

Jennes, Geert

Article — Published Version

Interregional fiscal transfers resulting from central government debt: New insights and consequences for political economy

Kyklos

Provided in Cooperation with:

John Wiley & Sons

Suggested Citation: Jennes, Geert (2021) : Interregional fiscal transfers resulting from central government debt: New insights and consequences for political economy, *Kyklos*, ISSN 1467-6435, Wiley, Hoboken, NJ, Vol. 74, Iss. 2, pp. 196-223, <https://doi.org/10.1111/kykl.12258>

This Version is available at:

<https://hdl.handle.net/10419/241280>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<http://creativecommons.org/licenses/by/4.0/>

Interregional fiscal transfers resulting from central government debt: New insights and consequences for political economy

Geert Jennes

KU Leuven Centre for Regional Economics
and Hochschule Osnabrück

Abstract

The political geography of central government debt has hardly been investigated. We propose a method for calculating implicit interregional transfers stemming from central government debt.

We apply this method to Belgium over the 1970-2016 period. The share of poorer Francophone Belgium in debt-financed central government *spending* was persistently larger than its share in central government *revenue* used to pay the resulting interest bills. The opposite holds for richer Flanders. Also, a primary deficit in *one particular year* leads to an interest bill in *each of the following years* as long as debt caused by that primary deficit is not repaid. All the above caused debt-related transfers from Flanders to Francophone Belgium of over 7% of Flemish GDP during many years.

Interregional interest transfers may also be large in the many other democracies suffering from both high central government debt and considerable geographic income disparities.

Vives, KU Leuven Centre for Regional Economics, Vlamingenstraat 83 bus 3,550, B-3000 Leuven, geert.jennes@kuleuven.be. I thank Koen Algoed, Thushyanthan Baskaran, Gert Bijmens, Richard Bird, Stefaan Decramer, Herman Deweerdt, Danny Geerts, Eric Ponette, Ed Poole, Klaas Staal, David Stadelmann, François Vaillancourt, Johan Van Gompel, Tom Van Puyenbroeck, participants to the 2015 Colloquy on Local Public Economics in Halle and to the 2016 EPCS annual meeting in Freiburg, and three anonymous referees for comments on previous versions of this paper. All remaining mistakes are the author's. Replication files are provided as part of the supplementary material to this article.

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2021 The Authors. *Kyklos* published by John Wiley & Sons Ltd.

The size of these transfers may *in turn explain* the size and persistence of central government deficits. This is also because poorer, less densely populated regions such as Francophone Belgium tend to be overrepresented within central governments. This strengthens their ability to cause deficits.

We recommend more fiscal decentralisation or at least smaller central government deficits.

1 | INTRODUCTION

"The Belgian public debt has automatically arisen and will automatically disappear."

Claim ascribed to Guy Mathot, Federal Minister of the Budget and Vice Prime Minister from October 1980 until December 1981 for the Francophone Belgian party PS

Net fiscal transfers to/from a particular region are defined as the difference between that region's revenue paid to the central government and its expenditures received from the central government. In most democracies, any central government causes net fiscal transfers to happen between its regions. This is because in democracies typically the average inhabitant of a richer region pays more revenue to and/or receives less expenditures from the central government budget than the average inhabitant of a poorer region. This is in turn because – in particular rich- democracies are characterised by both sizeable social spending and sizeable taxation that is broadly proportional and to some extent even progressive with respect to income. A type of interregional net fiscal transfers that has so far been largely overlooked is transfers caused by the payment of the annual interest bill on the central government debt. This is probably because such net transfers are less visible and/or harder to calculate. However, while in rich democracies the extra spending made possible by deficit financing tends to benefit the poorer regions, the subsequent interest payments tend year after year mainly to be borne by the richer regions.

In what follows, we will present a methodology for the calculation of interregional interest transfers. Next, we will apply this methodology to the case of Belgium and we will find that interregional interest transfers have been very sizeable in Belgium. Their size stems from the large disparities between (1) the extent to which the two main geographic parts of Belgium, i.e. poorer Francophone Belgium resp. richer Flanders, benefited from the annual extra spending made possible by the central government's debt build-up, and (2) the extent to which Francophone Belgium resp. Flanders provide revenue to the central government to shoulder the annual interest payments resulting from that debt build-up.

Francophone Belgium *should* provide most of the revenue for the annual interest payments given the larger part of the central government debt that it caused --i.e. given the larger part of this debt that "originated" in Francophone Belgium. But Francophone Belgium *actually* year after year shoulders less interest payments than that it should. This is because it year after year provides a smaller share of the revenue to the central government than that it should on the basis of the debt-financed spending that it received. The interest transfers from Flanders to Francophone Belgium precisely concern the difference between the part of the interest bill that Francophone Belgium should pay and the part of the interest bill that Francophone Belgium actually paid. In combination with the persistently high central government debt of Belgium, and with the fact that a primary deficit in *one particular year* leads to an interest bill in *each of the following years* in which the debt caused by that primary deficit is not repaid,¹ the abovementioned

¹As is well known, the primary balance equals revenue minus primary spending, i.e. revenue minus non-interest spending.

difference has caused sizeable implicit fiscal transfers from Flanders to Francophone Belgium. These amounted to annually between 4 and 5% of Belgian GDP –i.e. to annually between 7 and 8% of Flemish GDP- over much of the past decades. Interregional fiscal transfers in Belgium –and possibly also in other democracies- are therefore much larger than has mostly been assumed.

The uneven geography of the central government debt is not only important because of its short-term *distributional consequences*. It is also important because the uneven geographic distribution of central government debt creates geographically different *incentives* for the running of central government deficits. This uneven geography may therefore precisely provide an *explanation* for the large size and chronic nature of central government deficits not only in Belgium during past decades, but also in many other countries with a high central government debt and considerable regional income disparities.

In recent years no less than 10 OECD countries were characterised by *both* a central debt ratio and regional income disparities that are higher than the OECD median, and therefore probably also by high interregional interest transfers. These 10 countries include Italy, Spain, the UK and the US, which are *large* countries, and which because of their sheer geographic size run a higher risk of having large geographic income disparities. But these 10 countries also include a number of geographically *small* countries, such as Belgium.

In several of these 10 democracies, poorer regions tend to be overrepresented within the central government, such as in Belgium, Italy, and the US. (also see below) This makes that these poorer regions' ability to create or maintain a central government deficit is rather strong.

Moreover, we can expect a high number of countries to keep combining a high central debt ratio and large regional income disparities also in the foreseeable future. Additionally, also a geographically very unequal confederation of countries such as the EU since recently plans to incur confederal debts for financing expenditures mainly in its poorer geographic parts. Especially if interest rates start increasing again, the potential for sizeable interregional interest transfers will remain high in many countries.

The existing political economy literature appears to largely neglect the size, the consequences and the causes of interregional interest transfers. The bulk of the existing political economy literature explains the presence and the size of deficits and debt only by *non-geographic* political economy factors. This is remarkable, as in most democracies each central government politician is elected in a *geographically* limited constituency. This seems to facilitate the channelling of the benefits of debt financing towards a politician's electorate, while avoiding to make this electorate bear the full costs of debt financing.

2 | THE LITERATURE ON THE POLITICAL ECONOMY OF CENTRAL GOVERNMENT DEBT

Our investigation of interregional fiscal transfers resulting from the central government debt speaks to no less than five strands within the existing literature on the political economy of the central government budget.²

Firstly, an incumbent political party's incentive for government spending is stronger, the better it can target the expenditures concerned at *its* electorate and the better it can spread the revenue for financing it over *the entire* electorate, including over the electorate of the opposition parties. This is the traditional common pool problem. Olson (1965) already described it and Weingast et al. (1981) formalised it. Weingast et al. (1981) moreover predicted

²A somewhat less related strand in the literature of the political economy of debt concerns the political geography of *subcentral* government debt. It mainly concerns the so called soft budget effect problem, i.e. the fact that subcentral governments may strategically accumulate debt (or threaten to do so) in anticipation of extra transfers (bailouts) from the central government. Strategic debt accumulation seems to be practised particularly:

- by subcentral governments that are grant-dependent (e.g. Pettersson-Lidbom, 2010; Baskaran, 2012),
- by subcentral governments that are poor, small and/or in charge of important social spending (e.g. Inman, 2003),
- by subcentral governments that are soon to be merged (e.g. Jordahl & Liang, 2010; Saarimaa & Tuikiainen, 2015 and Fritz & Feld, 2020),
- and/or by subcentral governments that are politically aligned with the central government (e.g. Sorribas-Navarro, 2011).

We will not discuss in any further detail the subcentral soft budget effect literature, since our paper only deals with the geography of *central* government debt.

that government spending would *increase in the number of relevant political actors* (e.g. in the number of governing political parties). This effect is also known as “the Law of 1/n”. This effect would hold because more political actors implies that the number of supporters per actor is on average smaller. The smaller the share of an incumbent political actor’s supporters in total revenue raised is, the larger this actor’s net benefit of steering government spending towards his supporters is. E.g. Brooks et al. (2011) empirically find that larger city councils make US cities spend more. But a number of other studies find no effect of the number of politicians on spending.

Secondly, an established theoretical finding in political economy is that a political party in power benefits a priori even more from *debt-financed* spending than from spending financed *with tax revenue*. See Alesina and Tabellini (1987), Lizzeri (1999, p. 909-912), Persson and Tabellini (2000, p. 345-372), and Besley (2006, p. 210-211). Indeed, deficit spending allows the incumbent political party to *avoid* financing part of its expenditures with revenue generated during the *current* legislature. Deficit spending thus creates a common pool problem not between groups of taxpayers benefiting from, resp. paying for extra spending during the *current* legislature, but between taxpayers in the *current* legislature benefiting from extra spending and taxpayers in *future* legislatures paying for it. Persson and Tabellini (2000, p. 345-351) hypothesise that the more a governing party is *uncertain* that it will still be in power after the next elections, the more it will overspend in the current legislature by means of running a budget deficit. Pettersson-Lidbom (2001) tests the hypothesis of Persson and Tabellini (2000) for Swedish municipalities. He finds that a rightwing party that is certain of being voted out of a Swedish municipal government increases debt with 15% compared to when it is certain of being voted into government again, but that a leftwing party decreases debt with 11% in such a situation.

Thirdly, political economy motives for debt financing may not only result from conflicting interests *between an incumbent party and an opposition party* or *between the current and the future government*. Such motives may also result from conflicting interests *within the current government itself*. Interests may typically conflict within a *coalition* government, i.e. a government consisting of more than one party. This dimension of the political economy of central government debt is analysed by a third strand of the existing literature on the political economy of central government debt. Velasco (2000) established the theoretical result that the larger the degree of *fragmentation* in policymaking –i.e. the larger the number of interest groups represented within a single coalition–, the greater the deficit bias. In fact, also Weingast et al. (1981) already predicted this outcome theoretically. I.e. he predicted that the common pool problem is worse if there are more “veto-players”. And indeed, typically each member of a government coalition has veto power.

With respect to OECD countries, Roubini and Sachs (1989) find empirical support for their hypothesis that public debt is higher the more political parties there are in a coalition government. They find that the common pool problem worsens the more parties a coalition is composed of. Relatedly, Ashworth et al. (2005) find for Flemish municipalities that governments comprised of more parties cause larger debts. Artés and Jurado (2018) come to a similar result for Spanish municipalities. See also Alesina and Tabellini (1992, p. 342), Alesina and Perotti (1994, p. 22-26), and Huber et al. (2003). Moreover, Perotti and Kontopoulos (2002 p. 213-214) find that the number of parties is an even stronger determinant of the budget deficit *in times of economic crisis* (“difficult times”). But a number of other studies find no effect of the number of parties in a coalition on debt and deficits.

It is notable that an investigation of the *geographic* causes and consequences of central debt accumulation is missing from the above three strands of the literature on the political economy of central government debt. An exception are Lago-Peñas et al. (2017), who start out from the observation that in all countries political parties’ electoral support is geographically concentrated, or at least *geographically unevenly spread*. They then find empirical cross-country evidence for the negative impact of such geographic concentration of electoral support on the central government’s fiscal performance. They find that the more numerous political parties are whose electoral support is geographically concentrated, the larger the common pool problem is and the higher the central government’s budget deficit is.

This latter finding speaks to a *fourth* strand within the existing literature on the political economy of the central government budget. It is the literature on institutional congruence, also called fiscal equivalence, as pioneered by Olson (1969). Olson (1969) recommends institutional congruence, i.e. a setting in which the citizens who benefit

from spending are those same citizens who pay the taxes to finance that spending, as well as those same citizens who elect the politicians who raise those taxes. Geographic concentration of a governing political party's electoral support as studied by Lago-Peñas et al. (2017) in fact *weakens* the strong link between taxpayer, receiver of public spending and voter that is recommended by Olson (1969). This link is particularly weakened if a governing party's electoral support is concentrated in *poorer regions*. Indeed, in democracies poorer citizens on average pay less taxes than the spending they receive, and political parties that concentrate their electoral support in poorer regions hence tend to be held less accountable by their voters for a large part of the taxation they raise, i.e. for the taxation that they raise in *richer regions*.

The Lago-Peñas et al. (2017) study points at a gap in the literature on the political economy of debt. I.e. it points at the importance that the political *geography* of debt should have within the political economy of debt literature. Our study aims at contributing to narrow this gap as it is to our knowledge one of the first attempts to *quantify the size of the fiscal incentives of certain regions to make the central government run a deficit*, given that in each country the electoral support of political parties is geographically unevenly spread. Apart from Van Gompel (2004) and Algoed (2009), our study is to our knowledge the first comprehensive calculation of the regional fiscal incentives to make the central government run a deficit, i.e. of the size of interregional fiscal transfers resulting from central government debt.

The deficit incentives resulting from geographic concentration of electoral support could be considerable not only for our case-study country Belgium but also for several other countries. Indeed, as said, in recent years 10 OECD countries combined relatively large interregional disparities with a high central government debt. Moreover, in several of these countries poorer regions are less densely populated and mainly therefore they are overrepresented in the central government. (see e.g. Dragu & Rodden, 2011; Jennes, 2019) Belgium is an extreme case of overrepresentation of poorer, less densely populated areas, as Lago-Peñas et al. (2017) point out. This is not only because in Belgium many parties obtain their electoral support *exclusively* in poorer and less densely populated Francophone Belgium. It is also because in Belgium the central government's coalition is *permanently* composed of a number of these parties. (see further in subsection 4.1)

Finally, there is a *fifth*, more general strand in the literature to which our paper speaks. I.e. many empirical studies demonstrate that those *geographic* constituencies that are better represented within the central government receive more central government spending per capita for the same amount of revenue per capita contributed. Such overrepresentation of particular geographic constituencies –which is a characteristic of every democracy– hence *weakens* institutional congruence. I.e. it weakens the link between taxpayers and beneficiaries of public spending, *irrespective* of the question if this spending is debt-financed or not, and irrespective of the question if the constituencies concerned are poorer or less densely populated. An example of such a study of overrepresentation with respect to politicians belonging to the Belgian central government executive is Jennes and Persyn (2015). They find that Belgian electoral districts represented by a federal government minister receive extra social spending, whether they are poorer or not. An example for American states that are better represented in the US Senate is Lee (1998). More recent examples for the US federal government level are Knight (2008) and Albouy (2013). Golden and Picci (2008) and Carozzi and Repetto (2016) are examples for the Italian central government. Baskaran and Hessami (2017) and Kauder et al. (2016) are examples for the German state level.

3 | METHODOLOGY FOR CALCULATING INTERREGIONAL INTEREST TRANSFERS

The debt game between successive governments and the debt game within the same government have so far largely been analysed *without* taking geography into account. However, in rich democracies deficit spending tends to allow current taxpayers in *poorer regions* to benefit from extra spending at the expense of future taxpayers in *richer regions*. We aim at contributing to the understanding of the debt game between different regions of a particular country by

proposing a methodology for calculating the size of the fiscal incentives of certain regions to make the central government run a deficit. I.e. we will propose a methodology for calculating annual interregional net fiscal transfers resulting from the interest bill on central government debt.³ In what follows we will call these transfers more briefly: (net) interest transfers.

3.1 | Methodology

We start by giving the definition of (annual) net interest transfers:

A particular region's net transfers resulting from the interest bill on the central government debt EQUAL the part of the central government interest bill that a particular region *actually* pays, i.e. corresponding to that particular region's share in central government *revenue*, MINUS the part of the central government interest bill that that particular region *would* pay if it corresponded to its share in the central government *debt*, i.e. to its share in the successive primary balances run by the central government in the past.⁴

On the basis of this definition we propose a methodology for calculating interregional interest transfers essentially consisting of following steps: (1) calculate the part of the interest bill that a region *should pay* on the basis of its debt share, (2) calculate the part of the interest bill that this region *actually pays*, and (3) subtract the former from the latter.

3.2 | A numerical example for a country with only two regions

We now demonstrate the potentially large size of interest transfers by applying our methodology to a simplifying numerical example for a country with two regions A and B of the same size.

Table 1 describes the starting year y_1 with the central government running a primary deficit. (A necessary condition for any government debt and hence for debt related fiscal transfers is a primary deficit.) Values for all variables in tables 1-3 concern the *end* of the year except the values of the debt stock (row 1), which concern the *start* of the year. In year y_1 the two regions contribute –for reasons of simplification of presentation– the same amount to central government revenue (row 2). But both benefit from a larger –but different– amount of central government expenditure (row 3). As a result, each region “runs” a –central government– primary deficit, but of a different size.⁵ As debt at the start of year y_1 is zero, interest payments in year y_1 are zero (rows 5 and 6).⁶ Because there is no interest bill in year y_1 , of course also net fiscal transfers caused by the interest bill are zero in year y_1 (row 7). And

³In fact, our methodology could also be used to calculate interest transfers between *other* social groups than regions, e.g. between young and old inhabitants of a country, or between rich and poor inhabitants of a country, irrespective of the region they live in. This would also be relevant, as political parties' electoral support is not only geographically speaking unevenly concentrated but also demographically and economically speaking.

⁴This definition is used in Van Gompel (2004) and explained in Algoed (2009). As a consequence of this definition, we will present net transfers “leaving” a region as a positive amount and net transfers “entering” a region as a negative amount. Nevertheless, the first region “pays” transfers and the second region “receives” transfers. (Here, we put a number of words between quotation marks because transfer payments from one region to another are *never actually made* in the context of this paper. The transfers are *implicit* within the central government budget.)

⁵ Officially it is of course only the central government that runs the central government fiscal policy, and not the regions. It is the different regional *primary balances* that are essential to our reasoning, not whether they are *both* deficits nor whether they are due to different primary expenditure received or to different revenue contributed. If –as opposed to table 1– the different primary deficits would be due to different revenue provided, rather than to different primary expenditure received, or to both, our reasoning would fundamentally stay the same.

⁶We assume in this paper for the sake of simplicity that all interests to be paid on the debt that is caused by the primary deficit run in year y , start becoming due only in year $y+1$. This assumption hardly impacts the size of the interregional interest transfers over our entire period considered.

TABLE 1 y1: Interest transfers when both regions “run” a primary deficit, but of a different size

At end of year y1 (except row 1: at start of y1)		Region A	Region B	Whole country
1	Debt stock	0	0	0
2	Revenue provided	50	50	100
3	Primary spending received	55	60	115
4 = 2–3	Primary balance	–5	–10	–15
5	Interest to pay given share in debt	0	0	0
6	Interest actually paid	0	0	0
7	Interest transfers	0	0	0
8 = 4–5	Budget balance	–5	–10	–15

because there is no interest bill in year y1, the *budget balance*⁷ (row 8) simply equals the *primary balance* (row 4) in year y1.

Now suppose that in year y2 regional primary balances stay the same as in year y1, a situation shown in table 2.⁸ The difference with year y1 is that the central government debt at the start of year y2 (row 1) is of course not zero anymore. At the start of year y2, debt is simply the opposite of the budget balance (row 8) in year y1. This is because at the start of year y1 debt is zero. Because debt at the start of year y2 is not zero anymore, interest charges have to be paid during year y2. For the sake of simplicity, we assume that in our example the interest rate remains constant at 10% in every year considered.⁹

At the start of year y2, the –implicit– share of region B in the central government debt is the higher one (row 1). Therefore region B would pay a *larger* share of the interest bill than region A if this share corresponded to region B's share in the central government debt (row 5). However, as both regions again contribute the same amount to government revenue in year y2, they actually pay an *equal* part of the interest bill (row 6). The difference between these two shares translates into interregional interest transfers (row 7). Note that the sum of interest transfers is zero by definition. Also note that shares in interest *actually paid* (row 6) are only a function of the fiscal situation in the *current* year, while shares in interest *to pay given the share in the debt* (row 5) are a function of the fiscal situation in *all previous* years.

We assume in this paper that the central government *first* uses non-borrowed revenue available to finance its spending. This implies that the interest bill is paid with non-borrowed government revenue, as the interest bill is evidently a priority public expenditure. For reasons of simplicity of presentation, in tables 1–3 we also assume that interest expenditure *does not* crowd out existing primary expenditures, but simply adds to it. (Note that therefore rows 3 stay the same in tables 1–3.) However, if we would assume that interest expenditure would happen *at the expense* of existing primary expenditures, the amount of interregional interest transfers would stay the same.

As a consequence of our assumption of “non-crowding out”, in year y2 the budget deficit (row 8) simply increases with the interest bill (row 5) compared to year y1. As another consequence of “non-crowding out”, central government debt during year y2 not only increases with the primary deficit (i.e. with the opposite of row 4 in table 2), but of course also with the interest bill (row 5 in table 2). This can be verified by comparing the last column in row 1 in table 2 with the last column in row 1 in table 3. This can also be noticed from the formula shown in the first column in row 1 in table 3. Indeed, debt at the start of year y3 is the sum of debt at the start of year y2, the opposite of the primary balance run in year 2, and interest due in year y2.

⁷As is well known, the budget balance equals the primary balance minus the interest bill.

⁸That in our example each year the difference in regional primary balance is the same is due to simplification but it is not essential to our reasoning. Essential is that the primary balance of one region is persistently worse than that of the other region.

⁹The size and variation over time of the interest rate is not important to the explanation of our methodology for calculating interest transfers.

TABLE 2 y_2 : Interest transfers when both regions “run” a primary deficit, but of a different size (bis)

At end of year y_2 (except row 1: at start of y_2)		Region A	Region B	Whole country
1 = (1 in y_1 - 4 in y_1 + 5 in y_1)	Debt stock	5	10	15
2	Revenue provided	50	50	100
3	Primary spending received	55	60	115
4 = 2–3	Primary balance	–5	–10	–15
5 = (10% of row 1)	Interest to pay given share in debt	0.5	1	1.5
6 = e.g. for Region A (50/100)*1.5	Interest actually paid	0.75	0.75	1.5
7 = 6–5	Interest transfers	0.25	–0.25	0
8 = 4–5	Budget balance (incl. interest to pay given share in debt)	–5.5	–11	–16.5

Now suppose that in year y_3 regional primary balances again stay the same as in years y_1 and y_2 , a situation shown in table 3. The increase in debt during year y_2 in turn leads to another increase both in the interest bills due and in the interest bills actually paid. (Compare rows 5 in tables 2 and 3 and rows 6 in tables 2 and 3.) Although the gap between the two regions’ shares in the primary balance stays the same, the gap between the two regions’ shares in the debt widens. (Compare the numbers for regions A and B in rows 1 in tables 2 and 3.) Therefore, also the gap between the two regions’ interest bills due widens. (Compare the numbers for regions A and B in rows 5 in tables 2 and 3.) Therefore, interest transfers *increase* compared to the previous year. (Compare rows 7 in tables 2 and 3.)

To sum up:

- The worse primary balance of region B compared to region A in years y_1 to y_3 – in combination with the existence of an *overall* primary deficit and thus an *overall* debt burden- *creates net transfers* resulting from the interest bill on the debt from year y_2 onwards.
- Although the primary deficits of regions A and B (and the interest rate) *stay constant* in years y_1 to y_3 , in our example interest transfers *persistently increase*. This is because of the persistently more negative primary balance of region B in years y_1 to y_3 compared to region A, in combination with a persistent overall primary deficit and hence a persistently increasing overall debt burden.
- Otherwise stated: interest transfers persistently increase in our example because inevitably *a primary deficit in one particular year increases the interest bill in each of the following years* in which the debt caused by that primary deficit is not repaid.

4 | THE GEOGRAPHIC DEBT GAME APPLIED TO THE CASE OF BELGIUM

We now apply the above to Belgium, as a case-study. We will first show that Belgium is one of the countries where certain members of each central government coalition see their incentives and their ability to make the central government run deficits strengthened by the *geographic* dimension that is present in each Belgian government coalition. Next we will calculate the size of net fiscal transfers between the Belgian regions resulting from the central government debt. We will find that their size is large. This suggests that in Belgium the incentive and/or the ability to make the central government run deficits may indeed be particularly large for coalition members representing the poorer regions of Belgium.

TABLE 3 y_3 : Interest transfers when both regions “run” a primary deficit, but of a different size (ter)

At end of year y_3 (except row 1: at start of y_3)		Region A	Region B	Whole country
1 = (1 in y_2 - 4 in y_2 + 5 in y_2)	Debt stock	10.5	21	31.5
2	Revenue provided	50	50	100
3	Primary spending received	55	60	115
4 = 2–3	Primary balance	–5	–10	–15
5 = (10% of row 1)	Interest to pay given share in debt	1.05	2.1	3.15
6 = e.g. for Region A (50/100)*3.15	Interest actually paid	1.575	1.575	3.15
7 = 6–5	Interest transfers	0.525	–0.525	0
8 = 4–5	Budget balance (incl. interest to pay given share in debt)	–6.05	–12.1	–18.15

4.1 | The Belgian debt game as a game between different regions represented in the same government

We will now make the argument that in any Belgian central government coalition, coalition members representing poorer and smaller Francophone Belgium have relatively speaking a stronger incentive and a better ability to make the central government run a deficit than coalition members representing richer and larger Flanders.

Between 1969 and 1978 the three then major Belgian political parties -Christian-democrats, socialists, and liberals- all split into a Flemish and a Francophone Belgian party.¹⁰ Almost all parties represented in the federal parliament collect almost all of their votes in either Flanders or Francophone Belgium since then. The Flemish majority overwhelmingly lives in the northern part of Belgium, the Flemish region (6.6 million inhabitants in 2017 or 58% of the population). The Francophone Belgian minority (4.8 million inhabitants in 2017 or 42% of the population) overwhelmingly lives in the south of Belgium, the Walloon region (3.6 million inhabitants). But a considerable part of this minority lives in the centrally located Brussels capital region (1.2 million inhabitants).

The cultural-geographic split of the major Belgian political parties implied that more parties were needed for a central government coalition to be able to obtain the support of a majority of MPs in the central government's parliament. But this split also implied that from the 1970s onwards the ruling coalition needed to consist of *both Flemish and Francophone parties*. This is because the constitutional change that had been voted in 1970 prescribes that as many central government ministers have to be backed by French-speaking MPs in the central government's parliament as by Flemish MPs. As a consequence, since the 1970s most government coalitions have consisted of at least four parties -two Flemish and two Francophone-, of which each party has veto power. (As said, the latter is typical for coalitions.) Coalitions mostly consisted of two Flemish and two Francophone parties for two reasons. Firstly, since the 1970s no single party commanded either the majority of Flemish seats or of French-speaking seats of the parliament. Secondly, as said, since 1970 as many central government ministers have to be backed by French-speaking MPs in the central government's parliament as by Flemish MPs.

The 1970 constitution in combination with the cultural-geographic split of all major parties therefore increased the number of veto rights over fiscal policy, in the wording of Persson and Tabellini (2000, p. 345). Possibly there is a relationship between Belgian central governments consisting of more and of cultural-geographically split political

¹⁰In each party, it were mainly Francophone politicians who demanded such a split. In the federal parliament the Flemish majority several times voted proposals into law against the Francophone minority during the 1960s. A salient example was the establishment of language borders between Flanders, Brussels and Wallonia in 1962. They caused Dutch to be the only government language in Flanders, but their establishment was opposed by Francophone politicians. Perhaps having been outvoted several times contributed to the Francophone demands to split up until then country-wide parties.

parties since the 1970s and the sharp increase in the central government deficit since then.¹¹ (see column 9.1 in table 4 in the next subsection) More in particular, the 1970 constitution in combination with the cultural-geographic split of Belgium's major parties shortly thereafter seems to have increased both the ability and the electoral incentive of governing parties collecting their votes in poorer Francophone Belgium to make the central government run a deficit.

Firstly, this combination seems to have increased the *ability* of Francophone Belgian governing parties to make the central government run a deficit. This is because from the 1970s onwards at least two Francophone Belgian parties were *needed* to form a Belgian central government, in combination with the fact that in every coalition government each party has veto power. Secondly, this combination also seems to have increased the *incentive* of Francophone Belgian governing parties to make the central government run a deficit,¹² because the cultural-geographic split of Belgium's major parties created major political parties *only* collecting votes in poorer Francophone Belgium. At the same time mainly Francophone Belgium a priori benefits from a central government deficit. This is because such a deficit enables poorer Francophone Belgium to receive disproportionately more (social) spending, while the revenue needed to pay the interest charges on the resulting debt is disproportionately paid by richer Flanders.

As said, Lago-Peñas et al. (2017) characterise Belgium as a case of *extreme* geographic concentration of political parties' electoral support. But Belgium is by far not the only country characterised by geographic concentration of electoral support of parties that are powerful at the central government level. Belgium is not the only country either combining this characteristic with a high central government debt and large geographic income disparities. (see table 6 in appendix 1) Important other countries showing or having shown to some extent the characteristics of Belgium are the US and Italy:

- US: For most of the past decades the Republican party held a majority of seats in the US Senate. This majority was consistently elected by states that were on average poorer than the Democratic states. Moreover, the states electing the Republican majority were during several terms inhabited only by a minority of the US population. At the same time, the US senate majority has veto power of important parts of federal policy. Because of the filibuster option, the states that elected Republican senators even had de facto veto power in most terms during which they did not provide the majority of senators. (see e.g. Gailmard & Jenkins, 2007) Relatedly, e.g. Atlas et al. (1995), Lee (1998) and Knight (2008) find that less densely populated US states receive more federal spending per capita thanks to their political overrepresentation.
- Italy: Democrazia Cristiana was the main party in Italian government coalitions between its inception in 1944 and its collapse in 1994. In the 1980s its most powerful MPs were elected in the poorer south of Italy, where only a minority of the population lives. This made public spending favouring the south of Italy even larger than before. (Alesina & Perotti, 1994, p. 20 and Golden & Picci, 2008, p. 269)

4.2 | Calculating interregional net interest transfers for the case of Belgium

Applying the methodology proposed in section 3, we will now calculate net fiscal transfers between Belgian regions resulting from the central government debt. Because we only have all the necessary data for Belgium from 1970 onwards, we can only calculate interregional interest transfers in Belgium from 1970 onwards. Our main data

¹¹The fiscal worsening during the 1970s of course cannot be considered in isolation from the economic crisis that in Belgium also started early on in that decade. Probably political factors and economic factors interacted during that period, with a severe worsening of fiscal outcomes as a result. This reminds of the "difficult times" concept used by Perotti and Kontopoulos (2002, p. 197).

¹²One cause of the chronic federal deficits in Belgium over the decades have been a number of expansions of social security coverage and benefits without corresponding increases in social security contributions to finance such expansions. Over the decades, this has been one of the reasons that social security spending in Belgium had to be funded increasingly with existing government revenue other than social security contributions. This existing government revenue therefore could not be used anymore for regular federal expenditures, and hence its diversion to social security spending *ceteris paribus* increased or at least maintained the federal budget deficit.

sources are Van Gompel (2004) for the 1970-1999 period and Decoster and Sas (2017) for the 2000-2016 period. The two datasets concerned importantly comprise a disaggregation of central government primary expenditure and revenue over Belgium's three regions (summarised by columns 2 and 3 of table 4).

For the years preceding the starting year 1970 we assume –due to lack of data for those preceding years- that regional shares in the central government debt simply equal regional shares in government revenue. This assumption leads to the absence of interest transfers in 1970 and in the years before, because by definition interest transfers are the result of regional shares in debt that are *different* from regional shares in revenue. This assumption is a conservative/prudent assumption with respect to the size of the resulting interest transfers from Flanders to Francophone Belgium for our entire 1970-2016 period. This is because we have shown in our numerical example above that a particular amount of interest transfers in year y tends to go together with an even higher amount of interest transfers in year $y+1$. Moreover, e.g. Dottermans (1997) finds that Flanders paid more revenue to the central government than that it receives spending from it already from 1964 onwards, the reverse holding for Wallonia. The Dottermans findings imply a share of Flanders in the public debt that was probably already well before 1970 lower than its share in revenue. Indeed, the build-up of the Belgian central government public debt already started well before 1970, albeit rather slowly compared to the years after 1970.

Table 4 summarise the steps of our calculation and show its results.¹³ For reasons of comparability over time, we express the bulk of the numbers in table 4 as a share of GDP. We had to complement the abovementioned different datasets for the period 1970-1999 resp. the period 2000-2016 with NBB data¹⁴ and Ministry of Finance data on the total central government debt and on the interest bill (columns 1.1, 5.1, and 6.1). In the Belgian reality, of course total and regionalised primary spending, total and regionalised revenue, GDP, and the interest rate all vary from year to year, as opposed to our numerical example of subsection 3.2. Therefore, interest transfers will now vary for more reasons than only the annual changes in total and in regionalised central government debt, as opposed to our numerical example. Also, as opposed to our numerical example, we will calculate interest transfers not for two regions of the same size but for three regions of very different sizes. These are the three Belgian regions Flanders (FL), Wallonia (WA), and Brussels (BR).¹⁵

As a *first* step in the calculation of interest transfers, we have to calculate the *overall* primary balance for Belgium (BE) (column 4.1). We obtain it by simply adding the interest bill (column 5.1) to the overall budget balance (column 9.1). For reasons of simplification, we obtain the overall budget balance in year y simply by subtracting the central government debt (column 1.1) at the start of year $y+1$ from the central government debt at the start of year y . Note that because we make the above calculations starting from debt expressed in euros, in several years the budget deficit as a share of GDP in year y is larger than the increase in debt as a share of GDP at the start of year $y+1$. This is because in those years the decreasing effect of (nominal) GDP growth on the debt/GDP ratio partly offsets the increasing effect of the budget deficit on the debt/GDP ratio. Sometimes debt at the start of year $y+1$ even *decreases* as a share of GDP while there is a budget deficit in year y . (However, note that there is a budget deficit in almost every year of our period considered, irrespective of the business cycle.)

Having calculated the overall primary balance (column 4.1), we have to calculate as a *second* step the *regional* primary balances (columns 4.2-4.4). Starting from the overall primary balance, we obtain the regionalised primary balances by taking into account the differences between regionalised government revenue provided (columns 2.2-2.4)

¹³Note that in table 4 (and also in tables 5a-b) numbers do not always exactly add up, due to rounding.

¹⁴<https://stat.nbb.be/?lang=nl>

¹⁵As said above, Wallonia is the major part of Francophone Belgium. Francophone Belgian parties not only collect all the votes in Wallonia but also collect the bulk of the votes available in the Brussels region. Therefore, the relevant "regions" from a political economy point of view are Flanders and Francophone Belgium, not Flanders, Wallonia, and Brussels. There have rarely been important Wallonia-only or Brussels-only political parties during the 1970-2016 period that we consider.

However, Belgium legally and politically consists of three full-fledged regions, Flanders, Wallonia, and Brussels. Regional data for Belgium and earlier calculations of interregional fiscal transfers on the basis of them also respect this fact. Therefore, table 4 show three regions and not two. Because of the relatively limited size of the Brussels region, we will not discuss the numbers in table 4 for the Brussels region. This does not change the thrust of this paper.

TABLE 4 Interregional interest transfers in Belgium (1970–2016) (all amounts at year-end, except the debt stock, and in % of Belgian GDP, unless stated otherwise):

- From the 1980s onwards, Flanders (FL) consecutively runs large primary surpluses (column 4.2) and budget surpluses (column 9.2) within the central government budget of Belgium (BE). From 1998 onwards, these result in an annual interest bill on the central government debt to pay by Flanders given its share in debt (column 5.2) that is even negative. The reverse holds for Wallonia (WA), being characterised by a very large positive annual interest bill to pay given its share in debt (column 5.3).
- Because the interest bill to pay by Flanders given its debt share (column 5.2) and its interest bill actually paid (column 6.2) differ more and more, from 2005 annual interest transfers out of Flanders and those into Wallonia (columns 7.2 and 7.3) become larger than the total annual interest bill on the central government debt (columns 5.1 or 6.1)

Year	Debt stock (at start of year) (1)				Revenue as a share of total (2)				Primary spending as a share of total (3)				Primary balance (4)				Interest bill caused (5)			
	BE (1.1)	FL (1.2)	WA (1.3)	BR (1.4)	BE (2.1)	FL (2.2)	WA (2.3)	BR (2.4)	BE (3.1)	FL (3.2)	WA (3.3)	BR (3.4)	BE (4.1)	FL (4.2)	WA (4.3)	BR (4.4)	BE (5.1)	FL (5.2)	WA (5.3)	BR (5.4)
1970	52.7%	29.8%	16.2%	6.7%	100%	57%	31%	13%	100%	54%	35%	11%	1.1%	1.4%	-1.0%	0.7%	2.2%	1.3%	0.7%	0.3%
1971	49.2%	27.1%	16.4%	5.7%	100%	57%	31%	13%	100%	54%	35%	11%	-0.7%	0.5%	-1.7%	0.5%	2.4%	1.3%	0.8%	0.3%
1972	46.6%	25.0%	16.8%	4.8%	100%	57%	31%	13%	100%	54%	35%	11%	-3.1%	-0.9%	-2.6%	0.3%	2.4%	1.3%	0.9%	0.2%
1973	45.9%	23.9%	17.8%	4.2%	100%	57%	31%	13%	100%	54%	35%	11%	-2.7%	-0.6%	-2.6%	0.5%	2.4%	1.2%	0.9%	0.2%
1974	43.4%	21.9%	18.2%	3.3%	100%	57%	31%	12%	100%	54%	35%	10%	1.6%	1.8%	-1.1%	0.9%	2.2%	1.1%	0.9%	0.2%
1975	39.8%	19.2%	18.3%	2.3%	100%	57%	31%	12%	100%	54%	35%	10%	-4.3%	-1.2%	-3.4%	0.3%	2.2%	1.1%	1.0%	0.1%
1976	40.7%	18.9%	20.0%	1.9%	100%	57%	30%	12%	100%	54%	35%	10%	-0.8%	0.8%	-2.1%	0.6%	2.6%	1.2%	1.3%	0.1%
1977	40.8%	17.8%	21.7%	1.3%	100%	58%	30%	12%	100%	54%	35%	11%	-3.2%	-0.3%	-3.0%	0.2%	3.1%	1.3%	1.6%	0.1%
1978	43.8%	18.2%	24.5%	1.1%	100%	58%	30%	12%	100%	55%	35%	11%	-3.4%	-0.3%	-3.1%	0.1%	3.5%	1.4%	1.9%	0.1%
1979	47.3%	18.6%	27.7%	1.0%	100%	58%	30%	12%	100%	55%	35%	11%	-4.2%	-0.7%	-3.4%	-0.1%	3.8%	1.5%	2.2%	0.1%
1980	50.8%	19.1%	30.6%	1.1%	100%	59%	30%	11%	100%	55%	34%	11%	-2.8%	0.1%	-2.8%	-0.1%	4.0%	1.5%	2.4%	0.1%
1981	54.9%	19.5%	34.1%	1.3%	100%	59%	30%	11%	100%	55%	34%	11%	-12.0%	-4.8%	-5.9%	-1.2%	5.3%	1.9%	3.3%	0.1%
1982	66.7%	24.2%	40.1%	2.4%	100%	59%	30%	11%	100%	55%	34%	11%	-9.3%	-3.2%	-5.0%	-1.1%	6.6%	2.4%	3.9%	0.2%
1983	78.0%	28.2%	46.3%	3.6%	100%	60%	30%	11%	100%	55%	34%	11%	-11.2%	-4.1%	-5.6%	-1.4%	6.6%	2.4%	3.9%	0.3%
1984	88.7%	32.1%	51.7%	4.9%	100%	60%	29%	10%	100%	55%	34%	11%	-4.9%	-0.5%	-3.5%	-0.9%	6.9%	2.5%	4.1%	0.4%
1985	94.5%	33.0%	55.7%	5.8%	100%	60%	29%	10%	100%	55%	33%	11%	-2.3%	1.0%	-2.6%	-0.7%	7.8%	2.7%	4.6%	0.5%
1986	99.9%	33.2%	60.1%	6.7%	100%	61%	29%	10%	100%	55%	33%	11%	-3.2%	0.6%	-2.8%	-0.9%	8.0%	2.7%	4.8%	0.5%
1987	106.6%	33.8%	65.1%	7.8%	100%	61%	29%	10%	100%	55%	33%	11%	-4.4%	0.1%	-3.3%	-1.2%	7.2%	2.3%	4.4%	0.5%
1988	110.4%	33.6%	67.9%	8.9%	100%	61%	29%	10%	100%	56%	33%	12%	-3.8%	0.4%	-3.0%	-1.3%	6.9%	2.1%	4.2%	0.6%
1989	111.0%	32.4%	68.8%	9.9%	100%	62%	29%	9%	100%	56%	33%	12%	2.4%	3.9%	-0.8%	-0.6%	7.1%	2.1%	4.4%	0.6%
1990	109.2%	28.9%	69.9%	10.5%	100%	62%	29%	9%	100%	56%	32%	12%	6.5%	6.3%	0.5%	-0.3%	11.8%	3.1%	7.6%	1.1%
1991	109.6%	24.6%	73.7%	11.4%	100%	62%	29%	9%	100%	56%	33%	11%	2.7%	4.1%	-0.8%	-0.7%	11.3%	2.5%	7.6%	1.2%

(Continues)

TABLE 4 (Continued)

Year	Debt stock (at start of year) (1)				Revenue as a share of total (2)				Primary spending as a share of total (3)				Primary balance (4)				Interest bill caused (5)			
	BE (1.1)	FL (1.2)	WA (1.3)	BR (1.4)	BE (2.1)	FL (2.2)	WA (2.3)	BR (2.4)	BE (3.1)	FL (3.2)	WA (3.3)	BR (3.4)	BE (4.1)	FL (4.2)	WA (4.3)	BR (4.4)	BE (5.1)	FL (5.2)	WA (5.3)	BR (5.4)
1992	112.3%	21.9%	77.9%	12.6%	100%	63%	29%	9%	100%	56%	33%	11%	6.6%	6.4%	0.5%	-0.3%	11.1%	2.2%	7.7%	1.2%
1993	114.3%	17.3%	83.3%	13.8%	100%	63%	29%	9%	100%	56%	33%	11%	-1.8%	1.8%	-2.4%	-1.2%	11.1%	1.7%	8.1%	1.3%
1994	121.5%	16.4%	89.6%	15.6%	100%	63%	28%	8%	100%	57%	33%	10%	7.3%	6.9%	0.4%	-0.1%	9.7%	1.3%	7.1%	1.2%
1995	118.7%	10.4%	92.2%	16.2%	100%	63%	28%	8%	100%	57%	33%	10%	7.2%	6.9%	0.3%	-0.1%	8.2%	0.7%	6.4%	1.1%
1996	116.9%	4.1%	95.9%	16.9%	100%	63%	28%	8%	100%	57%	33%	10%	3.9%	5.1%	-0.8%	-0.4%	7.7%	0.3%	6.3%	1.1%
1997	115.0%	-0.7%	98.2%	17.6%	100%	64%	28%	8%	100%	57%	33%	10%	5.9%	6.4%	-0.4%	-0.1%	7.1%	0.1%	6.1%	1.1%
1998	111.9%	-6.9%	100.7%	18.1%	100%	64%	28%	8%	100%	57%	33%	10%	7.1%	7.1%	0.0%	0.1%	7.1%	-0.4%	6.4%	1.1%
1999	107.4%	-13.8%	102.9%	18.4%	100%	64%	28%	8%	100%	57%	33%	10%	2.8%	4.5%	-1.4%	-0.3%	6.3%	-0.8%	6.0%	1.1%
2000	104.3%	-17.2%	99.5%	17.8%	100%	62%	28%	10%	100%	57%	34%	10%	4.9%	4.5%	-0.3%	0.6%	6.2%	-1.1%	6.2%	1.1%
2001	99.4%	-22.3%	104.3%	18.0%	100%	62%	28%	10%	100%	57%	34%	10%	3.5%	3.8%	-0.9%	0.5%	5.9%	-1.3%	6.1%	1.1%
2002	98.3%	-26.8%	108.8%	18.2%	100%	62%	28%	10%	100%	57%	34%	9%	5.5%	5.0%	-0.1%	0.7%	5.2%	-1.4%	5.7%	1.0%
2003	95.4%	-33.4%	115.1%	18.4%	100%	62%	28%	10%	100%	57%	34%	9%	5.5%	4.9%	-0.2%	0.7%	4.8%	-1.6%	5.5%	0.9%
2004	89.6%	-40.5%	121.9%	18.8%	100%	62%	28%	10%	100%	57%	34%	9%	5.0%	4.7%	-0.4%	0.7%	4.3%	-1.7%	5.2%	0.8%
2005	85.3%	-48.0%	129.1%	19.1%	100%	62%	28%	10%	100%	57%	34%	9%	0.7%	2.4%	-1.9%	0.3%	3.9%	-1.9%	5.1%	0.7%
2006	84.4%	-51.1%	132.3%	18.9%	100%	62%	28%	10%	100%	57%	34%	9%	2.3%	3.2%	-1.3%	0.4%	3.7%	-1.9%	4.9%	0.7%
2007	81.3%	-56.3%	137.5%	18.9%	100%	62%	28%	10%	100%	57%	33%	9%	4.9%	4.7%	-0.5%	0.7%	3.5%	-2.0%	4.9%	0.7%
2008	77.8%	-65.7%	146.6%	19.2%	100%	62%	28%	10%	100%	57%	33%	9%	-0.6%	1.6%	-2.3%	0.2%	3.5%	-2.3%	5.1%	0.7%
2009	83.0%	-67.2%	148.5%	18.8%	100%	62%	28%	10%	100%	58%	33%	9%	-4.8%	-1.0%	-3.7%	-0.2%	3.3%	-2.2%	5.0%	0.6%
2010	87.1%	-62.6%	144.6%	18.1%	100%	62%	28%	10%	100%	58%	33%	9%	0.2%	1.8%	-1.8%	0.2%	3.1%	-1.9%	4.5%	0.6%
2011	86.7%	-64.7%	147.0%	17.8%	100%	62%	28%	10%	100%	58%	33%	9%	-1.5%	0.9%	-2.4%	0.1%	3.1%	-2.0%	4.5%	0.6%
2012	89.3%	-64.6%	147.2%	17.5%	100%	62%	28%	10%	100%	58%	33%	9%	1.0%	2.4%	-1.7%	0.3%	3.1%	-2.0%	4.6%	0.5%
2013	90.4%	-67.9%	150.6%	17.4%	100%	62%	28%	10%	100%	58%	33%	9%	-0.2%	1.7%	-2.1%	0.2%	2.9%	-2.0%	4.4%	0.5%
2014	91.7%	-69.6%	152.6%	17.1%	100%	62%	28%	10%	100%	58%	33%	9%	-0.6%	1.4%	-2.2%	0.1%	2.9%	-2.0%	4.4%	0.5%
2015	92.6%	-70.6%	153.9%	16.9%	100%	62%	28%	10%	100%	58%	33%	9%	0.1%	2.0%	-2.1%	0.3%	2.6%	-1.8%	4.0%	0.4%
2016	92.0%	-72.8%	156.3%	16.6%	100%	62%	28%	10%	100%	58%	33%	9%	0.6%	2.2%	-1.9%	0.3%	2.4%	-1.8%	3.8%	0.4%

*Implicit interest rate, i.e. interest bill in year y as a share of central government debt at the start of year y (%)

Sources: Van Gompel (2004), Decoster and Sas (2017), Ministry of Finance (n.d.), NBB.

TABLE 4 (Continued)

Year	Interest bill paid (6)				Interest transfers (7)				Transfers as share of total interest bill (8)				Budget balance (9)				IIR* BE (10)
	BE (6.1)	FL (6.2)	WA (6.3)	BR (6.4)	BE (7.1)	FL (7.2)	WA (7.3)	BR (7.4)	BE (8.1)	FL (8.2)	WA (8.3)	BR (8.4)	BE (9.1)	FL (9.2)	WA (9.3)	BE (9.4)	
1970	2.2%	1.3%	0.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0%	0%	0%	0%	-1.1%	0.1%	-1.7%	0.5%	4.5%
1971	2.4%	1.3%	0.7%	0.3%	0.0%	0.0%	-0.1%	0.0%	0%	1%	-2%	1%	-3.0%	-0.8%	-2.5%	0.3%	4.9%
1972	2.4%	1.4%	0.7%	0.3%	0.0%	0.1%	-0.1%	0.1%	0%	3%	-5%	2%	-5.5%	-2.2%	-3.5%	0.1%	5.5%
1973	2.4%	1.3%	0.7%	0.3%	0.0%	0.1%	-0.2%	0.1%	0%	5%	-8%	4%	-5.0%	-1.9%	-3.5%	0.3%	5.8%
1974	2.2%	1.3%	0.7%	0.3%	0.0%	0.1%	-0.2%	0.1%	0%	6%	-11%	5%	-0.6%	0.7%	-2.1%	0.8%	5.7%
1975	2.2%	1.3%	0.7%	0.3%	0.0%	0.2%	-0.3%	0.1%	0%	9%	-15%	7%	-6.5%	-2.3%	-4.4%	0.2%	5.6%
1976	2.6%	1.5%	0.8%	0.3%	0.0%	0.3%	-0.5%	0.2%	0%	11%	-19%	8%	-3.4%	-0.4%	-3.4%	0.4%	7.5%
1977	3.1%	1.8%	0.9%	0.4%	0.0%	0.4%	-0.7%	0.3%	0%	14%	-23%	9%	-6.2%	-1.7%	-4.7%	0.1%	8.2%
1978	3.5%	2.0%	1.0%	0.4%	0.0%	0.6%	-0.9%	0.3%	0%	17%	-26%	9%	-6.8%	-1.8%	-5.0%	0.0%	9.1%
1979	3.8%	2.2%	1.1%	0.4%	0.0%	0.7%	-1.1%	0.4%	0%	19%	-28%	9%	-8.0%	-2.1%	-5.6%	-0.2%	9.2%
1980	4.0%	2.3%	1.2%	0.5%	0.0%	0.8%	-1.2%	0.4%	0%	21%	-30%	9%	-6.8%	-1.4%	-5.2%	-0.2%	9.2%
1981	5.3%	3.1%	1.6%	0.6%	0.0%	1.2%	-1.7%	0.5%	0%	24%	-32%	9%	-17.3%	-6.7%	-9.2%	-1.4%	10.9%
1982	6.6%	3.9%	2.0%	0.7%	0.0%	1.5%	-2.0%	0.5%	0%	23%	-30%	7%	-15.9%	-5.6%	-9.0%	-1.3%	13.0%
1983	6.6%	4.0%	2.0%	0.7%	0.0%	1.6%	-2.0%	0.4%	0%	24%	-30%	6%	-17.8%	-6.5%	-9.6%	-1.7%	10.5%
1984	6.9%	4.2%	2.0%	0.7%	0.0%	1.7%	-2.0%	0.3%	0%	24%	-29%	5%	-11.8%	-3.0%	-7.6%	-1.3%	9.6%
1985	7.8%	4.7%	2.3%	0.8%	0.0%	2.0%	-2.3%	0.3%	0%	25%	-30%	4%	-10.1%	-1.7%	-7.2%	-1.2%	9.3%
1986	8.0%	4.9%	2.3%	0.8%	0.0%	2.2%	-2.5%	0.3%	0%	28%	-31%	3%	-11.2%	-2.0%	-7.7%	-1.5%	8.9%
1987	7.2%	4.4%	2.1%	0.7%	0.0%	2.1%	-2.3%	0.2%	0%	29%	-32%	3%	-11.6%	-2.2%	-7.6%	-1.8%	7.5%
1988	6.9%	4.2%	2.0%	0.7%	0.0%	2.1%	-2.2%	0.1%	0%	31%	-33%	2%	-10.7%	-1.7%	-7.2%	-1.8%	6.9%
1989	7.1%	4.4%	2.1%	0.7%	0.0%	2.3%	-2.4%	0.0%	0%	33%	-33%	1%	-4.7%	1.8%	-5.3%	-1.3%	7.1%
1990	11.8%	7.4%	3.4%	1.1%	0.0%	4.2%	-4.2%	0.0%	0%	36%	-35%	0%	-5.4%	3.1%	-7.1%	-1.4%	11.3%
1991	11.3%	7.0%	3.2%	1.0%	0.0%	4.5%	-4.4%	-0.2%	0%	40%	-39%	-1%	-8.6%	1.6%	-8.4%	-1.8%	10.8%

(Continues)

TABLE 4 (Continued)

Year	Interest bill paid (6)						Interest transfers (7)						Transfers as share of total interest bill (8)						Budget balance (9)					
	BE	FL	WA	BR	BE	FL	BE	FL	WA	BR	BE	FL	BE	FL	WA	BR	BE	FL	BE	FL	WA	BR		
	(6.1)	(6.2)	(6.3)	(6.4)	(7.1)	(7.2)	(7.3)	(7.4)	(8.1)	(8.2)	(8.3)	(8.4)	(9.1)	(9.2)	(9.3)	(9.4)	(10)	(10)	(9.1)	(9.2)	(9.3)	(9.4)		
1992	11.1%	7.0%	3.2%	1.0%	0.0%	4.8%	4.8%	-4.5%	-0.3%	0%	43%	-41%	-3%	-4.5%	4.2%	-7.2%	-1.5%	10.7%	-4.5%	4.2%	-7.2%	-1.5%		
1993	11.1%	7.0%	3.2%	0.9%	0.0%	5.3%	5.3%	-4.9%	-0.4%	0%	48%	-44%	-4%	-12.8%	0.1%	-10.5%	-2.5%	10.1%	-12.8%	0.1%	-10.5%	-2.5%		
1994	9.7%	6.1%	2.7%	0.8%	0.0%	4.8%	4.8%	-4.4%	-0.4%	0%	50%	-45%	-4%	-2.4%	5.6%	-6.7%	-1.3%	8.8%	-2.4%	5.6%	-6.7%	-1.3%		
1995	8.2%	5.2%	2.3%	0.7%	0.0%	4.5%	4.5%	-4.1%	-0.4%	0%	55%	-49%	-5%	-1.0%	6.2%	-6.1%	-1.2%	7.1%	-1.0%	6.2%	-6.1%	-1.2%		
1996	7.7%	4.9%	2.2%	0.6%	0.0%	4.6%	4.6%	-4.1%	-0.5%	0%	60%	-54%	-6%	-3.8%	4.8%	-7.1%	-1.5%	6.6%	-3.8%	4.8%	-7.1%	-1.5%		
1997	7.1%	4.5%	2.0%	0.6%	0.0%	4.6%	4.6%	-4.1%	-0.5%	0%	64%	-57%	-7%	-1.3%	6.4%	-6.5%	-1.2%	6.4%	-1.3%	6.4%	-6.5%	-1.2%		
1998	7.1%	4.5%	2.0%	0.6%	0.0%	4.9%	4.9%	-4.4%	-0.5%	0%	70%	-62%	-8%	0.1%	7.5%	-6.4%	-1.0%	6.4%	0.1%	7.5%	-6.4%	-1.0%		
1999	6.3%	4.0%	1.8%	0.5%	0.0%	4.8%	4.8%	-4.3%	-0.6%	0%	76%	-68%	-9%	-3.5%	5.3%	-7.5%	-1.4%	5.9%	-3.5%	5.3%	-7.5%	-1.4%		
2000	6.2%	3.8%	1.7%	0.6%	0.0%	4.9%	4.9%	-4.4%	-0.5%	0%	79%	-71%	-8%	-1.3%	5.6%	-6.4%	-0.5%	6.1%	-1.3%	5.6%	-6.4%	-0.5%		
2001	5.9%	3.6%	1.6%	0.6%	0.0%	4.9%	4.9%	-4.5%	-0.5%	0%	84%	-76%	-8%	-2.4%	5.1%	-7.0%	-0.5%	6.0%	-2.4%	5.1%	-7.0%	-0.5%		
2002	5.2%	3.2%	1.5%	0.5%	0.0%	4.6%	4.6%	-4.2%	-0.4%	0%	89%	-81%	-8%	0.3%	6.4%	-5.8%	-0.2%	5.4%	0.3%	6.4%	-5.8%	-0.2%		
2003	4.8%	2.9%	1.3%	0.5%	0.0%	4.5%	4.5%	-4.1%	-0.4%	0%	95%	-87%	-8%	0.7%	6.5%	-5.7%	-0.2%	5.0%	0.7%	6.5%	-5.7%	-0.2%		
2004	4.3%	2.6%	1.2%	0.4%	0.0%	4.4%	4.4%	-4.0%	-0.4%	0%	102%	-94%	-9%	0.7%	6.4%	-5.6%	-0.1%	4.7%	0.7%	6.4%	-5.6%	-0.1%		
2005	3.9%	2.4%	1.1%	0.4%	0.0%	4.3%	4.3%	-4.0%	-0.4%	0%	110%	-101%	-9%	-3.2%	4.3%	-7.0%	-0.5%	4.6%	-3.2%	4.3%	-7.0%	-0.5%		
2006	3.7%	2.3%	1.0%	0.4%	0.0%	4.2%	4.2%	-3.9%	-0.3%	0%	113%	-104%	-9%	-1.4%	5.1%	-6.2%	-0.3%	4.6%	-1.4%	5.1%	-6.2%	-0.3%		
2007	3.5%	2.2%	1.0%	0.3%	0.0%	4.2%	4.2%	-3.9%	-0.3%	0%	118%	-109%	-9%	1.4%	6.7%	-5.4%	0.1%	4.4%	1.4%	6.7%	-5.4%	0.1%		
2008	3.5%	2.2%	1.0%	0.3%	0.0%	4.4%	4.4%	-4.1%	-0.3%	0%	128%	-118%	-9%	-4.0%	3.9%	-7.4%	-0.5%	4.4%	-4.0%	3.9%	-7.4%	-0.5%		
2009	3.3%	2.1%	1.0%	0.3%	0.0%	4.3%	4.3%	-4.0%	-0.3%	0%	129%	-120%	-9%	-8.2%	1.3%	-8.6%	-0.8%	4.2%	-8.2%	1.3%	-8.6%	-0.8%		
2010	3.1%	1.9%	0.9%	0.3%	0.0%	3.9%	3.9%	-3.6%	-0.3%	0%	124%	-116%	-8%	-2.9%	3.7%	-6.3%	-0.3%	3.9%	-2.9%	3.7%	-6.3%	-0.3%		
2011	3.1%	1.9%	0.9%	0.3%	0.0%	3.9%	3.9%	-3.7%	-0.2%	0%	126%	-119%	-8%	-4.6%	2.9%	-7.0%	-0.5%	3.7%	-4.6%	2.9%	-7.0%	-0.5%		
2012	3.1%	1.9%	0.9%	0.3%	0.0%	4.0%	4.0%	-3.7%	-0.2%	0%	126%	-119%	-8%	-2.2%	4.4%	-6.3%	-0.3%	3.7%	-2.2%	4.4%	-6.3%	-0.3%		
2013	2.9%	1.8%	0.8%	0.3%	0.0%	3.8%	3.8%	-3.6%	-0.2%	0%	130%	-122%	-8%	-3.1%	3.7%	-6.5%	-0.3%	3.3%	-3.1%	3.7%	-6.5%	-0.3%		
2014	2.9%	1.8%	0.8%	0.3%	0.0%	3.8%	3.8%	-3.6%	-0.2%	0%	132%	-124%	-7%	-3.5%	3.4%	-6.6%	-0.3%	3.2%	-3.5%	3.4%	-6.6%	-0.3%		
2015	2.6%	1.6%	0.7%	0.3%	0.0%	3.4%	3.4%	-3.2%	-0.2%	0%	133%	-124%	-7%	-2.5%	3.8%	-6.1%	-0.2%	2.9%	-2.5%	3.8%	-6.1%	-0.2%		
2016	2.4%	1.5%	0.7%	0.2%	0.0%	3.2%	3.2%	-3.1%	-0.2%	0%	135%	-128%	-7%	-1.9%	3.9%	-5.7%	-0.1%	2.7%	-1.9%	3.9%	-5.7%	-0.1%		

*Implicit interest rate, i.e. interest bill in year y as a share of central government debt at the start of year y (%)

Sources: Van Gompel (2004), Decoster and Sas (2017), Ministry of Finance (n.d.), NBB.

and regionalised primary spending received (columns 3.2-3.4). We notice over our period considered that Flanders consistently has a larger share in total revenue (column 2.2) than in total primary spending (column 3.2),¹⁶ while the reverse holds for Wallonia.¹⁷ We also notice that over our period considered Flanders increases its –larger- share in total revenue much more strongly than that it increases its –smaller- share in total primary spending. In contrast, the negative gap between the share of Wallonia in total revenue (column 2.3) and its share in total primary spending (column 3.3) remains about constant over our period considered. These very different combinations of regionalised revenue and spending result in very different regionalised primary balances, as shown in columns 4.2-4.4.¹⁸

As a third step, we can now calculate central government debt on a caused basis per region, i.e. according to region of “origin” of the debt (shown in columns 1.2-1.4). We first calculate these regional caused debts in euros, and then express them as a share of Belgian GDP. As we showed in table 3 of our numerical example, a region's caused debt at the start of each year¹⁹ is calculated as the sum of:

1. its regionalised caused debt at the start of the previous year (columns 1.2-1.4),
2. minus its primary balance “run” during the previous year (columns 4.2-4.4), and
3. plus its regionalised caused interest payments that were due during the previous year (columns 5.2-5.4).

The 3rd term simply corresponds to the *total* interest bill due in the previous year, multiplied by the region's debt at the start of the previous year (the 1st term in the above sum) expressed as a share of total debt. Hence, when having calculated the caused regional debt at the start of a particular year, we can easily calculate the caused regionalised interest bill due in that same year (columns 5.2-5.4).²⁰

Note that over the *entire* period considered the Flemish regionalised debt *as a share of total central government debt* decreases. (This share can be calculated by dividing column 1.2 by column 1.1.) This decrease is a consequence of the widening gap throughout most of our period considered between the Flemish and the Walloon primary balances (columns 4.2-4.3). This gap not only widens as a share of GDP but also as a share of the overall primary balance. Therefore, over the entire period also the Flemish caused interest bill *as a share of the total interest bill* decreases. (This share can be calculated by dividing column 5.2 by column 5.1.) By 1998 the Flemish share in the central government debt even has become *negative*, and hence also the Flemish caused interest bill. This means that, according to our calculations, the successive primary surpluses of Flanders since 1985 enabled it by 1997 “to pay down its entire central debt” accumulated before 1985. From 1998 onwards, these surpluses enabled Flanders “to accumulate *savings*” within the central government budget. These savings generated implicit interest *income* “to be received by Flanders” rather than an implicit interest *bill* “to be paid by Flanders” within the central government budget.

This fiscal situation of Flanders is to a large extent mirrored by the fiscal situation of Wallonia. We calculate that Wallonia's regionalised debt (column 1.3) is from 2001 onwards even larger than *total* central government debt. This fact is due to the persistent primary deficits of Wallonia over our entire period, combined with the primary surpluses of Flanders from 1985 onwards. As a consequence, the Walloon caused interest bill (column 5.3) is from 2001 onwards even larger than the total central government interest bill (column 5.1). It is precisely the offsetting Flemish “interest income” that makes that the total central government interest bill is not as large as the interest bill caused by Wallonia.

¹⁶Note that this fact *did not prevent* Flanders either from “running” a primary deficit during many years before 1985 (column 4.2).

¹⁷Note that of course regional shares in revenue and in primary spending sum up to 100% in each year.

Columns 2 and 3 also show that Flanders is in fiscal terms by far the largest region of Belgium, followed by Wallonia, while the Brussels capital region is by far the smallest region of Belgium.

¹⁸Brussels has been the richest region of Belgium for most of its history, but it remarkably even “overtook” Wallonia as the poorest region of Belgium in the course of the 1990s. It is as remarkable that the Brussels regional government from its creation in 1989 onwards increasingly received extra federal grants because of its capital city function. However, the Brussels region particularly after 2000 shows primary balances that are more positive than Wallonia's. (Compare columns 4.3 and 4.4 in table 4.) One reason for this may be that in Belgium revenue from the -100% federal- corporate income tax is traditionally regionalised according to company headquarters. These headquarters are concentrated in the Brussels capital region.

¹⁹Except, as explained, in 1970.

²⁰For reasons of simplification, in each year we assume that the implicit interest rate is the average interest rate against which the entire debt at the start of that year had been contracted. In reality of course, the entire debt at the start of each year had been contracted throughout the preceding years against a large number of very differing interest rates. We can safely assume that this inevitable simplification does not substantially affect our results.

After having calculated regional caused interest bills (columns 5.2-5.4), we can now calculate as a *fourth* step the regional budget balances (columns 9.2-9.4). To this effect, we simply subtract the regionalised caused interest bills (columns 5.2-5.4) from the regionalised primary balances (columns 4.2-4.4).

The *last but one* step is then to calculate regional interest payments not on a caused basis, but on a paid basis (columns 6.2-6.4). Interest paid per region simply equals the total interest bill (column 6.1), multiplied by the regional share in government revenue (columns 2.2-2.4). Note that the Flemish interest bill on a paid basis as a *share of the total interest bill* increases over our entire period considered. (This share can be calculated by dividing column 6.2 by column 6.1.) This increase contrasts with the steadily *decreasing* Flemish share in the caused interest bill. However, the latter decrease is larger than the former increase. Logically, the opposite holds for Wallonia: the increase of its share in the caused interest bill is larger than the decrease of its share in the paid interest bill. As a result, from the 1990s onwards the regional differences shown by columns 5.2-5.4 (interest caused) are much larger than the regional differences shown by columns 6.2-6.4 (interest actually paid).

The *final* major step is then to calculate interregional net interest transfers (columns 7.2-7.4). These are for each region simply the difference between its paid part and its caused part of the interest bill. Note that of course interest transfers of all regions summed up are zero. Interest transfers out of Flanders (column 7.2) keep increasing as a share of GDP from 1970 until 1993.²¹ After a dramatic increase in the implicit interest rate and in the interest bill in 1990, interest transfers out of Flanders reach a maximum of 5.3% of Belgian GDP in 1993. Expressed in terms of 2016 euros -2016 being the last year of our period considered-, this amounts to 22.5 billion euros. Expressed per inhabitant of Flanders, this amounts to about 3,500 euros in terms of 2016 euros. Interest transfers stay more or less at their very large 1993 level until 2001. Nevertheless, the overall Belgian fiscal situation started improving already in 1984, as witnessed by the evolution of the overall primary balance (column 4.1) and of the overall budget balance (column 9.1). This improvement was also thanks to the December 1981 elections, which brought a *-centre-right-government* coalition to power that undertook a prolonged fiscal consolidation effort that started showing up in the fiscal data in 1984. Average interest transfers out of Flanders over our entire period amount to 2.9% of Belgian GDP annually. Expressed in terms of 2016 euros, this is 12.5 billion euros. Expressed per inhabitant of Flanders, this amounts to about 2,000 euros in terms of 2016 euros.

The cause of the persistently large and increasing interest transfers is that the effect of the positive *overall* evolution of the Belgian fiscal situation since 1984 is more than compensated by the combined effects of (1) also after 1984 persistently very different regional primary balances (columns 4.2-4.4) and (2) the until 1990 increasing and until 1993 very high total interest bill (column 5.1). This increasing total interest bill in turn is the combined result of (1) the increasing overall debt ratio also after 1984 (column 1.1) and (2) the interest rate remaining high also after 1984. An indicator of the latter is the implicit interest rate, shown in column 10, which is the interest bill as a share of total central government debt. Interest transfers stop increasing as a share of GDP after 1993 because then the total interest bill as a share of GDP starts to decrease. This decrease is the combined result of a decreasing interest rate and a decreasing overall debt ratio.²²

Columns 8 simply express columns 7 as a *share of the total interest bill*. Columns 8 allow better to compare interest transfers over time. Indeed, the size of the interest transfers as a share of GDP depends to an important extent

²¹Note that the annual increases in interest transfers in table 4 are smaller than in our numerical example above. However, in contrast to our numerical example the difference between regional primary balances even *widens* throughout most of our period considered in table 4. Also, in contrast to our numerical example Flanders over time starts running a primary surplus while Wallonia keeps running a primary deficit in almost all years of our period considered. These smaller increases in interest transfers in table 4 compared to our numerical example are due to the fact that (nominal) GDP growth partly offsets the increasing effect of the persistently different regional primary balances on interest transfers. Indeed, while we express interest transfers in absolute numbers in our numerical example, we express interest transfers as a share of GDP in columns 7 of table 4.

²²However, table 4 shows that also after years of persistently decreasing interest rates -i.e. thanks to Belgium's accession to the eurozone in 1999- interest transfers remain considerable. At the end of our period considered, in the year 2016, the Belgian federal government was able to borrow against an interest rate of only 1%. (see https://www.debtagency.be/sites/default/files/content/download/attachment/xx_adjuolo1998-2018_1.pdf) But in that same year the implicit interest rate on the total federal debt was still 2.7% (column 10), the total interest bill was still 2.4% of GDP (column 5), and interest transfers out of Flanders still amounted to 3.2% of GDP (column 7).

on the total interest bill, and the total interest bill in turn depends to an important extent on the interest rate. But the interest rate in turn can be assumed to evolve to an important extent *exogenously* to the central government's fiscal policy. True, *as a share of GDP* interest transfers decrease from 1994 onwards. But *interest transfers as a share of the total interest bill keep increasing over our entire period considered*, just like absolute interest transfers do in our numerical example. Therefore, *relatively speaking*, in table 4 interest transfers are larger after 1993 than before 1993. In political economy terms, *relative* interest transfers are a more important phenomenon than *absolute* interest transfers. Interest transfers out of Flanders are from 2004 onwards *even larger than the total interest bill*. This is because the gap between the implicit interest income that Flanders generates since 1998 and the part of the interest bill that it actually pays only widens over time. This situation is mirrored by interest transfers into Wallonia that are from 2005 onwards even larger than the total interest bill.

The sizeable interest transfers that we calculate in table 4 may even be an underestimation. This is because creditors charge a higher interest rate the higher the debt ratio is, *ceteris paribus*. Therefore, the (very) high debt ratios of Wallonia (column 1.3) justify even higher interest bills caused by Wallonia than those shown in column 5.3. Hence, simply using the implicit interest rate on the *total* Belgian central government debt for the calculation of the Walloon interest bill caused may lead to an underestimation. Likewise, the low debt ratios of Flanders (column 1.2) justify even lower interest bills caused by Flanders than those shown in column 5.2.

The interregional interest transfers that we calculate are far larger than interregional net fiscal transfers resulting from more conventional calculations. These more conventional calculations assume a balanced budget and hence no government debt nor an interest bill that results from it. They simply define net fiscal transfers as the difference between primary expenditures *actually* received and primary expenditures that would be received if they would be *in perfect proportion to revenue contributed*. E.g. Decoster and Sas (2017) calculate conventional fiscal transfers out of Flanders to be close to only 1.5% of Belgian GDP for each year of the 2000-2016 period.²³ Decoster and Sas (2017 p. 85-91) moreover explicitly deny the relevance of calculating interregional interest transfers compared to calculating interregional fiscal transfers in the conventional way. In contrast, we calculate interest transfers of between 3 and 5% for each year of that period. A high interest bill tends to make interest transfers substantially *larger and more increasing* over time than conventional net fiscal transfers. As said, this is basically because regional shares in the primary deficit that differ from regional shares in revenue contributed in *one particular year* generate interest transfers in *each of the following years* in which the debt caused by that particular primary deficit concerned is not repaid. (We already showed this in our numerical example.) Such repeated regionally different shares in the primary deficit then cause *large and increasing* interest transfers.

Figures 1-2 present the major numbers of table 4 for Flanders. See appendix 2 for the graphs with the major numbers for Wallonia. First, graph 1 mainly shows the evolution of the *overall fiscal situation* of Flanders within the central government budget. We notice that the interest bill caused by Flanders -the long-dashed line (in purple)- turns negative over time. This is thanks to the succession of primary surpluses achieved by Flanders -the dotted line (in light blue). Therefore also, over time the Flemish budget balance -the short-dashed line (in dark blue)- not only becomes positive, but eventually even larger than the Flemish primary balance.

Next, figure 2 mainly shows *interest transfers* out of Flanders, the long-dashed line (in dark red). This line simply shows the difference between the interest bill paid by Flanders, the chain dotted line (in orange), and the interest bill caused by Flanders, again the long-dashed line (in purple). Figure 2 also shows that from shortly before the year 2000 onwards interest transfers out of Flanders are even larger than the interest bill paid by Flanders, because in that period the interest bill caused by Flanders becomes negative. Shortly after the year 2000 interest transfers become even larger than the *total* interest bill on the central government debt of Belgium, shown by the solid line (in green).

²³An example of such a conventional calculation for the US is Dubay (2006).

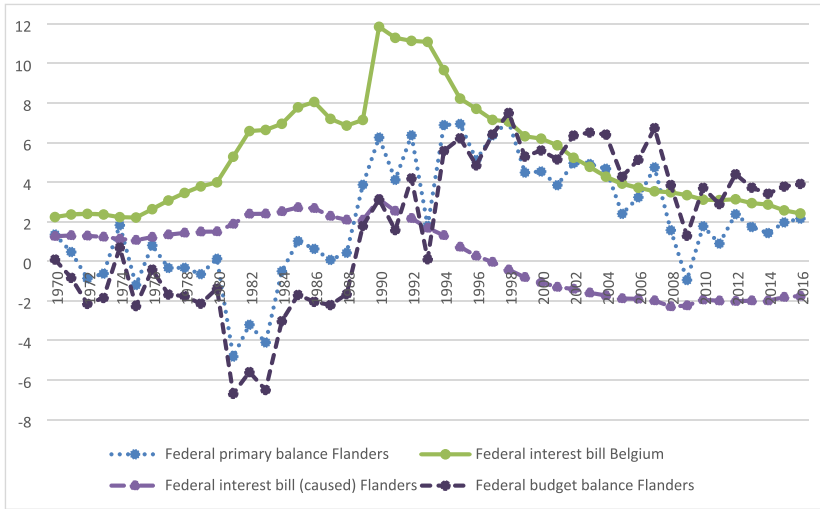


FIGURE 1 Consecutive large primary and budget surpluses of Flanders within the central government budget of Belgium over time result in an annual interest bill on the central government debt caused by Flanders that is even negative (% of Belgian GDP) [Colour figure can be viewed at wileyonlinelibrary.com]

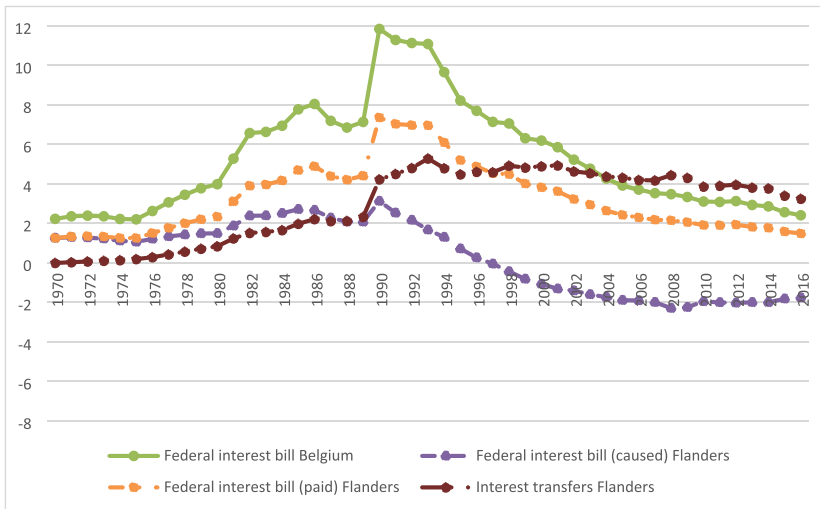


FIGURE 2 An ever larger gap between the annual interest bill caused by Flanders and the annual interest bill paid by Flanders eventually makes annual interest transfers out of Flanders larger than the total annual interest bill on Belgian central government debt (% of Belgian GDP) *Source:* of figures 1-2: table 4 [Colour figure can be viewed at wileyonlinelibrary.com]

4.3 | Robustness of calculating interregional net interest transfers for the case of Belgium

A possible weakness in our calculations concerns data quality. To an important extent, our results depend on the quality of the regional disaggregation of central government revenue and primary spending data as performed by Van Gompel (2004) for the 1970-1999 period (columns 2 and 3 of table 4). This is the first part of our total period

considered. With respect to the second part, we relied on the dataset compiled by Decoster and Sas (2017), i.e. for the 2000-2016 period (columns 2 and 3 of table 4). But we assume the Decoster and Sas dataset to be of better quality because it covers a more recent period. With respect to this period, central government revenue and spending data are not only of better quality overall but they had also become available in a regionally more disaggregated way.

In contrast, Van Gompel (2004) had to pioneer criteria on the basis of which he had to distribute several non-disaggregated central government revenue and spending data over the three Belgian regions. Indeed, the Belgian government back then did not routinely compile let alone publish such data. The quality of the Van Gompel dataset is an important matter, because it covers the part of our period that was characterised by the catastrophic central government fiscal policies of the 1970s and early 1980s. These culminated in a budget deficit of 18% of GDP in 1983 (see column 9.1 in table 4), although a turnaround government was already in power by then. These catastrophic fiscal policies importantly contributed to laying the basis for the persistent, sizeable, and increasing interest transfers of the subsequent decades.

We are of the opinion that the Van Gompel dataset is of good quality for three reasons. First of all, regional shares in central government revenue and in central government primary spending differ remarkably little between the Van Gompel dataset and the Decoster and Sas dataset. (Compare columns 2 and 3 in table 4 resp.) The difference between those two shares in the two datasets much less explains the evolution of interest transfers over time than that the evolution of the *overall* Belgian fiscal situation does, such as the implicit interest rate (column 10), the primary balance (column 4.1), and the debt ratio (column 1.1). Secondly, regional economic evolutions make Van Gompel's finding of a larger Flemish and smaller Walloon share in revenue than in spending already from the very start of his dataset onwards plausible. Already during the 1960s, Flanders became richer than Wallonia for the first time in Belgian history. Also, the 1970s worldwide economic crisis translated itself into important further down-sizing of the steel factories that had been a core part of the Walloon economy for decades, and hence further impoverished Wallonia. Thirdly, authors such as Dottermans (1997) find that Flanders paid more revenue to than that it receives spending from the central government already from 1964 onwards, the reverse holding for Wallonia.

Additionally, we wish to highlight that the objective of this paper is mainly methodological. We mainly aim to demonstrate that interregional fiscal transfers can increase vastly in size if they are calculated on the basis of the regional differences in *debt-financed* spending received as well as in revenue contributed to *interest payments*. They can increase vastly compared to when they -as usual- are calculated on the basis of regional differences in spending received *in general* and revenue contributed *in general*. This holds true irrespective of the dataset and the country considered.

However, the robustness of the Van Gompel dataset complemented by the Dottermans findings does not exclude that until 1970 Flanders may have had a larger share in the Belgian central government debt than a share corresponding to its share in central government revenue. Therefore, we have implemented two robustness checks by changing the -already prudent- assumption that we made for our baseline calculations above, namely that until 1970 regional shares in central government debt simply equal regional shares in government revenue. As said, this baseline assumption leads to the absence of interest transfers from Flanders to Francophone Belgium in 1970 and in the years before. It therefore reduces the size of the interest transfers for our entire 1970-2016 period compared to when we would have based ourselves on e.g. the Dottermans findings.

The two robustness tests that we implement make even more prudent assumptions with respect to the size of interest transfers. As a first robustness check, we assume that in 1970 the share of Flanders in central government debt was 100%. Appendix 3 shows the graphical results of our interest transfer calculations based on this even more prudent assumption. This alternative assumption of course reduces interest transfers out of Flanders since 1970, as this assumption of course increases the interest bill caused by Flanders over the entire period considered. However, interest transfers out of Flanders remain very considerable and reach a maximum of 3.5% of GDP in the year 2000.

As another robustness check, we assume that in 1970 central government debt was zero. I.e. we assume that the central government only started building up debt in the first year for which we have all the necessary data available, so that we do not have to make any assumption about the pre-1970 regional distribution of the primary balance. (For reasons of simplification, to this effect we subtract year after year the pre-1970 debt stock (row 1 of column 1.1 in table 4) after applying the implicit interest rate (column 10) of the year concerned to it, from the total debt stock (column 1.1).) Appendix 4 shows the graphical results of our interest transfer calculations based on this second even more prudent assumption. Under this assumption interest transfers out of Flanders are of course again lower than under our baseline assumption. This time this is of course because of a lower central government debt over the entire period considered on which interests have to be paid. But then interest transfers still reach a maximum of 4.9% of GDP in 1993.

4.4 | Calculating the joint present value of the net costs/benefits of debt per region of Belgium

As shown above, Flanders annually de facto pays a considerable part of the interest bill annually resulting from the debt-financed expenditures received by Francophone Belgium. However, these interest bills seem to make over time debt-financed expenditures more expensive than expenditures funded with *non-borrowed* government revenue also for Francophone Belgium. Indeed, of course also Francophone Belgium year after year contributes revenue to the central government of which a considerable part is used to pay the interest bill resulting from past deficit-financed expenditures that it enjoyed. (see columns 6.3-6.4 of table 4) Therefore, although Francophone Belgium has received sizeable interest transfers out of Flanders, it may still have ended up as another net loser from debt accumulation, albeit a smaller one than Flanders.

In this respect, Roubini and Sachs (1989) view the debt game within a coalition government as a prisoner's dilemma. Each party has an incentive to expand its part of the budget, resulting in an overall deficit, but this deficit may over time damage all parties belonging to the coalition (assuming the coalition stays the same). Velasco (2000) theoretically comes to a similar result: all groups borrow,²⁴ eventually resulting in lower utility for all players.

In tables 5a-b we answer the question if not only Flanders but *all* Belgian regions eventually lose from the central government debt. To this effect, we calculate the present value of past primary balances and interest payments per region. In table 5a we take as the interest rate to calculate these present values the implicit interest rate that held at the end of our sample period, i.e. 2.7% in 2016. (see column 10 in table 4) This is also the *lowest* implicit interest rate that held over our sample period. As a sensitivity analysis, in table 5b we repeat the calculations of table 5a using a higher interest rate, i.e. the *average* implicit interest rate over our sample period, i.e. 6.7%.

First, in columns 1 of tables 5a-b we calculate the joint present value –more precisely the joint value in 2016- of the consecutive *primary balances* of Flanders (FL), Wallonia (WA), and Brussels (BR) over our 1970-2016 period. (see columns 4 of table 4) (After calculating the joint present value of the regional primary balances in euros we express it as a share of 2016 Belgian GDP.) We show a primary *deficit* in net present value terms for a particular region with a *positive* sign in columns 1 of tables 5a-b. This is because a regional primary deficit of course counts as a benefit for a particular region, as it enables this region to receive more expenditures than that it pays revenue. Similarly, we show a primary *surplus* in net present value terms for a particular region with a *negative* sign²⁵.

²⁴We indeed notice from table 4 that in most years between 1970 and 1984 *all* three regions, including Flanders, “run” a primary deficit.

²⁵For reasons of simplification, we assume that 1 euro of primary surplus (deficit) has the same cost (benefit) to every region. In contrast, Knight (2004) calculates a lower marginal utility of public spending in US districts receiving a lot of spending compared to marginal utility of public spending in districts receiving less spending. This would imply a lower benefit of 1 euro of public spending in Wallonia (high spending) than in Flanders (low spending). However, the fact that Wallonia is poorer than Flanders implies a *higher* marginal utility of public spending, as marginal utility of income received increases as income decreases.

TABLE 5 a-b: Columns 3 show that the 2016 present value (PV) of the net benefits (in % of 2016 Belgian GDP) of central government debt is much more negative for Flanders than that it is positive for Francophone Belgium, and that it is therefore negative for Belgium as a whole

a) Assuming an interest rate of 2.7%:			
	PV of primary deficits enjoyed (+) /surpluses suffered (-) (1)	PV of interest paid (-) (2)	PV of net benefits of debt= (3) = (1) + (2)
Flanders	-92%	-44%	-136%
Wallonia	58%	-20%	38%
Brussels	1%	-7%	-6%
Francophone Belgium (WA+BR)	59%	-27%	32%
Belgium (FL+WA+BR)	-33%	-71%	-104%
b) Assuming an interest rate of 6.7%:			
	PV of primary deficits enjoyed (+) /surpluses suffered (-) (1)	PV of interest paid (-) (2)	PV of net benefits of debt= (3) = (1) + (2)
Flanders	-169%	-112%	-281%
Wallonia	154%	-52%	102%
Brussels	8%	-17%	-9%
Francophone Belgium (WA+BR)	162%	-69%	92%
Belgium (FL+WA+BR)	-8%	-181%	-189%

Source: of tables 5a-b: table 4.

Next, in columns 2 of tables 5a-b we calculate the joint present value –more precisely the joint value in 2016- of the consecutive *interest payments* resulting from debt-financed spending and shouldered by each of the three Belgian regions over our 1970-2016 time period. (After calculating this joint present value of the regional interest payments in euros we express it as a share of 2016 Belgian GDP.) To this effect, we recalculate columns 6 of table 4 while ignoring interest payments on debt incurred before 1970. I.e. we assume that public debt was zero in 1970. A regional interest payment obviously counts as a cost for a particular region. Therefore, we show interest payments by a particular region in net present value terms with a *negative* sign in columns 2 of tables 5a-b.

Finally, the addition of columns 1 to columns 2 of tables 5a-b results in the net benefits of debt-financing (columns 3).²⁶ We notice that both when using the low interest rate and the higher one there are net costs of debt for Flanders and Brussels, but not for Wallonia. Like Wallonia, Francophone Belgium (FR) as a whole benefits from the central government debt on a net basis. This benefit amounts to 32 resp. 92% of 2016 Belgian GDP depending

²⁶ The net benefits of debt accumulation per region therefore contrast with interest transfers per region, as the sum of the latter is zero. For reasons of simplification, we also assume that the benefit of 1 euro of primary deficit to a region is neutralised by the cost of 1 euro of interests paid by that region in that same year. As most of the deficit financed spending by the central government over the period considered concerned consumption spending –i.e. social transfers- and not investment spending, this assumption seems reasonable.

²⁷ Of course we could take an even higher interest rate to calculate the present value than the average implicit interest rate, e.g. the highest implicit interest rate over our period considered. Then net benefits for Francophone Belgium and net costs for Flanders would increase further.

²⁸ Of course apart from Francophone Belgium also the Belgian *private* holders of government bonds could be winners of the debt game.

on the interest rate chosen. This contrasts with a net cost for Flanders amounting to 136 resp. 281% of GDP depending on the interest rate chosen.²⁷

In sum, tables 5a-b show that Francophone Belgium not only benefits on a gross basis from the central government debt –i.e. in terms of debt-financed expenditures received– but also on a net basis –i.e. when taking into account the part of the resulting interest bill it paid. Tables 5a-b hence suggest that in financial terms it has been rational for Francophone Belgium to “push” for extra expenditures that were debt-financed, assuming that it has done so. The Belgian debt game therefore does not seem to be a prisoner’s dilemma, as it does not produce only losers but also winners. However, the central government debt leads to net costs for Belgium (BE) as a whole. Indeed, the net costs for Flanders are in both interest rate cases far larger than the net benefits for Francophone Belgium.²⁸

Nevertheless, Flanders possesses just like Francophone Belgium veto power over any central government policy. This Flemish veto power appears not to have prevented Francophone Belgium’s accumulation of primary deficits, nor to have prevented Flanders from paying the bulk of the resulting interest bill. We see four possible explanations for this. Firstly, in the short run also Flemish politicians have an electoral interest in debt financing, albeit a smaller one than Francophone Belgian politicians. Until 1984, also Flanders “ran” a primary deficit most of the time (see column 4.2 in table 4). Secondly, Francophone Belgian politicians may have found that extra expenditures financed with debt met with less resistance of Flemish politicians than extra expenditures immediately funded with non-borrowed government revenue generated in Flanders. This may have been the case because the costs of debt-financed expenditures are less visible and less immediate. Thirdly, perhaps it was Francophone Belgium that used its veto with a view to *maintaining* a deficit, i.e. with a view to postponing or weakening fiscal consolidation. Fourthly, with respect to the latter a “war of attrition” (Alesina & Drazen, 1989) may have occurred and may have been won by Francophone Belgium.

During this “war of attrition” the fiscal and/or economic costs of postponing or weakening fiscal consolidation eventually may have become very high for Flanders. These costs may have become so high for Flanders that Flanders may have decided to start *running primary surpluses* within the central government budget while it may have allowed Francophone Belgium to continue running primary deficits within the same central government budget. The “war of attrition” hypothesis may i.a. explain why –as said– the December 1981 elections brought a –centre-right– government coalition to power that undertook a prolonged fiscal consolidation effort that came mainly at the expense of Flanders fiscally speaking. Indeed, the difference in primary balances between Flanders and Wallonia widens from 1984 onwards as a result of this consolidation effort, as shown in columns 4.2 and 4.3 of table 4. This suggests that this government’s consolidation efforts were not spread evenly between the regions. (Also, it can be noticed from columns 3.2 and 3.3 of table 4 that the widening difference between regional primary balances from 1984 onwards is thanks to a widening difference between the Flemish and the Walloon shares in *revenue contributed* to the central government, instead of in *primary spending received* from the central government.) Flanders even started running successive primary *surpluses* from 1985 onwards, while Wallonia kept running primary deficits (although smaller ones than before).

Ironically or not, the government coming to power in December 1981 was exceptionally only supported by a majority of Flemish MPs in the central government’s parliament, i.e. it was only supported by a minority of French-speaking MPs. The December 1981 turnaround government however consisted as usual between 1970 and 1999 of two Flemish parties and two Francophone parties, with each party having veto power.

5 | CONCLUSIONS AND POLICY IMPLICATIONS

On the basis of a rigorous methodology, we have calculated that persistent differences in regionalised primary balances over the 1970-2016 period increased net fiscal transfers due to the central government debt from Flanders to Francophone Belgium to between 2 and 5% of Belgian GDP for every year between 1985 and 2016. They even increased to between 4 to 5% of Belgian GDP for every year between 1990 and 2012. 4 to 5% of Belgian GDP

amounts to 7 to 8% of Flemish GDP.²⁹ Expressed in terms of 2016 euros, this is between 17 and 21 billion euros annually. Expressed per inhabitant of Flanders, this amounts to between 2,600 and 3,300 euros annually in terms of 2016 euros. Average interest transfers out of Flanders over our *entire* period 1970–2016 amount to 2.9% of Belgian GDP annually. Expressed in terms of 2016 euros, this is 12.5 billion euros annually. Expressed per inhabitant of Flanders, this amounts to about 2,000 euros annually in terms of 2016 euros.

For Wallonia as the largest region of Francophone Belgium and as the largest receiving region of interest transfers, the numbers are of course even more dramatic, as Wallonia is much smaller than Flanders. 4 to 5% of Belgian GDP amounts to 18 to 22% of Walloon GDP.³⁰ Expressed per inhabitant of Wallonia, interest transfers amount to between 4,700 and 5,900 euros annually in terms of 2016 euros. Average interest transfers over our *entire* period 1970–2016 amount to about 3,500 euros annually per inhabitant of Wallonia, expressed in terms of 2016 euros.

Central government debt causes much larger interregional fiscal transfers than has been assumed thus far. This is not only the case in Belgium, but also in the many other democracies suffering from both high central government debt and important geographic income disparities. The reason is that, applied to Belgium, interest transfers precisely concern the difference between the interest bill that Francophone Belgium should pay and the interest bill that Francophone Belgium actually paid. This difference is very sizeable, also because of the persistently high central government debt of Belgium, and also because inevitably a primary deficit in *one* particular year leads to an interest bill in *each of the following* years in which the debt caused by that primary deficit is not repaid.

We also calculated that central government debt accumulation between 1970 and 2016 has made Flanders lose *in total* between 136 and 281% of Belgian GDP by 2016, depending on the interest rate used. This is between 231 and 477% of Flemish GDP. We obtained these numbers by calculating the joint value in 2016 of the successive primary balances (mostly surpluses) that Flanders “ran” within the central budget as well as the joint value in 2016 of the parts of the successive central government’s interest bills that Flanders paid. The corresponding net benefit for Francophone Belgium in 2016 was considerably smaller, i.e. between 32 and 92% of Belgian GDP, depending on the interest rate used. So thanks to interest transfers out of Flanders, Francophone Belgium has been a net beneficiary of the central government’s debt financing while Flanders has been a –much larger– net loser.

The geographically very unevenly spread net benefits of Belgian central government debt are not only interesting because of their size. Their size and uneven geographic distribution in turn make that the *incentives* for central government debt-financed spending are geographically strongly different. Therefore interregional interest transfers may *in turn* precisely provide an *explanation* for the large central government deficits and debt in past decades, in Belgium but also in other countries. Not only Belgium but also several other rich democracies were characterised by very poor fiscal policies and fiscal outcomes in the 1970s and early 1980s. In other words, interregional net fiscal transfers resulting from the central government debt may not just be important because of their geographic distributional *consequences*, in Belgium but also in other countries. Additionally, they may be even more important because they may in turn have been a *cause* of the large overall size of deficits and debt that characterised Belgium and also other countries in the past decades.

Also, the potentially large size of interest transfers may fuel incentives for particular regions to break away from the country they belong to. Therefore, they may as well shape demands for compensation in the cases in which a breakaway would materialise.

The strongly diverging incentives of poorer resp. richer regions for central government budget deficits in several countries add a so far hardly investigated *geographic* dimension to the political economy of the central government debt. This dimension seems important, as in most democracies every central government politician is elected in a *geographically* limited constituency. This fact seems to facilitate channelling the benefits of debt financing towards a politician’s electorate, while avoiding to make this electorate bear the costs of debt financing. Moreover, in many democracies, poorer, less densely populated regions tend to be overrepresented within central government. This

²⁹See <https://stat.nbb.be/?lang=nl>

³⁰See <https://stat.nbb.be/?lang=nl>

makes that not only these regions' incentive but also their ability to create or maintain a central government deficit is strong. In this sense, our study is a strong confirmation of the general Lago-Peñas et al. (2017) finding that geographic concentration of political parties' electoral support increases central government debt.

We can draw a number of policy implications for Belgium and other countries from our findings. The *first one* is the need for more decentralisation both of spending and of revenue raising, and hence more institutional congruence. Decentralisation is particularly needed in those countries with little fiscal equivalence due to important geographic income disparities and/or due to important geographic concentration of political party support. Central governments are well placed to implement net fiscal transfers across their geography. Indeed, the more a country is centralised, the larger the geographic distance that net fiscal transfers can "travel", *ceteris paribus*. Otherwise stated: the more decentralised a government is, the smaller geographic net fiscal transfers are, *ceteris paribus*. This of course also holds true for the less transparent net fiscal transfers stemming from the central government debt. The very large interest transfers that we have found between the regions of Belgium are hence an argument in favour of more decentralisation and regional revenue autonomy. More generally stated: they are an argument in favour of a smaller common pool and in favour of more institutional congruence.

Without a fiscally powerful Belgian central government, central government politicians would not have been able to "exploit" the consistently better primary balance of richer Flanders within the central government budget compared to poorer Francophone Belgium. Instead, thanks to the persistent fiscal preponderance of the central government in Belgium, central government politicians were able to exploit this better primary balance of Flanders to make the central government run the persistent and considerable overall primary deficits that enabled the subsequent persistent and considerable debt-related transfers from Flanders to Francophone Belgium.

Remarkably, even at the end of our 1970-2016 period considered, spanning no less than six Belgian decentralisation rounds, Belgium is revenue-wise still a centralised country. Indeed, in 2016 some 80% of total Belgian government revenue was still raised by the federal government, and the federal government is still causing the bulk -about 80%- of the annual total Belgian public deficit.

This first policy recommendation is of course even more relevant for large and hardly decentralised, heavily indebted countries with large geographic disparities, such as Italy. It is even more relevant for e.g. Italy than for small and already more decentralised, heavily indebted countries with large geographic disparities such as Belgium.³¹ It is also very relevant for the debt-and-transfer union that also a geographically very unequal confederation such as the EU is planning to become. (see also Sinn & Sinn, 2015; Jennes, 2020)

We argue in favour of more fiscal decentralisation also because we see two main arguments for doubting the positive welfare effects of the considerable interest transfers occurring in Belgium. Firstly, arguably no region would democratically agree to transfer up to 8% of its GDP to another region for many successive years -amounting to up to 477% of its GDP cumulatively speaking. Flanders nevertheless has done so. It is not surprising that our "back of the envelope" cost-benefit-calculation in subsection 4.4 demonstrates that the costs of these transfers for Flanders are far larger than their benefits for Francophone Belgium.³² Secondly, geographic fiscal transfers have been demonstrated to generate moral hazard behaviour on behalf of the transfer receiving region. Indeed, Wallonia's economic growth has never substantially caught up with Flanders' since Wallonia fell behind Flanders in the course of the 1960s. This is in spite of -or possibly precisely because of- the large transfers received since then out of Flanders. Geographic net transfers -and particularly geographic net transfers implicit in central government debt accumulation- are to some extent a self-fulfilling prophecy. The larger geographic income disparities in a democracy are, the larger geographic net transfers tend to become. But precisely these transfers may contribute to perpetuating

³¹Belgium is weakly decentralised at the revenue side, but it is since 1988 strongly decentralised at the spending side (and even more so since 2015). The Belgian federal government accounts for only slightly more than half of total public spending in Belgium.

³²Also, because of the limited economic integration of Flanders and Francophone Belgium, economic "payback" effects of the fiscal transfers out of Flanders to Francophone Belgium can be argued to be limited for Flanders. In recent years, Francophone Belgium only bought about 13% of total exports out of Flanders. (Federaal Planbureau, 2019) Moreover, only about 2% of people employed in Flanders consist of commuters from nearby Wallonia, although Wallonia has been characterised by high unemployment for decades. (<https://www.steunpuntwerk.be/>) Interregional fiscal transfers have precisely been argued to reduce geographic labour mobility. (see e.g. Albouy, 2009 for the US and Henkel et al., 2018 for Germany)

geographic income disparities (see e.g. Persyn & Algoed, 2009 for EU member states), as well as to hampering countrywide economic growth (see e.g. Albouy, 2009 for the US).

A *second* policy recommendation concerns the limits of deficit-spending. The political geography of debt is in many countries a strong political economy argument against deficit-spending with a view to stabilising economies in times of economic crises. Well-meant macroeconomic concerns about stabilisation threaten to be “captured” by the “political economy on the ground”, and this political economy is always also *geographic*. The political economy of debt -including the political *geography* of debt- is more constraining at the *central* government level than at *decentral* government levels. E.g. in federal countries such as Belgium, Germany, and the US, it is at the *federal* government level that a geographic minority of the population has important permanent veto rights. These are exerted via the *legislative* -i.e. via the senate- in Germany and the US, and via the *executive* in Belgium. (see Jennes, 2019) Particularly *central* government budget deficits therefore always have a geographic incidence, and also therefore their costs and benefits are always to some extent geographically unevenly spread. This unevenness in turn has non-neutral consequences for the economy as a whole. (Macro)economists arguing in favour of debt-accumulation *over the short term* with a view to stabilising an economy should be aware of the sizeable geographic net fiscal transfers that may *over the longer term* result from this debt accumulation. In the context of the ongoing economic crisis, these transfers would in particular become sizeable when interest rates would start increasing again.

A final policy recommendation is of course that more research into the political economy of debt -and more in particular into the political *geography* of debt- should be undertaken.

ACKNOWLEDGEMENT

Open access funding enabled and organized by Projekt DEAL.

REFERENCES

- Albouy, D. (2009) The unequal geographic burden of federal taxation. *Journal of Political Economy*, 117, 635–667.
- Albouy, D. (2013) Partisan representation in Congress and the geographic distribution of federal funds. *Review of Economics and Statistics*, 95(1), 127–141.
- Alesina, A. & Drazen, A. (1989) Why are stabilisations delayed? NBER working paper.
- Alesina, A. & Perotti, R. (1994) The political economy of budget deficits. IMF working paper.
- Alesina, A. & Tabellini, G. (1987) A positive theory of fiscal deficits and government debt in a democracy. NBER working paper.
- Alesina, A. & Tabellini, G. (1992) Positive and normative theories of public debt and inflation in historical perspective. *European Economic Review*, 39, 337–344.
- Algoed, K. (2009) Interregionale fiscale stromen en het verrekenen van de rentelasten. KU Leuven, VIVES mimeo.
- Artés, J. & Jurado, I. (2018) Government fragmentation and fiscal deficits: a regression discontinuity approach. *Public Choice*, 175, 367–391.
- Ashworth, J., Geys, B. & Heyndels, B. (2005) Government weakness and local public debt development in Flemish municipalities. *International Tax and Public Finance*, 12, 395–422.
- Atlas, C., Gilligan, T., Hendershott, R. & Zupan, M. (1995) Slicing the federal government net spending pie: Who wins, who loses and why? *American Economic Review*, 85, 624–629.
- Baskaran, T. (2012) Soft budget constraints and strategic interactions in subnational borrowing: evidence from the German states. *Journal of Urban Economics*, 71, 114–127.
- Baskaran, T. & Hessami, Z. (2017) Political Alignment and Intergovernmental Transfers in Parliamentary Systems: Evidence from Germany. *Public Choice*, 171, 75–98.
- Besley, T. (2006) *Principled agents. The Political Economy of Good Government*. Oxford: Oxford University Press.
- Brooks, L., Phillips, J. & Sinitzyn, M. (2011) The cabals of a few or the confusion of a multitude: the institutional trade-off between representation and governance. *American Economic Journal: Economic Policy*, 3, 1–24.
- Carozzi, F. & Repetto, L. (2016) Sending the Pork Home: Birth Town Bias in Transfers to Italian Municipalities. *Journal of Public Economics*, 134, 42–52.
- Decoster, A. & Sas, W. (2017) *Interregionale financiële stromen in België van 2000 tot 2020*. KU Leuven: Department of Economics.
- Dottermans, G. (1997) Financiële stromen tussen de gewesten in België 1955-1975. Documentatieblad Ministerie van Financiën. 57.

- Dragu T. & Rodden, J. (2011) Representation and redistribution in federations. *Proceedings of the National Academy of Sciences*, 108, 8601–8604.
- Dubay, C. (2006) Federal tax burdens and expenditures by state. Which states gain most from federal fiscal operations? *Tax Foundation*.
- Federaal Planbureau (2019) Input-outputtabellen 2015.
- Fritz, B. & Feld, L. (2020) Common pool effects and local public debt in amalgamated municipalities. *Public Choice*, 183, 69–99.
- Gailmard, S. & Jenkins, J. (2007) *Minority party power in the Senate and House of Representatives*. University of California at Berkeley.
- Golden, M. & Picci, L. (2008) Pork-barrel politics in postwar Italy, 1953–94. *American Journal of Political Science*, 52(2), 268–289.
- Henkel, M., Seidel, T. & Südekum, J. (2018) Fiscal transfers in the spatial economy. CEPR discussion paper no. dp12875.
- Huber, G., Kocher, M. & Sutter, M. (2003) Government strength, power dispersion in governments and budget deficits in OECD-countries. A voting power approach. *Public Choice*, 116, 333–350.
- Inman, R. (2003) Transfers and Bailouts: Enforcing Local Fiscal Discipline with Lessons from U.S. Federalism in Rodden, J., G. Eskeland, and J. Litvack. *Fiscal Decentralisation and the Challenge of Hard Budget Constraints*. Cambridge, MA: The MIT Press.
- Jennes, G. (2019) Confederalisme? Federalisme is beter. Naar een deblokking van de Belgische federale overheid. KU Leuven, VIVES beleidspaper.
- Jennes, G. (2020) Een transferunie voor de eurozone? Liever een mini-VS dan een maxi-België. KU Leuven, VIVES briefing.
- Jennes, G. & Persyn, D. (2015) The effect of political representation on the geographic income distribution in Belgium: evidence using Belgian data. *European Journal of Political Economy*, 37, 178–194.
- Jordahl, H. & Liang, C. (2010) Merged municipalities, higher debt: on free-riding and the common pool problem in politics. *Public Choice*, 143, 157–172.
- Kauder, B., Potrafke, N. & Reischmann, M. (2016) Do politicians reward core supporters? Evidence from a discretionary grant program. *European Journal of Political Economy*, 45, 39–56.
- Knight, B. (2004) Parochial interests and the centralised provision of public goods. *Journal of Public Economics*, 88, 845–866.
- Knight, B. (2008) Legislative representation, bargaining power and the distribution of federal funds: Evidence from the US Congress. *Economic Journal*, 118, 1785–1803.
- Lago-Peñas, S., Sacchi, A. & Simón-Cosano, P. (2017) Who honour the rules of federalism? Party system nationalisation and fiscal performance. *Political Studies*, 66, 265–286.
- Lee, F. (1998) Representation and public policy: the consequences of Senate apportionment for the geographic distribution of federal funds. *Journal of Politics*, 60, 34–62.
- Lizzeri, A. (1999) Budget deficits and redistributive politics. *Review of Economic Studies*, 66, 909–928.
- Ministry of Finance. (n.d.) (several issues), *Conjunctuurnota*.
- Olson, M. (1965) The Logic of Collective Action: Public Goods and the Theory of Groups. *Harvard Economic Studies*.
- Olson, M. (1969) The principle of "fiscal equivalence": The division of responsibilities among different levels of government. *American Economic Review*, 59, 479–487.
- Perotti, R. & Kontopoulos, Y. (2002) Fragmented fiscal policy. *Journal of Public Economics*, 86, 191–222.
- Persson, T. & Tabellini, G. (2000) *Political economics*. Cambridge, MA: MIT Press.
- Persson, T. & Tabellini, G. (2003) The economic effects of constitutions. CES.
- Persyn, D. & Algoed, K. (2009) Interregional Redistribution, Growth and Convergence. KU Leuven, VIVES discussion paper.
- Petterson-Lidbom, P. (2001) An empirical investigation of the strategic use of debt. *Journal of Political Economy*, 109, 570–583.
- Petterson-Lidbom, P. (2010) Dynamic commitment and the soft budget constraint: an empirical test. *American Economic Journal: Economic Policy*, 2, 154–179.
- Roubini, N. & Sachs, J. (1989) Political and economic determinants of budget deficits in the industrial democracies. *European Economic Review*, 33, 903–938.
- Saarimaa, T. & Tukiainen, J. (2015) Common Pool Problems in Voluntary Municipal Mergers. *European Journal of Political Economy*, 38, 140–152.
- Sinn, G. & Sinn, H. (2015) Do not perpetuate the Dutch Disease in Europe: Lessons from German reunification for a European fiscal union. *VoxEU*.
- Sorribas-Navarro, P. (2011) Bailouts in a federal system: evidence from Spain. *European Journal of Political Economy*, 27, 154–170.
- Van Gompel, J. (2004) Een denkoefening over regionale schuldplitsing in België. mimeo.
- Velasco, A. (2000) Debts and deficits with fragmented fiscal policymaking. *Journal of Public Economics*, 76, 105–125.

Weingast, B., Shepsle, K. & Johnsen, C. (1981) The political economy of benefits and costs: A neoclassical approach to distributive politics. *Journal of Political Economy*, 89, 642–664.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

How to cite this article: Jennes G. Interregional fiscal transfers resulting from central government debt: New insights and consequences for political economy. *Kyklos*. 2021;74:196–223. <https://doi.org/10.1111/kykl.12258>