-1} \end{aligned}$$

$$NT_t^i = NT_{t-1}^i \cdot (1 + \pi_t) \cdot (1 + 0,91\gamma_t)$$

$$RTF_t^i = RTF_{t-1}^i \cdot (1 + \pi_t)$$

$$\sigma_t = 11,6 \cdot \prod_{\xi=1989}^t (1 + \pi_\xi)$$

Besides the personal income tax transfer, there is another transfer from the federal budget which is tied to economic growth. Additional expenditures competences have been transferred in 1993 and 2001 to the Regions together with the corresponding budget. These budgetary funds are also indexed to the consumer price index and GDP.

Formally the evolution over time of the Region's  $i$  funds related to the new expenditures competences,  $AV^i$ , is given by

$$AV_t^i = AV_{t-1}^i \cdot (1 + \pi_t) \cdot (1 + \gamma_t)$$

(2)

Except for the expenditures related to the Regions' supervisory authority for local governments (which represent 3% of the funds related to the new expenditures), the horizontal shares are fixed and independent of economic variables.

Finally, regional taxes represent the Regions' other major financing resource. Since 2002 the regions have fiscal autonomy (i.e. disposal of the revenues, determination of the tax base and the rates) with respect to 12 taxes. The taxes concerned are 1) the tax on gambling and betting 2) the tax on automatic amusement devices 3) taxes on the opening of drinking establishments 4) the estate tax and inheritance tax 5) Radio and television licence fees 6) the real estate tax 7) registration fees on real estate transfers 8) mortgage registration fees 9) duties on gifts 10) road fund tax on automobiles 11) vehicle registration fees and 12) Eurovignette.

The revenues of these taxes amounted to 7181 million € in 2006, i.e. 16% of total Regions' revenues.

Summarizing, the for this study relevant revenues of Region  $i$  in year  $t$ , denoted by  $R_t^i$ , are its share of the personal income tax revenues transferred, the additional funds because of new expenditure competences and the Region's own tax revenues:

$$R_t^i = d_t^i + AV_t^i + RT_t^i$$

### 3. Volume and substitution effects

Similar to GNP, we define Gross Regional Product (GRP) as the output of a Region's factors of production, regardless of whether the factors are located within the Region's borders. The GRP can be either larger or smaller than the Region's GDP depending on the number of its citizens working outside its borders and the number of other Region's citizens working within its borders.

A change in a Region's GDP,  $GDP^i$ , influences the Region's revenues, both by volume and substitution effects.

There are volume effects since the personal income tax grant and the grant for 'new' expenditures competences are indexed to GDP. Moreover, the own tax revenues may also be linked to GDP.

Next substitution-effects take place when the horizontal distribution of the grants depends on Gross Domestic Product, via its effect on the Region's personal income tax revenues. This is the case for the personal income tax transfer where the Region's share is determined by its share in (contribution to) the federal personal income tax revenues. Changes in the personal income tax revenues in a Region affect the funds at the disposal of the other Regions. This is an important horizontal externality in a federation comprising only three federated entities.

In order to determine the substitution effects one also has to take into account the (net) commuting effect. Because of commuters, a change in a Region's GDP may influence another Region's Gross Regional Product.

Besides volume and substitution-effects a change in a Region's GDP affects the solidarity transfers. These transfers are a function of the relative divergence of the Region's tax revenues. The commuting effect has also to be taken into account in order to determine the effect on the solidarity transfer.

### 4. GDP-elasticities

We now calculate the sensitivity of a Region's budget with respect to its GDP, whether or not the Region receives a solidarity transfer.

For a Region without solidarity transfer the GDP-sensitivity of the personal income tax transfer equals :

$$\frac{\Delta d_t^i}{\Delta GDP_t^i} = \frac{d_{t-1} \cdot (1 + \pi_t)}{GDP_{t-1}} \cdot \frac{PIT_t^i}{PIT_t} - \frac{0,91 \cdot NT_{t-1}^i \cdot (1 + \pi_t)}{GDP_{t-1}} + d_t \cdot \left[ \frac{1}{PIT_t} \cdot \frac{\Delta PIT_t^i}{\Delta GDP_t^i} - \frac{PIT_t^i}{(PIT_t)^2} \cdot \sum_k \frac{\Delta PIT_t^k}{\Delta GDP_t^i} \right]$$

(3)

The first two terms of the RHS of equation (3) account for the volume effect. The first term for example measures the impact of the change in economic growth on

the total grant, given the horizontal distribution formula. The last term measures the impact for the Region of the change in economic growth on the horizontal distribution formula, given the personal income tax grant for the Regions. A change in a Region's Gross Domestic Product improves its share in the horizontal distribution formula. When correcting for the spillover effects on the other Region's personal income tax revenues, we get the net horizontal distribution effect.

Remark that when a Region's GDP coincides with its Gross Regional Product, equation (3) simplifies to:

$$\frac{\Delta d_t^i}{\Delta GDP_t^i} = \frac{d_{t-1} \cdot (1 + \pi_t)}{GDP_{t-1}} \cdot \frac{PIT_t^i}{PIT_t} - \frac{0,91 \cdot NT_{t-1}^i \cdot (1 + \pi_t)}{GDP_{t-1}} + d_t \cdot \frac{PIT_t - PIT_t^i}{(PIT_t)^2} \cdot \frac{\Delta PIT_t^i}{\Delta GDP_t^i}$$

For a Region eligible for a solidarity transfer, the GDP-sensitivity of the personal income tax transfer is equal to:

$$\begin{aligned} \frac{\Delta d_t^i}{\Delta GDP_t^i} = & \frac{d_{t-1} \cdot (1 + \pi_t)}{GDP_{t-1}} \cdot \frac{PIT_t^i}{PIT_t} - \frac{0,91 \cdot NT_{t-1}^i \cdot (1 + \pi_t)}{GDP_{t-1}} + \\ & \left[ d_t - \sigma_t \cdot 100 \cdot POP_t \right] \cdot \left[ \frac{1}{PIT_t} \cdot \frac{\Delta PIT_t^i}{\Delta GDP_t^i} - \frac{PIT_t^i}{(PIT_t)^2} \cdot \sum_k \frac{\Delta PIT_t^k}{\Delta GDP_t^i} \right] \end{aligned} \quad (3bis)$$

The extra term in equation (3bis) compared with equation (3) is the change in solidarity transfer because of a (net) change in the relative tax revenues of the Region.

When calculating the GDP-sensitivity of the Region's personal income tax transfer, we take into account that the match between a Region's GDP and its Gross Regional Product is not 100% because of commuters. Therefore, a change in a Region's GDP may affect all Gross Regional Products (and hence the personal income tax revenues of the residents) in the following way:

$$\frac{\Delta PIT_t^j}{\Delta GDP_t^i} = \frac{\Delta PIT_t^j}{\Delta GRP^j} \cdot \frac{\Delta GRP_t^j}{\Delta GDP_t^i} \quad \forall \text{ Region } j \neq i$$

Besides the personal income tax transfer, two other revenue sources are sensitive to GDP-growth, ie. the grant financing 'new competences' and the regional taxes.

The GDP-sensitivity of the 'new competences' grant equals:



$$\frac{\Delta AV_t^i}{\Delta GDP_t^i} = \frac{AV_{t-1}^i \cdot (1 + \pi_t)}{GDP_{t-1}}$$

(4)

We define a Region  $i$ 's GDP-elasticity of own tax revenues as  $\varepsilon_{GDP^i}^{RT^i}$

$$\text{with } \varepsilon_{GDP^i}^{RT^i} = \frac{\Delta RT_t^i}{\Delta GDP_t^i} \cdot \frac{GDP_{t-1}^i}{RT_{t-1}^i}$$

Assuming no tax externalities, the GDP-sensitivity of the own tax resources is equal to:

$$\frac{\Delta RT_t^i}{\Delta GDP_t^i} = \varepsilon_{GDP^i}^{RT^i} \cdot \frac{RT_{t-1}^i}{GDP_{t-1}^i}$$

(5)

Using equations (3) [respectively (3bis)], (4) and (5) the sensitivity of Region  $i$ 's revenues in year  $t$  with respect to GDP now equals:

$$\begin{aligned} \frac{\Delta R_t^i}{\Delta GDP_t^i} &= \frac{d_{t-1} \cdot (1 + \pi_t)}{GDP_{t-1}} \cdot \frac{PIT_t^i}{PIT_t} - \frac{0,91 \cdot NT_{t-1}^i}{GDP_{t-1}} + \frac{AV_{t-1}^i \cdot (1 + \pi_t)}{GDP_{t-1}} + \varepsilon_{GDP^i}^{RT^i} \cdot \frac{RT_{t-1}^i}{GDP_{t-1}^i} \\ &+ d_t \cdot \left[ \frac{1}{PIT_t} \frac{PIT_t^i}{GDP_t^i} \cdot \frac{\Delta GRP_t^i}{\Delta GDP_t^i} - \frac{PIT_t^i}{(PIT_t)^2} \cdot \sum_k \frac{PIT_t^k}{GRP_t^k} \cdot \frac{\Delta GRP_t^k}{\Delta GDP_t^i} \right] \end{aligned} \quad (6)$$

or, in the case the solidarity mechanism is binding:

$$\begin{aligned} \frac{\Delta R_t^i}{\Delta GDP_t^i} &= \frac{d_{t-1} \cdot (1 + \pi_t)}{GDP_{t-1}} \cdot \frac{PIT_t^i}{PIT_t} - \frac{0,91 \cdot NT_{t-1}^i}{GDP_{t-1}} + \frac{AV_{t-1}^i \cdot (1 + \pi_t)}{GDP_{t-1}} + \varepsilon_{GDP^i}^{RT^i} \cdot \frac{RT_{t-1}^i}{GDP_{t-1}^i} \\ &+ [d_t - \sigma_t \cdot 100 \cdot POP] \cdot \left[ \frac{1}{PIT_t} \frac{PIT_t^i}{GDP_t^i} \cdot \frac{\Delta GRP_t^i}{\Delta GDP_t^i} - \frac{PIT_t^i}{(PIT_t)^2} \cdot \sum_k \frac{PIT_t^k}{GRP_t^k} \cdot \frac{\Delta GRP_t^k}{\Delta GDP_t^i} \right] \end{aligned} \quad (6\text{bis})$$

$$\text{with } \sum_k \frac{\Delta GRP_t^k}{\Delta GDP_t^i} = 1$$

The own GDP-elasticity of a Region's budget,  $\frac{\Delta R_t^i}{\Delta GDP_t^i} \cdot \frac{GDP_t^i}{R_t^i}$ , can now straightforwardly be derived using equation (6) or (6bis).

We can also calculate the cross-GDP-elasticity of a Region's budget,

$\frac{\Delta R_t^i}{\Delta GDP_t^j} \cdot \frac{GDP_t^j}{R_t^i}$ , as a change in a Region's GDP does not influence only its own revenues but also the revenues of other Regions (via its effect on the personal income tax transfer).

First, there is a volume effect since the grant from the personal income tax is tied to economic growth. Secondly, a (horizontal) substitution effect is at work because a change in a Region's GDP affects the horizontal distribution formula. Finally there is an effect on the solidarity grants.

Depending on whether the Region receives a solidarity transfer, the cross GDP-sensitivity of the Region's revenues equals:

$$\frac{\Delta R_t^j}{\Delta GDP_t^i} = \frac{d_{t-1} \cdot (1 + \pi_t)}{GDP_{t-1}} \cdot \frac{PIT_t^j}{PIT_t} - \frac{0,91 \cdot NT_{t-1}^j}{GDP_{t-1}} + d_t \cdot \left[ \frac{1}{PIT_t} \cdot \frac{\Delta PIT_t^j}{\Delta GDP_t^i} - \frac{PIT_t^j}{(PIT_t)^2} \cdot \sum_k \frac{\Delta PIT_t^k}{\Delta GDP_t^i} \right] \quad (7)$$

$$\frac{\Delta R_t^j}{\Delta GDP_t^i} = \frac{d_{t-1} \cdot (1 + \pi_t)}{GDP_{t-1}} \cdot \frac{PIT_t^j}{PIT_t} - \frac{0,91 \cdot NT_{t-1}^j}{GDP_{t-1}} + \left[ d_t - \sigma_t \cdot 100 \cdot POP_t \right] \cdot \left[ \frac{1}{PIT_t} \cdot \frac{\Delta PIT_t^j}{\Delta GDP_t^i} - \frac{PIT_t^j}{(PIT_t)^2} \cdot \sum_k \frac{\Delta PIT_t^k}{\Delta GDP_t^i} \right]$$

(7bis)

## 5. Results

The results are based upon the following assumptions.

First, we assume that the GRP-elasticity of personal tax incomes,  $\frac{\Delta PIT_t^j}{\Delta GRP^j} \cdot \frac{GRP_t^j}{PIT_t^j}$ , equals 1.

Next, the GDP-elasticity of own tax revenues,  $\varepsilon_{GDP^i}^{RT^i}$ , is assumed equal to one or zero.

Finally we use the following 'input-output matrix' to take into account the commuter effect.

Table 1: GDP-spillover effects on GRP

GDP-> GRP	Flanders	Wallonia	Brussels
Flanders	0,9703	0,0148	0,0149
Wallonia	0,0192	0,966	0,0149
Brussels	0,3496	0,1924	0,458

Source: NBB, Belgostat online, figures 2006

Tables 2, 3 and 4 show the results for the own and cross-GDP-elasticity of a Region's budget for an increase in GDP of respectively Flanders, Wallonia and Brussels. The results for  $\varepsilon_{GDP^i}^{RT^i} = 0$  are given between brackets.

The main results are:

- i. An economic improvement in Flanders or Brussels vis-à-vis the other Regions benefits the revenues of all Regions
- ii. An economic catching-up of Wallonia vis-à-vis Flanders and Brussels has a negative impact on the revenues of Flanders and of Wallonia if the GDP elasticity of own tax revenues is limited.
- iii. The elasticities are biased by the horizontal substitution effect (and the equalization grant effect): the own GDP-elasticities based on the volume effect only are respectively for Flanders, Wallonia and Brussel 1,38, 0,81 and 1,72.
- iv. The effect on the own tax revenues is necessary to avoid the so-called poverty trap. When the own tax revenues are not sensitive with respect to GDP, the equalization grant effect is dominant.
- v. The Federal Government is the biggest winner when economic activity increases at the regional level.

This situation arises, first and foremost, because there is no sharing of tax revenues as such. The federal government returns only part of the increase in tax revenues when the lumpsum grants are tied to economic growth. Next, if the increase of tax revenues occurs in a Region benefiting from the national solidarity measure, the net solidarity transfers to the Regions diminish.

**Table 2: Budgetary effects of a €100-change in Gross Domestic Product in Flanders ( Figures 2007)**

	Budget Flanders	Budget Wallonia	Budget Brussels
Total effect (in €)	4,06 (2,76)	1,39	0,38
Volume effect of increase in GDP (in €)	1,3	0,84	0,21

(horizontal) Substitution effect (in €)	1,45	-1,1	-0,35
Equalization Grant Effect (in €)	0	1,67	0,52
Effect on regional taxes (in €)	1,3 (0)	0	0
GDP-elasticity (own/cross)	1,36 (0,93)	0,77	0,93

Source: own calculations

**Table 3: Budgetary effects of a €100-change in Gross Domestic Product in Wallonia**

	Budget Flanders	Budget Wallonia	Budget Brussels
Total effect (in €)	-0,9	<b>-0,31 (-0,96)</b>	0,39
Volume effect of increase in GDP (in €)	1,87	0,61	0,21
Substitution effect (in €)	-2,77	3,14	-0,37
Equalization Grant Effect (in €)	0	<b>-4,71</b>	0,55
Effect on regional taxes (in €)	0	0,65 (0)	0
GDP-elasticity (own/cross)	-0,125	<b>-0,07 (-0,22)</b>	0,391

Source: own calculations

**Table 4: Budgetary effects of a €100-change in Gross Domestic Product in Brussels**

	Budget Flanders	Budget Wallonia	Budget Brussels
Total effect (in €)	1,34	0,84	<b>0,2 (-0,2)</b>
Volume effect of increase in GDP (in €)	1,87	0,84	0,09
Substitution effect (in €)	-0,53	-0,01	0,53
Equalization Grant Effect (in €)	0	0,01	<b>-0,8</b>
Effect on regional taxes (in €)	0	0	0,37 (0)
GDP-elasticity (own/cross)	0,15	0,154	<b>0,37 (-0,215)</b>

Source: own calculations

## 5. Conclusions

Fiscal autonomy is part of the institutional arrangement – such as responsibility and revenue assignment - in which the different levels of government operate. A common way to compare and assess fiscal autonomy is the extent to which resources and responsibilities are under the control of local and regional governments (see OECD). These so-called decentralization ratios can give a first impression of how much power subcentral governments enjoy. With a strict set of criteria, these indicators try to capture the complexity and multidimensionality of fiscal arrangements. Fiscal arrangements in federal states may be complex and multidimensional provided the incentives for the governments involved are right. They must not encourage poor economic practices. The GDP-elasticity of subcentral government's revenues indicates whether the fiscal arrangements give the proper incentives.

As the Belgian example shows, fiscal arrangements with no tax sharing and regional taxes loosely related to economic growth, can have adverse incentive effects. Regions with relatively better economic performances dispose at the end of the day of less revenues.

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Het spoor A2 'Toekomstscenario's voor de Vlaamse begroting en Fiscaliteit' wordt uitgevoerd aan de KULEUVEN. De paper 'The incentive effects of the Belgian Financial Arrangements For The Regions' analyseert de effecten van het huidige financieringsmechanisme van de Gewesten op het gedrag van de gewestelijke overheden. Concreet wordt de gevoeligheid van het regionaal budget met betrekking tot een verandering in het bruto geografisch product (BGP) berekend.