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## Article

# Economic flows between Regions in Belgium : = Les flux économiques entre les régions de Belgique

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# Economic flows between Regions in Belgium

C. Duprez  
M. Nautet \*

## Introduction

What are the barriers to the mobility of workers, capital, goods and services in Belgium? Does crossing a regional border in Belgium put a brake on these economic flows? In an increasingly globalised world, is distance still a factor?

In Belgium, there are several factors that make it easy to move around. With internal distances which are always less than 300 km as the crow flies, Belgium is a small country. It has 155 000 km of roads, 3 600 km of railways and 1 500 km of waterways, giving it a dense transport infrastructure. Moreover, the country's topography presents no natural barriers, such as mountains, large lakes or deserts.

Conversely, there are other well-known factors that hamper mobility. The congestion on the main roads leading to urban centres makes travel slow. The coexistence of three national languages and three Regions may imply cultural and legal barriers.

Is Belgium ultimately one village? Or do the three Regions constitute three separate economies? This article uses a new comprehensive set of individual data and provides pieces of information in order to answer these questions. It analyses the flows of commuters, capital, goods and services. In addition, it assesses the cost of distance and the regional barriers in Belgium.

## 1. Labour

### 1.1 A context of large regional labour market disparities

The Belgian labour market is characterised by large – and persistent – disparities between the three Regions, as clearly shown by the map presenting the unemployment rate by municipalities<sup>1</sup> (see chart 1). Mobility could provide an at least partial solution to this issue. With such different regional labour markets, one would expect a convergence process to be at work, notably in the form of labour outflow from a Region with a substantial excess labour supply towards a Region with a labour shortage<sup>2</sup>.

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1 In this section, the data refer to 2015, to harmonize with the other sections where the latest available data relate to 2015.

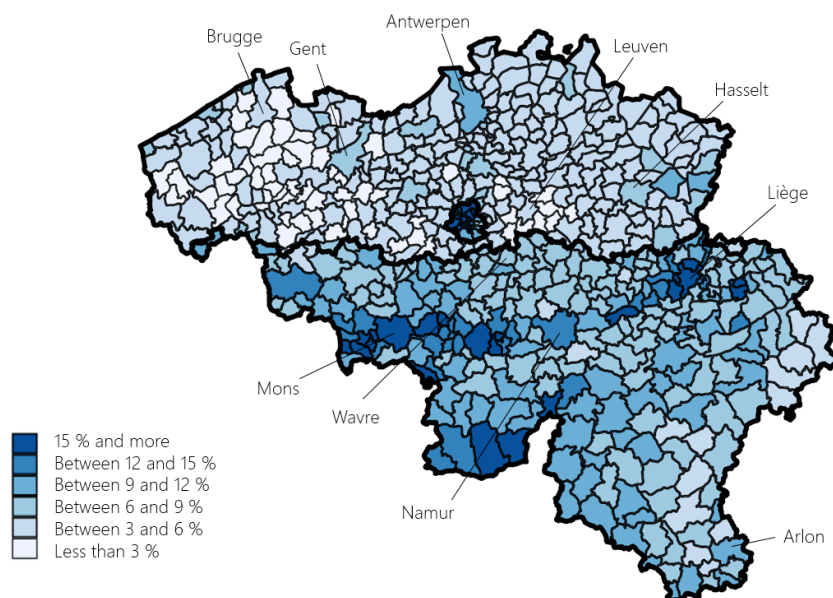
2 According to OECD (2005), some regional disparities may be explained by sectoral specialisation or the labour force composition, in terms of age and education, but many of the disparities remain unexplained.

While labour mobility can take a permanent form, by relocation, we concentrate on daily commuter journeys from home to work. The analysis in the first section thus explicitly focuses on workers living in one Region and working in a different one<sup>1</sup>.

## Chart 1

### Unemployment rate shows large regional disparities

(in % of labour force 15-64 years, 2015)



Source: NBB (IWEPS data).

## 1.2 How many interregional commuters?

The analysis of labour mobility between the three Regions of Belgium reveals that rather few workers cross a regional border to go to work: 15 % of workers have a job in a Region other than their home Region. There has been no significant progress over time. Indeed, the figure is actually lower than in 2008 (17 %).

To place Belgium in an international context, the labour force survey provides indicators about interregional commuting. Among almost 300 European NUTS2 – for Belgium, NUTS2 geographical units correspond to the provinces and to Brussels – for which data were recorded, three Belgian provinces are in the top ten, leading Eurostat to consider Belgians as the most mobile European workers<sup>2</sup>. Although these findings should be interpreted with some caution<sup>3</sup>, we can assume that Belgian workers are probably at least as mobile as the European average, nuancing the statement of weak interregional mobility.

Some notable differences are apparent across the Regions in regard to interregional labour mobility (see chart 2). In Brussels and Wallonia, the Regions with higher unemployment, the share of interregional commuters, amounting to about 20 % of total employment, is larger than in Flanders (12 %).

1 In a different Belgian Region or abroad: international mobility being also considered here.

2 Eurostat (2016).

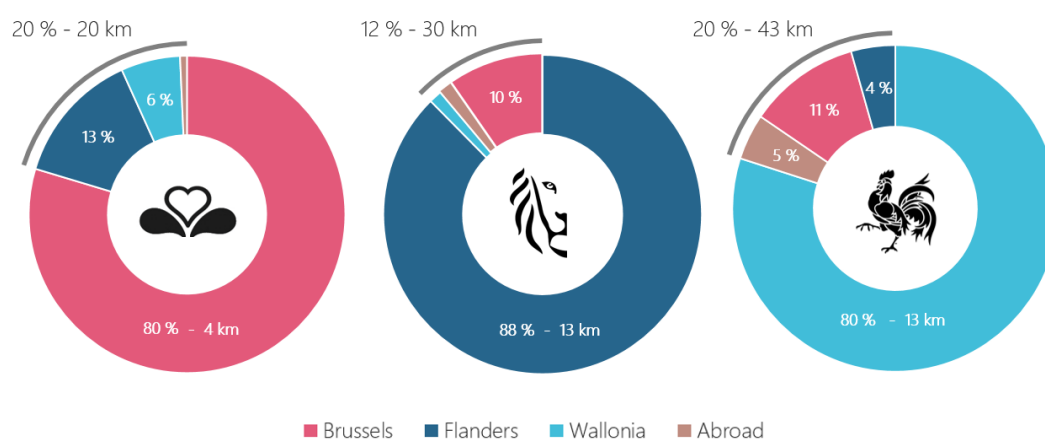
3 The physical size of the NUTS2 geographical units varies widely across countries, reducing the relevance of international comparison. In Belgium, NUTS2 classification refers to provinces, relatively small areas, resulting in higher commuting rates.

We observe discrepancies in percentage terms, but also in terms of place of destination. Brussels workers commute more to Flanders than to Wallonia (13 % versus 6 %). Beside the economic attractiveness of Flanders, the geographical position of Brussels within the Flemish Region may partly explain this situation. Most Flemish commuters go to Brussels (10 of the 12 %). This is also the case for the Walloon workers: the majority travel to Brussels (11 of the 20 %). Brussels is thus the primary destination of Flemish and Walloon commuters. Note also that foreign countries, and in particular the Grand Duchy of Luxembourg, are the second destination (5 %) of the Walloon commuters, ahead of Flanders (4 %).

## Chart 2

### Most commuters do not leave their Region

(domestic employment by Region according to the regional location of their job, in %, 2015)



Source: NBB (Steunpunt Werk, FPS Transport and Mobility data).

While the proportion of Walloon workers commuting to Flanders is rather small (4 %), it is four times larger than the proportion of Flemish workers commuting to Wallonia (1 %). Here, economic necessity rules. In Flanders, economic activity is more dynamic and labour shortages are higher, while in Wallonia, there is a larger percentage of jobseekers. Local – nearby and suitable – job opportunities are thus more numerous for Flemish people than for Walloons.

As expected, the average distance of interregional commuting is clearly longer than for intraregional commuting<sup>1</sup>. Brussels is a special case, with average distances (for both intraregional and interregional commuters) clearly shorter than those observed in Flanders and Wallonia. The small size of the Brussels Region – and hence the proximity to the other two Regions – and the concentration of activities in and around the capital play a role here. The average distance of an interregional commute is around 20 km for Brussels workers, 30 km for Flemish workers and 43 km for Walloon workers.

If the analysis now concentrates on in- and out-flows of workers across provinces, it confirms the previous diagnosis. While 85 % of commuters do not cross the regional border to go to work, about three quarters do not even cross the provincial borders. The two Brabant's have more interprovincial commuters: 54 % in Walloon Brabant, 47 % in Flemish Brabant. They commute mainly to neighbouring Brussels. In the case of

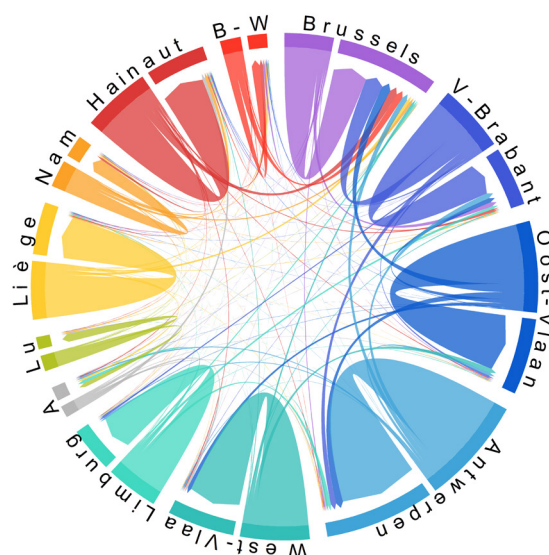
<sup>1</sup> See FPS Transport and Mobility (2019).

Luxembourg, 43 % of workers leave their province, mainly commuting to the Grand Duchy of Luxembourg. Overall, few workers take jobs outside their own province, and if they do, it is generally in a neighbouring province (see chart 3).

### Chart 3

#### Home to work commuting by province

(domestic employment by province<sup>1</sup> and flows towards the province of work, 2015)



Source: NBB (Steunpunt Werk data).

1 A = Abroad, LU = province of Luxembourg, B-W = Brabant Wallon.

Brussels attracts many commuters, as is commonly the case for major European urban centres. The city accounts for 72 % of all interregional commuting<sup>1</sup>. The Belgian capital features very high demand for skilled labour, due to the concentration of administrative centres and company headquarters. It thus “imports” workers from the other two Regions, in particular highly skilled staff, attracting them via higher remuneration. According to the latest earnings survey<sup>2</sup>, the gross average salary is about 25 % higher in Brussels than in Wallonia, and 16 % higher than in Flanders. Brussels presents a paradoxical situation: on the one hand, very high demand for skilled workers, exceeding its own supply, and on the other hand, the highest unemployment rate, comprising mainly low-skilled jobseekers. This paradox reflects the vast skill mismatch between its labour supply and demand. For the Grand Duchy of Luxembourg, the even more favourable job conditions attract not only Belgian workers, but also numerous German and French residents.

In these two cases, the commuting relationship is very asymmetrical, especially in the case of the Grand Duchy of Luxembourg: while 40 000 Belgian residents commute to the Grand Duchy of Luxembourg, only 500 Grand Duchy of Luxembourg residents travel to Belgium to work. In Brussels, the size of the inflow far exceeds the outflow. Only 40 % of the jobs registered in Brussels are filled by a citizen of the capital, 20 % by citizens of Flemish Brabant, 9 % by citizens of East Flanders, 8 % by citizens of Hainaut and 7 % by citizens of Walloon Brabant. Although labour market conditions are attractive in Brussels and in the Grand Duchy of Luxembourg, the relatively high price of housing in those two places may also encourage workers to reside in a neighbouring

<sup>1</sup> 61 % if international commuting is also considered.

<sup>2</sup> Conducted among almost 95,000 employees by Statbel.

area, adding to the number of daily interregional commuters. Furthermore, it is worth noting that the language barrier is certainly low for those attractive places, as Brussels is bilingual, and French is one of the official languages in the Grand Duchy of Luxembourg.

### 1.3 Distance is not the whole story

So far, the analysis illustrates the importance of distance, but time spent on commuting is an even more significant issue for workers. They try to minimise the inconvenience of commuting, especially the associated time and costs. According to a survey conducted for Paris WorkPlaces by IFOP, a commute taking more than 1 hour per day is perceived as detrimental. Some ways of organising work, such as flexible schedules, the development of co-working spaces or teleworking, can reduce the inconveniences of commuting. In fact, 17 % of Belgian workers telework at least one day per week<sup>1</sup>. Unsurprisingly, the propensity to telework increases the longer the journey from home to work, rising from 10 % for distances of less than 5 km to 34 % for distances greater than 50 km. The proportion of teleworkers is greater among people working in Brussels<sup>2</sup> (1 in 3), due to the distance they have to travel, but sectoral specialisation is also a factor (leading sectors in that respect are banking and insurance and public administrations) and so is the size of the enterprises located in Brussels.

The time spent commuting depends on the places of origin and destination (potential congestion, parking facilities, public transport availability, etc.), the timing of the journey (peak hours or not) and the means of transport (car, train, metro-tram-bus, bike, walk). Developed infrastructure networks and public transport accessibility facilitate longer distance commuting. Among European countries, Belgium has one of the most extensive transport infrastructures – in the European top 3 for road, rail and waterway networks. For long journeys at peak times between two big cities, it may be more efficient to travel by train, especially for journeys to Brussels, which is very well served by the rail network. While Brussels is very attractive as a place to work, that comes at the price of road congestion<sup>3</sup>. The metro-tram-bus option may also be preferred for short journeys within urban areas, to avoid parking issues and road congestion. For journeys between two non-central areas where the public transport network is not well-developed, the car is generally the most efficient option, and sometimes the only available means of transport. Overall, it is still the most popular choice, accounting for 67 % of total commuter journeys (tax treatments for company cars are certainly a factor here), followed by the train (11 %) and the metro-tram-bus (7 %). The results for Brussels differ greatly from the national average and illustrate the large differences in terms of mobility between urban and non-urban areas, with cars accounting for only 38 % of journeys, in favour of the train (34 %), and the metro-tram-bus (19 %)<sup>4</sup>.

### 1.4 Who are the interregional commuters?

An analysis of the labour force survey data highlights the characteristics of interregional commuters. In other words, who is more likely to be an interregional commuter? First, there are few differences between men and women. Education matters more than gender, with highly educated workers more likely to commute between regions than the medium and low educated. Private sector employees and civil servants cross a regional border more frequently than blue-collar workers. Wages are also a significant factor: the percentage of interregional commuters increases strongly with salary. Finally, the branch of activity has the greatest impact on interregional commuting, which is concentrated on banking and insurance, IT, public administrations and business services (see chart 4).

1 FPS Transport and Mobility (2018).

2 In Brussels, about 40 % of firms offer the option of teleworking, against 20 % for the national average.

3 The TomTom Traffic Index ranks Brussels about equal with Paris or London in term of congestion.

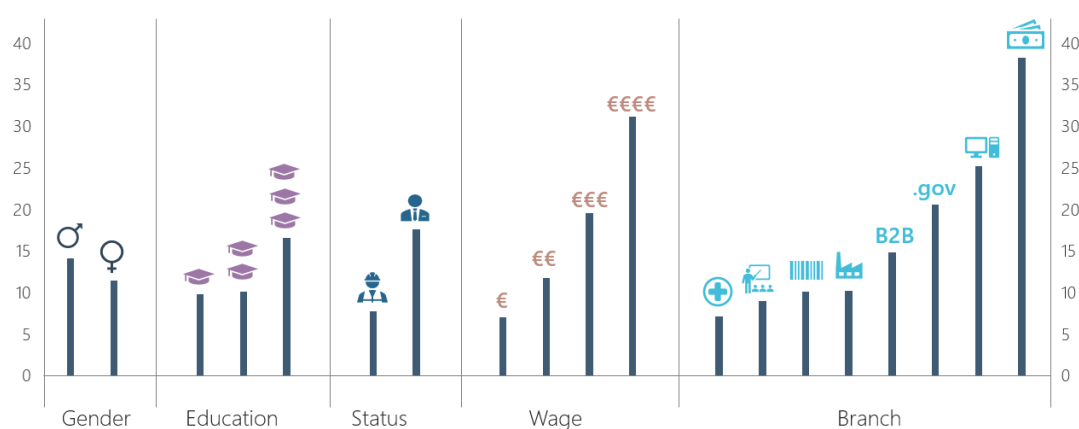
4 FPS Transport and Mobility (2019).

To sum up, we find a concentration of well-paid jobs in highly skilled occupations in urban areas (namely Brussels), attracting highly educated workers who prefer to reside in neighbouring non-urban areas (exodus of highly skilled workers from big cities for a better quality of life in greener areas with more affordable housing) and commute daily to neighbouring large cities. Being less mobile, the low-skilled are generally more dependent on local work opportunities. This may be a problem if there are insufficient local jobs. We shall come back later to the factors hampering mobility, but we have already shown here that interregional mobility mostly concerns a very specific group of commuters. It seems unrealistic to assume that all potential workers are similarly mobile; we cannot rely exclusively on mobility to solve regional disparities.

#### Chart 4

#### Characteristics<sup>1</sup> of interregional commuters

(in % of the corresponding employment, 2015)



Source: Statbel.

<sup>1</sup> Gender: male, female. Education: low educated, medium educated, highly educated. Status: blue-collar workers, private sector employees and civil servants. Net wage: less than € 1 400, € 1 400 - € 2 000, € 2 000 - € 2 600, € 2 600 and more. Branch of activity: health, education, commerce, industry, business services, public administrations, IT, banking and insurance.

## 2. Capital

If the cost of distance is high, that obviously impedes workers' geographical mobility. To gain a fuller idea of the economic integration of the three Regions, we shall also explore other economic flows, starting with capital movements. What is the extent of the financial stakes acquired by private sector firms? Do regional barriers hamper these capital flows?

Detailed individual data from the Central Balance Sheet Office and the Central Business Databank can be used to analyse the investment strategies of private sector firms<sup>1</sup>. Those strategies come in two forms, namely acquisition

<sup>1</sup> In this section, the data relate to 2015. Among the firms acquiring shareholdings, the sample comprises financial and non-financial corporations. The firms owned comprise all businesses, including those in the government sector and in the household sector. The minimum stake is 10%.

of a stake in the share capital of another company, or the setting up of a new establishment<sup>1</sup>. Both cases involve managing a production unit in an area geographically separate from the headquarter.

These data reveal an initial finding: the great majority of private sector firms have no financial stake in other firms. Nor do they have another establishment<sup>2</sup> separate from their headquarter. Thus, almost 90 % of firms are totally independent and autonomous. That percentage does not depend on the Region where the firm is located, as it varies very little from one Region to another (see table 1).

**Table 1**

**Ownership stakes: how many and where?<sup>1</sup>**

(in %, 2015)

	Brussels	Flanders	Wallonia
Standalone single establishment firms	89.2	89.7	91.0
Firms with another establishment or ownership stake (min 10 %)	10.8	10.3	9.0
In their own Region	6.5	9.6	7.6
In another Region	5.8	1.2	2.0
of which Brussels	–	0.6	1.1
Abroad	0.6	0.2	0.2

Source: NBB.

1 Among the firms acquiring shareholdings, the sample comprises financial and non-financial corporations which file annual accounts. The firms owned comprise all businesses, including those in the government sector and the household sector. The minimum stake is 10 %. In general, a firm investing in another Region also invests in its own Region. There is therefore some double counting, which implies that the total of the percentages column exceeds 100 %.

The other 10 % of firms record capital movements. Many of those movements take place within the same Region, or even within the same municipality. That is particularly true in Flanders, where 9.6 % of firms have other establishments or stakes in firms which are also located in Flanders.

Overall, only a small proportion of firms invest in another Region<sup>3</sup>. Brussels is unusual in being home to a large number of operational headquarters. It is therefore unsurprising to find that it has the highest proportion of investor firms, at 5.8 %. In Flanders and Wallonia, 1-2 % of firms own stakes or have establishments in another Region. In almost half of cases, the entity owned is located in Brussels.

For comparison, the percentage of firms owning a stake in a foreign company – referred to as foreign direct investment – is lower. The figure is 0.6 % for Brussels and 0.2 % for Flanders and Wallonia.

The analysis here concerns stakes owned by private sector firms. For completeness, we would point out that the stakes owned are larger in the public sector. That is unsurprising since public authorities frequently conduct activities in all three Regions. Furthermore, we do not consider stakes owned by private shareholders, whose investment profile may be different from that of businesses.

1 In the first case, the firm's activity is recorded under a single company number, whereas in the second case it comes under more than one company number. However, that has no impact on our study.

2 An establishment is any place of activity geographically identifiable by an address where the firm conducts at least one activity. The establishment is therefore any place of business, division or subdivision of the firm (e.g. workshop, factory, warehouse, office, etc.) in a separate location in a geographically specific place. In principle, every firm has at least one establishment referred to here as its headquarter.

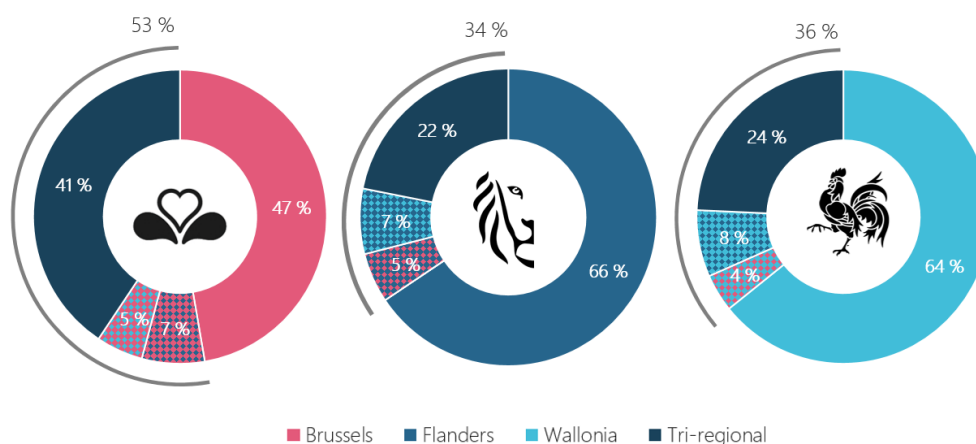
3 For financial stakes in a firm with multiple establishments we take account of all its establishments. For example, a stake in a firm with establishments in Brussels and Flanders means a stake in each of those two Regions.



## Chart 5

### Private sector employment in multi-regional groups<sup>1</sup>

(employment by firm's status, in %, 2015)



Source: NBB.

<sup>1</sup> The sample includes all financial and non-financial corporations. A firm's status (mono, bi- or tri-regional) depends on the presence of establishments or firms in which at least 49 % of the shares are owned in one, two or three Regions respectively.

Most interregional links take the form of the setting up of establishments in other Regions. It is therefore instructive to focus on firms which have establishments in all three Regions. What can we say about them? First, they are few in number. The figure is around 600. That explains the low percentage of interregional stakes in table 1. On the other hand, the firms are large, with an average of more than 800 employees<sup>1</sup>. Altogether, almost 500,000 workers are employed by these firms.

Although these firms are active in the three Regions, they are not necessarily part of a multinational group. On the contrary, only a quarter of these firms record foreign direct investment. These are therefore well-established firms securely based in Belgium. They operate in various sectors of activity, particularly in temporary work agencies, supermarket chains, banks, postal services and transport, etc.

Ultimately, while capital movements between the Regions concern only a few firms, those firms represent a particularly large volume of employment. In both Flanders and Wallonia<sup>2</sup>, over a third of private sector workers are active in bi-regional or even tri-regional groups<sup>3</sup>. The proportion is still higher in Brussels, which is home to the operating headquarters of many large firms (see chart 5).

## 3. Goods and services

We have seen that a small number of workers cross regional borders in order to pursue their activity. In regard to financial stakes, the number of interregional links is low but they concern key firms in terms of economic

<sup>1</sup> 690 employees if temporary work agencies are excluded from the sample.

<sup>2</sup> We refer here to the place of work, not of residence.

<sup>3</sup> A firm's status (mono, bi- or tri-regional) depends on the presence of establishments or firms in which at least 49 % of the shares are owned in one, two or three Regions respectively. In contrast to the analysis in table 1, we have raised the minimum stake from 10 % to 49 % to ensure that we are actually dealing with an integrated group and not minority shareholdings.

weight. What is the situation regarding trade in goods and services between the three Regions? The purpose of this section is to analyse the commercial links between private sector companies and their customer firms<sup>1</sup>. For that purpose, we use detailed individual data on commercial transactions between firms subject to VAT<sup>2</sup>.

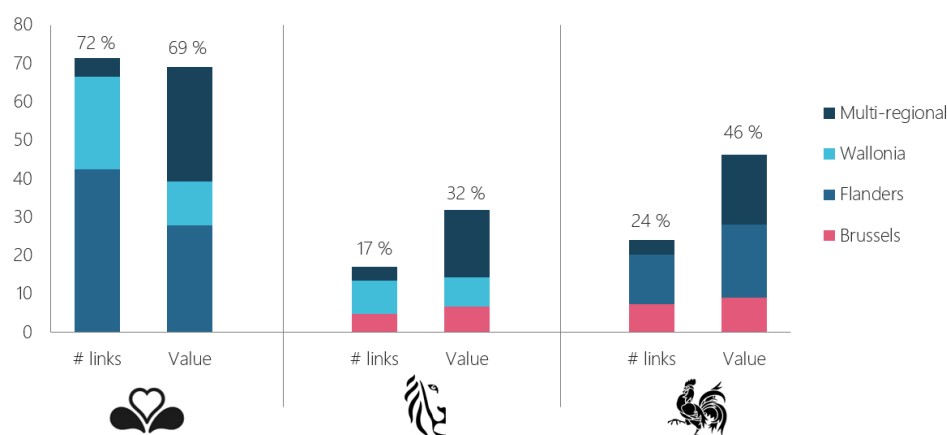
Analysis of the geographical profile of the customer firms again demonstrates the importance of multiregional firms, i.e. those with establishments in more than one Region. In the case of sellers based in Wallonia, 28 % of their turnover comes from customers located in Brussels or in Flanders, and 18 % from multiregional customer firms. Altogether, 46 % of sales concern customer firms whose establishments – or at least some of them – are located in other Regions. The orders of magnitude are lower for Flanders, yet still significant with 32 % of sales potentially outside the Region. They are higher in Brussels which, with a figure of 69 %, is fully integrated at the centre of the country's production chains (see chart 6).

In numbers of customer-supplier relationships, the percentages of sales outside the Region are lower than in value terms. Interregional transactions therefore concern larger amounts, on average, than intraregional transactions. The latter generally take place locally and concern smaller amounts of money.

## Chart 6

### Sales to multiregional firms<sup>1</sup>

(in % of domestic private sector sales, 2014)



Source: NBB.

<sup>1</sup> The sample includes all non-financial corporations (as sellers) and all firms (as buyers). The seller firms are geographically located according to the address of their headquarter.

In the case of multi-establishment customer firms, we have no data on the exact establishments for which the sales are destined. The data are only available for the firms as a whole. The breakdown of a firm's purchases and sales between its various establishments therefore has to be based on assumptions. The key that we shall use is the number of employees per establishment. That is the main key used in the national accounts to compile the regional accounts.

A simple example will illustrate this apportionment key. Let us suppose that firm A has two establishments: the first in Antwerp with 90 employees and the second in Namur with 10 employees. If firm B sells goods worth

<sup>1</sup> In this section, the data relate to 2014. In the case of the sellers, the sample comprises all non-financial corporations. The buyers comprise all firms, including those in the government sector and the household sector.

<sup>2</sup> For more information on these data, see Dhyne, Magerman and Rubinova (2015).

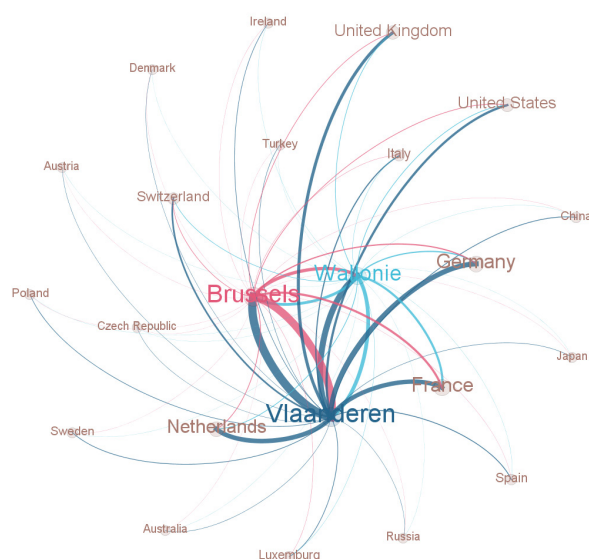
100 euros to this firm A, we assume that sales to the Antwerp establishment total 90 euros and sales to the one in Namur come to 10 euros. The same apportionment key applies to sales. If firm A sells goods worth 100 euros, we assume that the Antwerp establishment's sales come to 90 euros and Namur's come to 10 euros.

This apportionment key enables us to estimate the overall flows per establishment. These transactions can be aggregated per Region of location of the establishments. That gives us orders of magnitude for inter-regional sales of goods and services.

## Chart 7

### Private sector sales outside the Region<sup>1</sup>

(interregional and international<sup>2</sup> sales of goods and services, 2014)



Source: NBB.

1 The sample includes all non-financial corporations (as sellers) and all firms (as buyers).

2 Excluding re-exports.






















To assess the volume of interregional sales by private sector firms it is useful to compare them with international flows, i.e. exports of goods and services. For that purpose, we considered the output exported by the private sector, excluding re-export. Chart 7 shows that interregional flows are substantial compared to international flows. They mean that trade between the three Regions is central to the sales network of Belgian firms, even in comparison with major partner countries.

The other two Regions have a large share of the market in total sales outside their Region by private sector firms. In practice, for establishments located in Flanders, 15 % of total sales outside Flanders are destined for Brussels and 14 % for Wallonia, so that the interregional market comes to 29 %. For comparison, Germany accounts for 10 %, and the Netherlands and France 9 %. The interregional market is even larger for Walloon establishments, amounting to 44 %, namely 26 % destined for Flanders and 18 % for Brussels, compared to 13 % for France, 8 % for Germany and 4 % for the Netherlands. For Brussels, the interregional market accounts for the major share at 57 % of sales outside the Region, namely 39 % destined for Flanders and 18 % for Wallonia, compared to 7 % for the United States, 6 % for France and 5 % for the Netherlands (see table 2).

**Table 2**

**Private sector firms' top 7 markets<sup>1</sup>**

(interregional and international<sup>2</sup> sales of goods and services, in %, 2014)

	Brussels	Flanders	Wallonia
1	 39 %	 15 %	 26 %
2	 18 %	 14 %	 18 %
3	 7 %	 10 %	 13 %
4	 6 %	 9 %	 8 %
5	 5 %	 9 %	 4 %
6	 4 %	 6 %	 4 %
7	 4 %	 5 %	 4 %

Source: NBB.

1 The sample includes all non-financial corporations as sellers and all firms as buyers.

2 Excluding re-exports.

Two complementary figures highlight the importance of the interregional market. In our sample, 6 % of firms export goods or services to other countries, while 55 % of firms sell to at least one other Region. Interregional trade therefore concerns a much larger number of firms than international trade.

Of course, the estimate of interregional flows is exploratory in that it is based on an aggregation of the available firm data. Moreover, these flows include only sales by private sector firms to other firms. They therefore take no account of sales by the government sector and the household sector, or sales to private individuals. Nonetheless, they indicate the importance of the other two Regions as trading partners.

## 4. Flows and barriers

So far, we have described flows of workers, capital, goods and services between the Regions. However, each dimension has been discussed separately. The aim of this section is to offer an estimate of the impediments to economic flows by assessing the cost of distance and regional barriers within a unified framework.

For that purpose, we use a counting variable which can be applied to all types of flow. This variable measures the number of connections between a municipality of origin and a municipality of destination. How many employees resident in municipality A work in municipality B? How many financial links do firms in municipality A have with firms in municipality B? And idem for trade in goods and services.

The maps shown in chart 8 illustrate the counting variables used. They make it possible to determine the main domestic flows for each dimension. We would point out that these maps give the impression that some municipalities have no economic activity. That is obviously not so. To make these maps easier to read, only the main flows – indicated by the counting variable exceeding a certain threshold – were located geographically. Some municipalities are therefore below the threshold and their flows do not appear on the maps. In addition, these maps only represent domestic links, not international ones, but some municipalities have closer links with other countries. That applies in particular to commuters from the province of Luxembourg, almost a third of whom work in the Grand Duchy of Luxembourg.

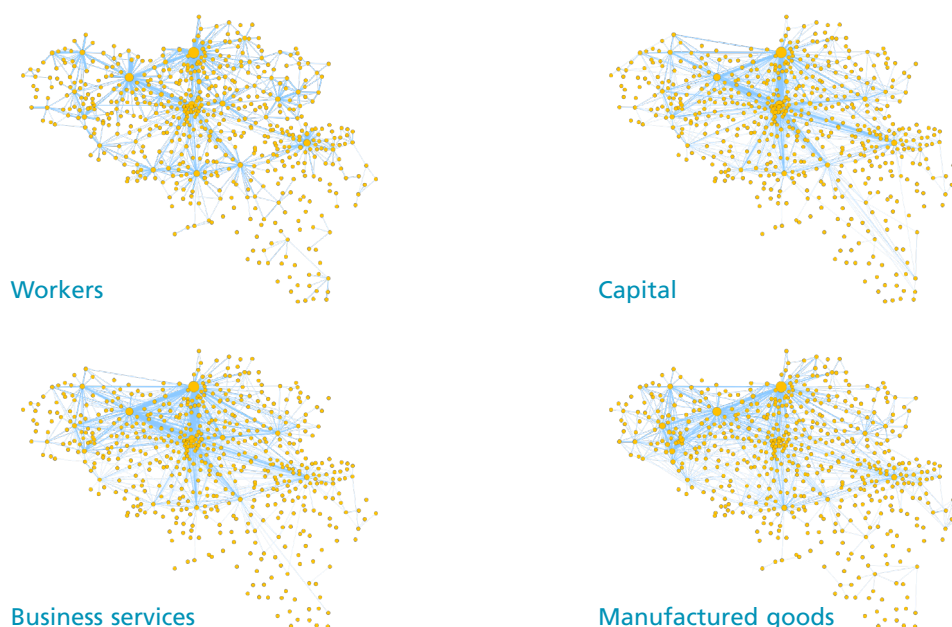
For commuters, the map depicts a star-shaped pattern of movements converging on urban centres at the heart of the provinces. The commuter flows to Brussels can also be clearly identified. It is interesting to compare them with the main capital movements, arranged more like a spider's web with each major city – and especially Brussels – at the centre. The Gent-Antwerpen-Brussels triangle also stands out clearly. The picture is fairly similar for the main flows of services. A distinction was made between business services and manufactured goods because their flows are geographically different. Trade in industrial goods centres more on Antwerpen (and its port), with a key axis linking Antwerpen-Gent-Kortrijk, and the two industrial areas of Charleroi and Liège in Wallonia.

Although these maps provide an illustration, they only represent the main flows, covering between 25 % and 40 % of the total flows depending on the dimension. Neither do they illustrate the flows within a single municipality, but the number of intra-municipal links is substantial. Moreover, they tell us nothing about pairs of municipalities for which no flows are observed. If there is no record of any movements between two municipalities, that is not down to chance but is very often due to a significant geographical distance.

## Chart 8

### Main domestic flows<sup>1</sup>

(2015)



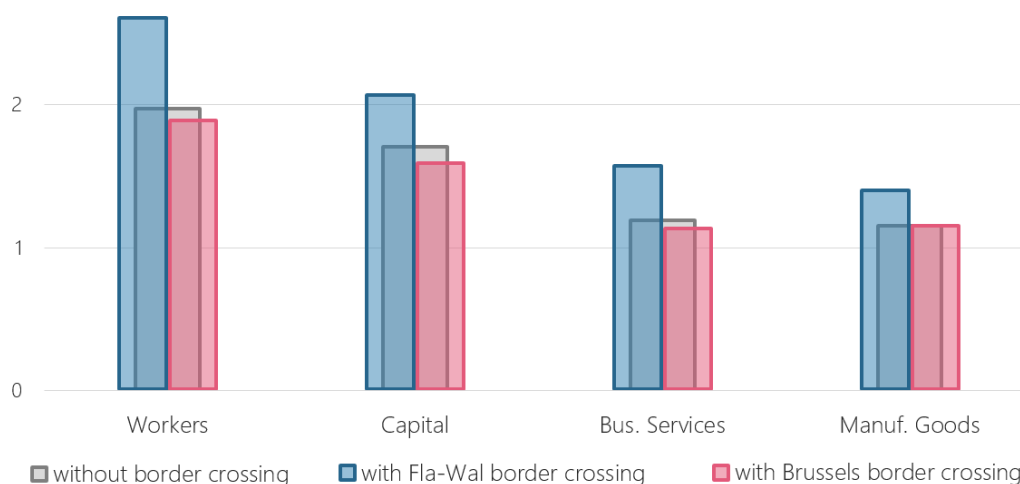
Source: NBB.

<sup>1</sup> Count data expressed as the total number of links between municipality A and municipality B by adding together the number of links from A to B and from B to A. For workers, the sample includes all employees. For goods and services, the sample includes all non-financial corporations (as sellers) and all firms (as buyers). For capital, among the firms acquiring shareholdings, the sample comprises financial and non-financial corporations. The firms owned comprise all businesses, including those in the public sector and the household sector.

Chart 9

# Cost of distance<sup>1</sup>

(elasticities, 2015)



Source: NBB.

<sup>1</sup> Results from a Poisson model of the number of links between any pair of municipalities on the cost of distance and the regional border crossing. For workers, the sample includes all employees. For goods and services, the sample includes all non-financial corporations (as sellers) and all firms (as buyers). For capital, among the firms acquiring shareholdings, the sample comprises financial and non-financial corporations. The firms owned comprise all businesses, including those in the public sector and the household sector.

To estimate the impact of the distance between municipalities of origin and destination and the crossing of regional boundaries, we analysed all the links between all possible pairs of municipalities, even if the flow is zero. That information was incorporated in a unified model to assess the cost of distance and the regional barriers. That unified model permits comparisons between the dimensions.

The table in the annex shows the model results. To make them easier to read, the coefficients are given in chart 9. The estimate of the cost of distance is an elasticity. It measures the percentage decline in the number of links if the distance increases by 1 %.

As expected, the cost of distance is highest for workers. Capital flows are in second place. Intuitively, we might expect capital mobility to be greater. That is not so, and there are two explanations. At the level of the real economy, firms tend to prefer to conduct their business close to their operating base. Financial stakes and establishments are relatively numerous in the city where they have their main place of business. Next, there is a financial reality because some firms create financial vehicles with a separate company number. However, these financial vehicles are generally located close to their operating base. They therefore reinforce the geographical proximity of financial stakes. Finally, services and goods make up the most mobile flows. It is interesting that goods and services have a fairly similar coefficient. For services, two tendencies operate in opposing directions. The provision of some services requires frequent interaction and geographical proximity, whereas for others which are more digitalised, distance is less of a factor.

Apart from the cost of distance, flows are also diminished by the border crossing between Flanders and Wallonia<sup>1</sup>. There is therefore a barrier between these two Regions. It is mainly an impediment to commuters,

<sup>1</sup> The cost of distance which includes a border crossing is equivalent to that which would be obtained by travelling a distance of 20 km and crossing the border in question.

to a moderate extent to capital and services, and to a lesser extent to trade in manufactured goods. Although this regional barrier does exist, it is less significant than the cost of distance. Conversely, there is no penalty for flows crossing the Brussels border (whether from Flanders or from Wallonia). On the contrary, Brussels exerts a power of attraction and the crossing of its regional border offsets the cost of distance to a small degree.

## Conclusions

The aim of this article was to describe the economic flows between the Regions of Belgium.

An initial finding is that, at the time of globalization, distance is still an impediment to economic flows. Even in a small country like Belgium with well-developed transport networks and no natural barriers, the number of workers, financial stakes, and trade in goods and services declines significantly with the number of kilometres to be travelled.

In addition to this cost of distance there is a barrier between Flanders and Wallonia, which does exist but is not dominant. The barrier is higher for commuters, moderate for capital and services, and lower for manufactured goods. Conversely, there is no penalty affecting movements between Brussels and the other two Regions. On the contrary, the Brussels Region exerts a strong attraction for workers and businesses from other Regions, so much so that it partly offsets the costs associated with distance.

While regional barriers may exist, it must be said that interregional flows are greater than flows with other countries. The number of cross-border commuters is small. Compared to interregional flows, foreign direct investment and exports of goods and services concern a much smaller group of firms.

What can be done to reduce the regional barrier between Flanders and Wallonia and the cost of distance? Language learning and harmonisation of legislation would undoubtedly help. It should be noted that the data used in this article relate to 2014 and 2015, when powers were transferred to the Regions but there were few divergences in legislation. Will that still be true in the future?

Another way of increasing mobility is to improve the transport infrastructures or develop new technologies. More specifically for workers, tele-working or flexible time schedules may also have a favourable effect. However, it is not easy to have a significant impact on the cost of distance. It will always make economic sense for workers to minimise the distance, time and cost of travel between home and work. Numerous studies also mention other factors, such as mismatches in terms of skills and education, labour market rigidities in terms of transition to work, wage-setting mechanism or incentives to work. Reforming the taxes on property could also play a key role – in reducing the relatively high transaction costs – by promoting move close to the workplace.

In general, the question of mobility is multidimensional. Today, it can no longer be separated from the environmental issue. And it forms part of a wider debate on the geographical organisation and the efficiency of the labour market and the production of goods and services.

## Annex

### Does gravity matter? <sup>1</sup>

(2015)

	Workers	Capital	Business Services	Manufactured goods
	(1)	(2)	(3)	(4)
Distance	-1.973*** (0.009)	-1.707*** (0.015)	-1.190*** (0.011)	-1.150*** (0.007)
Flanders/Wallonia border crossing	-1.829*** (0.024)	-1.024*** (0.031)	-1.081*** (0.015)	-0.694*** (0.009)
Brussels border crossing	0.313*** (0.042)	0.408*** (0.056)	0.209*** (0.028)	0.041 (0.029)
Municipalities FEs	Yes	Yes	Yes	Yes
# obs	346 921	346 921	346 921	346 921

Source: NBB.

Standard errors in brackets: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

<sup>1</sup> Table reports results from a PPML regression of the number of links between any pair of municipalities on the (log) distance, the regional border crossing and both municipalities of origin and destination fixed effects. For workers, the sample includes all employees. For goods and services, the sample includes all non-financial corporations (as sellers) and all firms (as buyers). For capital, among the firms acquiring shareholdings, the sample comprises financial and non-financial corporations. The firms owned comprise all businesses, including those in the public sector and the household sector.



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