ECONOMIC REVIEW
December 2019

National Bank OF BELGIUM
Eurosystem

ECONOMIC REVIEW
December 2019

National Bank OF BELGIUM
Eurosystem

Contents

Economic projections for Belgium – Autumn 2019

Introduction

It has now become clear that the world economy has decelerated sharply this year. Recent estimates suggest that global growth (excluding the euro area) has dropped below 3 %, which is close to 1 percentage point lower than in 2018. In addition, the slowdown in world trade was even worse and trade volumes have actually declined in certain quarters and, at best, seem to have been growing only marginally in annual terms in 2019. The weakness in trade partly reflects changes in the composition of global output and, in particular, the widespread decline in manufacturing production, that is typically traded more than services. However, it also happened against the background of increasing trade restrictions and a broader trend towards less globalisation. The former also adversely affect trade growth through the uncertainty that they create. The latter is witnessed, inter alia, by the tentative evidence that global value chains are at the very least expanding at a slower pace, which also weighs on trade growth. All in all, the international environment is clearly worse than had been assumed in the previous Eurosystem and ECB projection exercises and, hence, the growth outlook for the euro area has been consistently revised downwards throughout the year.

However, in the euro area domestic demand and the services industries have so far generally been more resilient than trade and manufacturing. Growth in economic activity has declined markedly but has not turned negative. This is largely due to the ongoing labour market expansion and rising incomes. At the same time, financial market conditions have been broadly favourable throughout the year. Stock markets have posted strong gains and sovereign yields have fallen further, on the back of strong monetary accommodation in several parts of the world, including the euro area. Partly as a result of the slowdown in world demand, oil prices have come down from the high levels observed in mid-2018 and have not shown any sustained recovery despite several major supply disruptions.

At the time of writing, the signals coming from the short-term indicators for the global and euro area economy remain mixed. Some indicators suggest that the manufacturing recession has reached its trough. In addition, early statistics on economic activity in the third quarter have surprised on the upside for certain countries. In the euro area, this was the case for Germany where output remains almost flat but a second consecutive quarter of negative growth has been avoided and growth in the euro area as a whole stayed constant at a moderate 0.2 %. On the other hand, short-term indicators also indicate that the weakness in manufacturing is now at least partly spilling over to services. Confidence in the latter industry has clearly deteriorated after the summer. More importantly, employment growth has now fallen to the slowest pace since the start of the upturn of the euro area economy in 2013. This could further weaken the resilience of domestic demand.

Against that background, the December 2019 Eurosystem projections – of which the Bank's projections for Belgium presented in this article are part – point to continued low but positive growth in the euro area into the first quarter of 2020. Still, the common assumptions for these Eurosystem projections see a gradual and slow rebound in world trade, so that growth in euro area foreign demand will recover somewhat in the second half of the projection period. In addition, market interest rates should rise only gradually, while oil prices slowly

decline throughout the projection period. According to the new Eurosystem projections and on the basis of these assumptions, euro area growth is projected to fall to just above 1 % this year and in 2020. However, the assumed recovery in world trade would fuel euro area exports and annual activity growth would shoot up to 1.4 %, a level that is closer to the potential growth rate, in the two following years. Inflation has declined sharply this year due to the deceleration in energy prices. However, underlying domestic cost pressures, related to relatively high wage growth in particular, will gradually push up inflation in the projection period, although it will still fall clearly short of 2 % at the end of 2022.

These projections for the euro area – but also for Belgium – are largely conditioned by the aforementioned common assumptions. In this connection, it should be noted that the recent projections by both the EC and the OECD are clearly more pessimistic for the medium term and do not see a strong pick-up in euro area growth in 2021. The balance of risks for the Eurosystem projections seems clearly tilted to the downside. Renewed disruptions of international trade, increasing geopolitical tensions or a no-deal Brexit could lead to lower growth than foreseen in the projections.

Turning to Belgium, growth has been remarkably robust of late. Looking through the volatility in the revised national accounts and taking into account the first estimates for the third quarter of this year, the Belgian economy expanded by about 0.4 % in the last four quarters. Despite the weakening in business confidence since early 2018 and in sharp contrast to the euro area and the recent estimates of all relevant institutions, the Belgian economy has in fact not decelerated at all according to the current statistics. While growth is estimated to edge down somewhat in the fourth quarter to a level that is more in line with our assessment of the short-term indicators, annual growth for 2019 has been revised marginally upwards compared to our June 2019 projections to 1.3 %. Activity growth will then edge down gradually to 1 % by 2022. The further slowdown in business investment, in line with the weaker fundamentals, is only partially offset by two other elements. Private consumption growth rises temporarily due to the current boost in real incomes but loses traction in the outer years of the projection period, while rising foreign demand pushes up exports but the impact is mitigated due to growing losses in export market shares by the end of the projection period.

Employment growth has already decelerated slightly compared to the peak in job creation in 2017 even if the employment intensity of activity growth still edges up this year. Going forward, increases in activity will be supported more by a recovery of productivity, as employment growth slows. This is mostly due to the recent and projected acceleration in labour costs, but also because the still important impact of supply constraints on the labour market, as witnessed by the high level of vacancies, will make it increasingly difficult for firms to find suitable staff. The harmonised unemployment rate, which – on the basis of a survey – measures the number of people actually seeking work, has fallen to an exceptionally low level not seen since the 1970s. As the continuing expansion of the labour force – due partly to the measures aimed at limiting early departure from the labour market – is more or less keeping pace with job creation, the unemployment rate will remain particularly low throughout the projection period, despite the weakening activity growth.

Inflation is lowered this year by the strong deceleration in energy prices. However, core inflation has edged up in 2019 and is projected to rise gradually until 2022, even though, just as in the past, the sharp rise in labour costs will not be fully reflected in inflation as this will be partly offset by a moderation in profit margins. However, the latter should still be above their long-term average at the end of the projection period.

Finally, turning to public finances, the budget deficit has fallen to just 0.7 % of GDP, but this largely reflects the strong rise in advance payments by businesses in the context of the increased surcharge on any shortfall in those advance payments. As this temporary factor unwinds and higher prepayments are offset by lower tax settlements, the budget deficit widens again as of 2019. The trend increase in pensions and other social transfers, as well as the structural revenue decline due to the reduction of the corporate tax rates, more than offsets the continuing fall in interest charges on the outstanding debt. By the end of the projection period, the deficit is expected to increase to 2.8 % of GDP, which is a long way off the target of a structurally balanced budget. In addition, taking the most recent EC projections for the other countries up to 2021 as a benchmark, only Italy will have a marginally higher budget deficit

than Belgium by that year. The fiscal worsening also means that the government debt ratio does not decline and debt becomes larger than GDP again by 2022. Here, it should be pointed out that, in accordance with the Eurosystem rules for these projection exercises, account is only taken of measures which, on the cut-off date for the estimates, the government has already specified in sufficient detail and has formally approved, or is very likely to approve.

1. The international environment and technical assumptions

The macroeconomic projections for Belgium described in this article are part of the joint Eurosystem projections for the euro area. That projection exercise is based on a set of technical assumptions and forecasts for the international environment drawn up jointly by the participating institutions, namely the ECB and the national central banks of the euro area. The assumptions are based on information available as at 20 November 2019.

1.1 World economy and trade

After decelerating sharply in the second half of last year, global economic growth has remained subdued in 2019, on the back of trade policy uncertainty and heightened geopolitical tensions. While mainly affecting manufacturing, the sluggishness of economic activity has been broad-based across countries despite policy stimulus adopted in a number of major economies. Growth outside the euro area seems to have dipped below 3 % this year, almost 1 percentage point lower than in 2018 and the lowest rate since the recession.

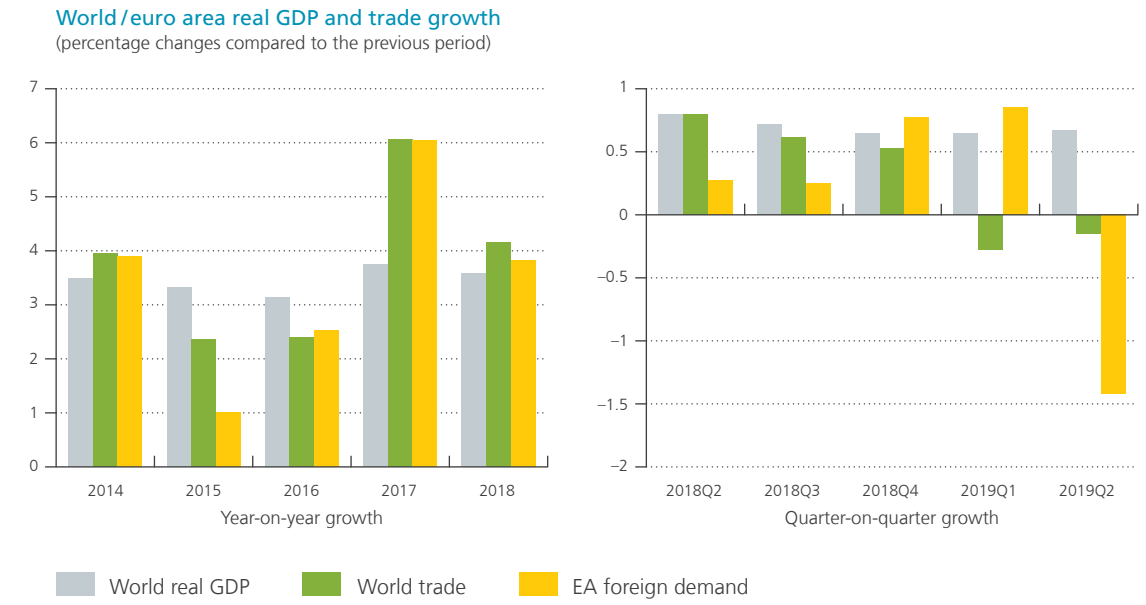
In the advanced economies, economic activity has lost momentum in the second half of last year and continued to expand only moderately in the course of this year. In the US, growth has moderated, on average, as the boost from the 2017-2018 fiscal stimulus is fading. Economic activity remained sluggish in the euro area, dragged down by a slump in the German economy, and in the UK, where Brexit-related uncertainties have continuously weighed on investment. By contrast, the Japanese economy accelerated somewhat in the first two quarters, driven by solid domestic demand. In emerging market economies, economic growth has gradually decelerated. Battling with weakened domestic spending and prolonged trade tensions with the US, China's economic expansion officially fell to 6 % in the third quarter, its weakest rate in almost three decades. In the same vein, India's growth dropped to a seven-year low, dragged down by stagnating investment and a big fall in consumption. Following a major contraction in the second half of 2018, the Turkish economy recovered, on the back of improved financial conditions and fiscal and credit support. At the same time, the Argentinian economy continued to contract, as it suffered from a sharp deterioration of financial conditions and high inflation.

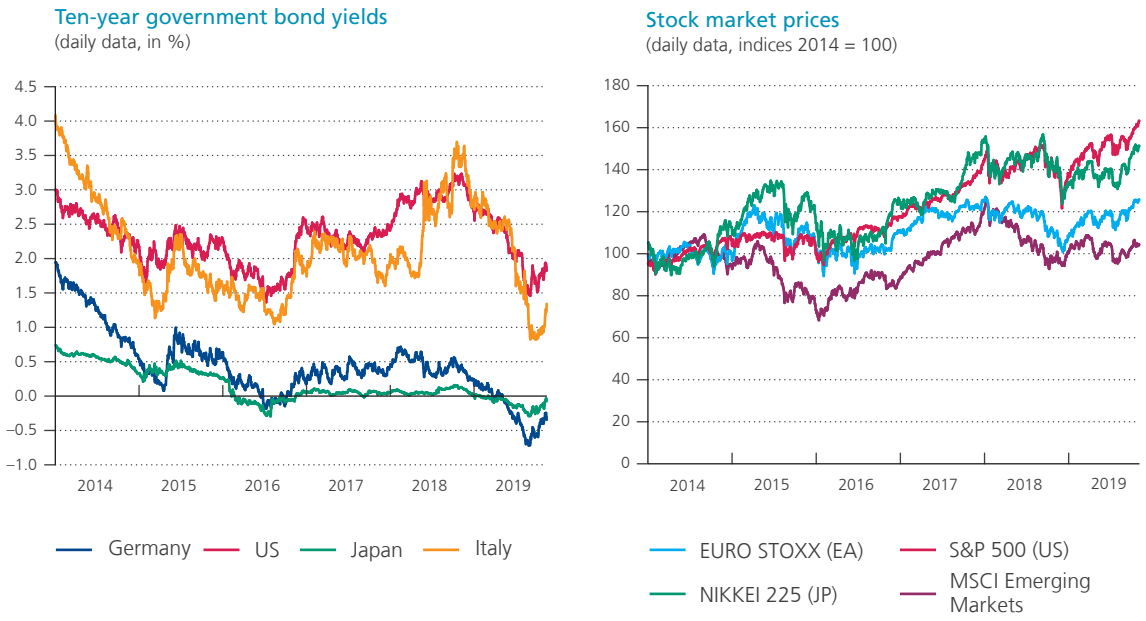
However, most international organisations see global growth picking up very gradually over the medium term, even though it should remain below its historical average. According to the Eurosystem assumptions, global activity would expand by 3.4 % annually in the outer years of the projection period. In advanced economies, activity is projected to continue to slow down gradually, mostly as a result of the fading cyclical momentum, as well as diminishing policy support. In addition, China – the largest emerging market economy – is estimated to continue its transition towards a lower but more sustainable growth path, notwithstanding increasing policy stimulus. However, these downward forces should be broadly offset by a rebound in several other emerging market economies that are recovering from past recessions. While the overall outlook for growth is relatively benign, it comes with great uncertainty and, in particular, significant downside risks.

Escalating trade tensions and the global slowdown in industrial production have weighed heavily on international trade growth, which turned negative in the middle of 2019. The decline in the volumes of goods imported was broad-based but emerging Asia, including China, has been particularly affected. The slowdown in global trade is also partly due to composition effects in world output, with reduced investment spending, as well as a downturn in car production and sales. A slowdown in the development of global value chains also weighs on trade growth.

Chart 1

The global economy, trade and developments on the financial markets





Sources: Eurosystem, Refinitiv.

Considering the weakness in forward-looking indicators for trade, such as export orders in manufacturing, global trade growth is expected to remain subdued throughout the rest of the year. However, over the medium term, global imports are projected to gradually pick up, although they would expand at a slower pace than global activity until the end of the projection period. The expected recovery of world trade is mirrored by the growth path of euro area foreign demand and Belgian export markets, with the latter being an important determinant of the macroeconomic projections for Belgium in the medium term. Belgian export market growth has slowed down (or even turned negative) in recent quarters, but, in accordance with the Eurosystem common assumptions, it is set to bottom out and rebound slightly going forward.

Table 1

The international environment

(annual percentage changes)

	2018	2019 e	2020 e	2021 e	2022 e
World (excluding euro area) real GDP	3.8	2.9	3.1	3.3	3.4
World (excluding euro area) trade	4.6	0.0	0.8	2.4	2.7
Euro area foreign demand [1]	3.8	0.7	1.0	2.3	2.6
Belgium's relevant export markets [1]	3.4	1.8	1.7	2.5	2.7

Source: Eurosystem.

1 Calculated as a weighted average of imports of trading partners.

1.2 Technical assumptions about exchange rates, interest rates and commodity prices

Global equity markets have rebounded sharply after the decline in 2018, even though there has been some volatility in 2019 as well with markets mostly reacting to developments in the US-China trade talks. On the back of broad-based monetary easing and dovish communication by several central banks, financial conditions have improved, overall, especially in advanced economies. Government bond yields have further declined across the board – moving clearly into negative territory in some cases –, leading to a further flattening of the yield curve. In the euro area, financial asset prices have been supported by the announcement of a new policy package by the Eurosystem, at its September 2019 meeting. Meanwhile, the Italian spread has eased significantly since a new government was formed.

The euro has been rather volatile over the last few months, with no clear trend in nominal effective terms. It showed higher volatility relative to Sterling, against persistent uncertainty regarding the Brexit outcome. Owing to higher risk aversion over the summer, it has depreciated slightly against safe-haven currencies, namely the Japanese yen and the US dollar. After a significant rebound at the beginning of 2019, oil prices slipped again during the summer, falling below $ 60 per barrel on the back of the deteriorating outlook and persistent trade tensions between the US and China and despite various supply disruptions that only caused temporary price hikes.

In the Eurosystem projections, bilateral exchange rates are assumed to remain unchanged over the projection horizon at the average levels prevailing in the last ten working days before the cut-off date. In the case of the US dollar, this implies an exchange rate of $ 1.10 to the euro. As usual, the assumptions concerning commodity prices take account of market expectations as reflected in forward contracts on the international markets. At the cut-off date, markets expected prices per barrel of Brent crude oil to come down slightly from their current level, to around $ 56 by 2022.

The interest rate assumptions are also based on market expectations. The three-month interbank deposit rate has been in negative territory since end-2015. Markets currently expect the interbank deposit rate to stay negative, around the current level, until the end of the projection horizon. Long-term yields on Belgian government bonds have reached an all-time low recently and are expected to rise only slightly in the coming years. Similarly, bank interest rates on business investment loans and household mortgage loans should remain favourable and increase only marginally during the projection period.

On balance, the current Eurosystem assumptions are clearly less favourable than those used in the Bank's spring 2019 macroeconomic projections, mainly on account of the worsened outlook for external demand.

Table 2

Technical assumptions

(annual averages; in %, unless otherwise stated)

	2018	2019 e	2020 e	2021 e	2022 e
EUR/USD exchange rate	1.18	1.12	1.10	1.10	1.10
Oil price (US dollars per barrel)	71.1	63.8	59.6	57.4	56.8
Interest rate on three-month interbank deposits in euro	–0.3	–0.4	–0.4	–0.4	–0.3
Yield on ten-year Belgian government bonds	0.8	0.2	0.1	0.3	0.4
Business loan interest rate	1.6	1.5	1.6	1.6	1.7
Household mortgage interest rate	1.9	1.8	1.7	1.8	1.9

Source: Eurosystem.

1.3 Estimates for the euro area

According to the Eurosystem's current estimates and in line with the recent high-frequency indicators, euro area growth will remain subdued in the final quarter of 2019 and only pick up mildly afterwards. This projected recovery as of next year will be supported by the assumed rebound in world trade, favourable financing conditions in the context of the very accommodative monetary policy stance, as well as fiscal stimulus measures in various countries. In annual terms, real GDP growth should bottom out at just above 1 % in 2020 but jump to 1.4 % in the outer years of the projection period. As domestic demand is projected to grow at a broadly steady pace, the acceleration is due to the disappearance of the negative growth contribution of net exports as euro area exports will benefit from the recovery in world trade.

Inflation has fallen sharply this year, on the back of the strong deceleration in energy prices. Core inflation is again virtually unchanged at 1 % on average. In the following years, robust wage growth and recovering profit margins should lead to a gradual increase in core inflation. Total inflation will be held back in 2020 by a further deceleration of energy prices but should rise in the 2021-2022 period, while remaining clearly below the 2 % level at the end of the projection horizon.

While recent employment growth has been very vigorous, it has lost some momentum since the spring of 2019 due to the slowdown in activity, robust growth in labour costs and increasing labour supply constraints. Job creation will remain rather subdued over the projection horizon. However, activity growth will be supported by the gradual recovery in labour productivity. Labour force growth is projected to moderate. While it is boosted by net migration and the expected integration of refugees, as well as the increasing labour market participation, the impact of population ageing will gradually weigh more heavily on the labour force. The unemployment rate will continue to decline steadily to just above 7 % by 2022, which is lower than the pre-crisis level.

The average budget deficit in the euro area had declined to 0.5 % of GDP in 2018 but will more than double in the projection period, despite the further decline in interest charges. The worsening of the deficit is mostly due to cuts in direct taxes and increases in transfers. The fall in the government debt ratio is expected to continue, supported by the low level of interest rates : in 2022, the debt ratio will have contracted by more than 11 percentage points compared to its 2014 peak.

Table 3

Eurosystem projections for the euro area

(percentage changes compared to the previous year, unless otherwise stated)

	2018	2019 e	2020 e	2021 e	2022 e
Real GDP	1.9	1.2	1.1	1.4	1.4
Household and NPI final consumption expenditure	1.4	1.3	1.4	1.3	1.2
General government final consumption expenditure	1.1	1.5	1.6	1.5	1.5
Gross fixed capital formation	2.4	4.5	1.7	1.9	2.1
Exports of goods and services	3.3	2.3	1.9	2.5	2.6
Imports of goods and services	2.7	3.1	2.5	2.8	2.8
Inflation (HICP)	1.8	1.2	1.1	1.4	1.6
Core inflation [1]	1.0	1.0	1.3	1.4	1.6
Domestic employment	1.5	1.1	0.6	0.5	0.4
Unemployment rate [2]	8.2	7.6	7.4	7.2	7.1
General government financing requirement (–) or capacity [3]	–0.5	–0.7	–0.9	–1.1	–1.1

Source : ECB.
1 Measured by the HICP excluding food and energy.
2 In % of the labour force.
3 In % of GDP.

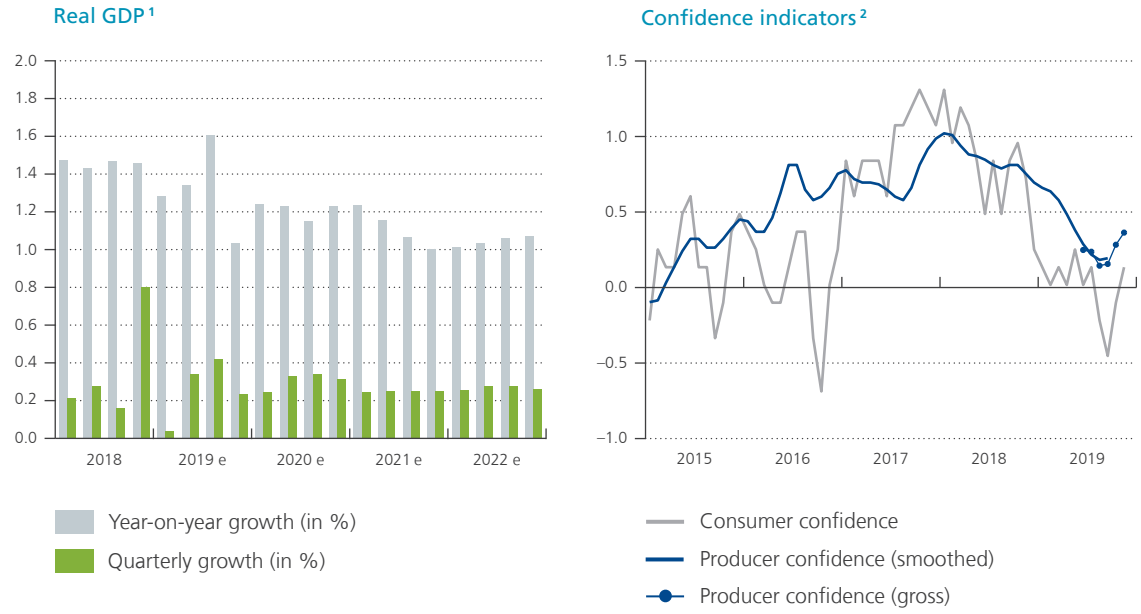
2. Activity and demand

While the euro area economy slowed down again from the second quarter of the year, Belgian activity growth remained more robust : the Belgian economy expanded at an average quarterly rate of 0.4 % in the last four quarters and, in fact, did not decelerate compared to the previous one-year period. The first statistics on the growth rate of activity in the third quarter (0.4 %) constitute an upward surprise with respect to the Spring 2019 projections (that were also anchored to trade assumptions that turned out to be too optimistic) and, more importantly, to the more recent short-term estimate in the September 2019 NBB Business Cycle Monitor that saw growth edging down to 0.2 %.

Compared to the euro area as a whole and the main neighbouring countries, but also in view of the significant softening of the confidence indicators since early 2018, the recent Belgian growth performance is quite remarkable. However, our current short-term assessment sees Belgian growth moderating somewhat in the final quarter of 2019 to 0.2 %, a rate that seems more in line with the current levels of the high-frequency indicators, despite the uptick in recent months. This would still imply an annual growth rate of 1.3 % for 2019, i.e. marginally higher than the estimate in the Bank's spring projections, notwithstanding the less favourable external environment.

Chart 2

GDP and confidence indicators



Sources: NAI, NBB.

1 Data adjusted for seasonal and calendar effects.

2 Data normalised on the basis of the long-term average and the standard deviation.

Similar to the euro area, growth is projected to remain sluggish until the first quarter of 2020. The current projections then point to the growth rate edging up somewhat to 0.3 %, fuelled by higher private consumption and foreign demand. Activity will then gradually slow down again in the outer years of the projection period. In annual terms, growth will gradually fall to 1 % by 2022. The annual growth rates for the 2019-2021 period are almost unchanged compared to the Bank's spring projections. The negative impact of the less favourable external assumptions is broadly offset by the higher growth in the third quarter and somewhat stronger government expenditure growth.

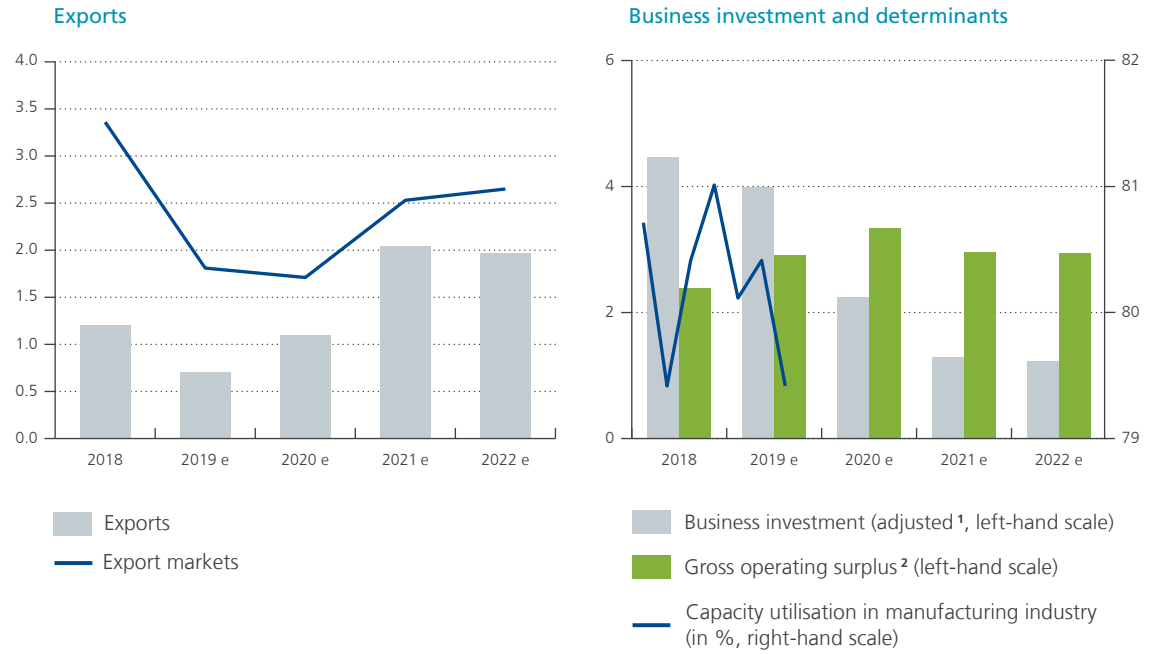
Turning to demand components, growth in the years ahead will continue to be driven mainly by domestic demand, although this component's contribution to growth will gradually weaken. Net exports continue to weigh on growth during the entire projection horizon. As described in chapter 1, Belgium's export market growth will increase going forward, which spurs export growth. However, the latter is held back as export market shares are projected to decline. Labour costs will increase at a sustained rate and export firms' cost competitiveness will evolve less favourably than in recent years. Import growth continues to outpace export growth, but to a somewhat lesser extent towards the end of the projection horizon, considering that domestic demand is expected to soften.

Private consumption, which is the most important component of final demand, has been subdued until the first quarter of 2019 but accelerated thereafter. It is still projected to grow strongly in the near term but lose some traction in the coming years in line with income developments. From 2019 to 2022, real household disposable income grows by a cumulative 7 %, with a peak in 2019. While real incomes are fuelled by continued employment growth and rising wages, the peak in disposable income in 2019 is partly due to the built-in lags in the indexation mechanisms in combination with declining inflation: as wages and replacement incomes are typically indexed on the basis of past higher inflation rates, real incomes are temporarily boosted. In addition, the third phase of the tax shift has come into force in January 2019 and has further increased take-home pay. While real wages are set to continue rising, the expansion of employment will ultimately moderate and lead to

Chart 3

Exports and business investment

(volume data adjusted for seasonal and calendar effects, percentage changes compared to the previous year)



Sources: NAI, NBB.

1 Adjusted to take account of major transactions in specific investment goods with other countries.

2 In nominal terms.

lower growth of labour income. Property incomes, that are usually saved to a larger extent, will also contribute positively to the growth of household incomes, albeit to a limited extent, as interest rates are expected to edge up only marginally.

Households tend to only gradually adjust their spending to rising incomes and typically aim to smooth out volatility in income growth. In this connection, private consumption is rising more slowly than households' purchasing power in 2019. This generates a strong upswing in the savings ratio this year, to over 13 %. In the following years, the savings ratio edges down again slightly as consumption grows somewhat stronger than real disposable income.

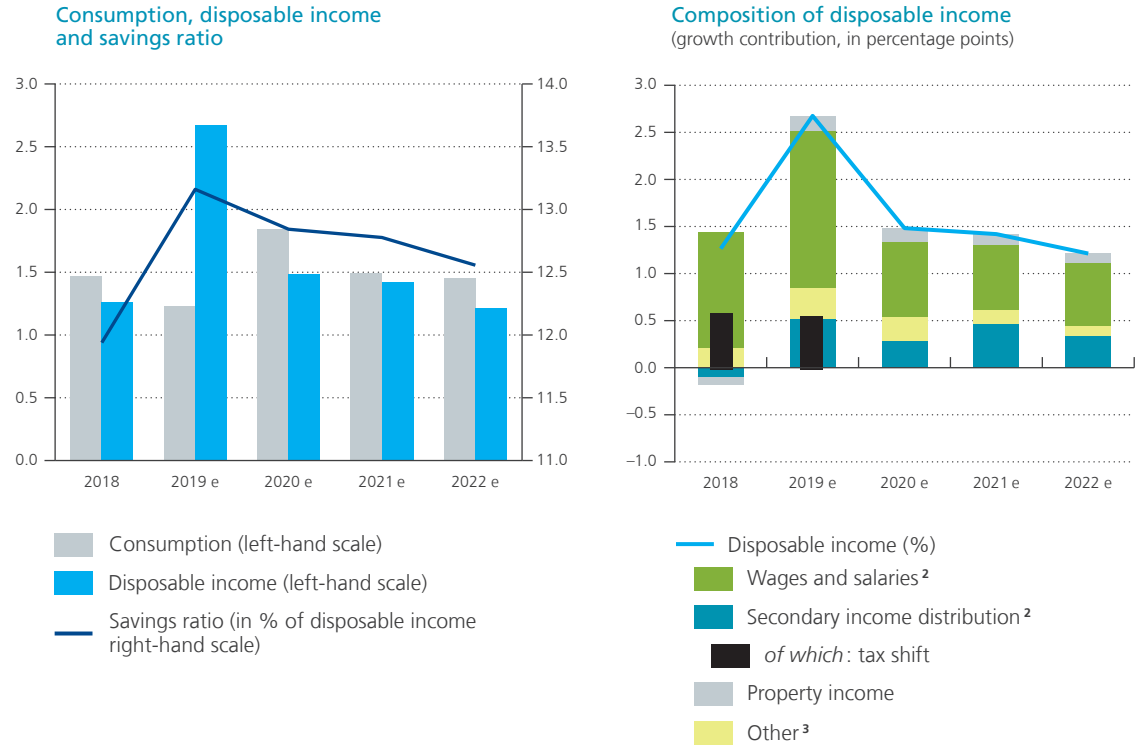
Business investment growth has been very buoyant in recent years, which seems unsustainable in the long-run, especially considering the relatively weaker demand prospects. Moreover, costs are on the rise and, as usual in Belgium, are expected to be only partially passed on in (selling) prices, which implies a slowdown in margin growth. Also, the capacity utilisation indicator in manufacturing seems to have passed its peak, which indicates that investment in additional production capacity is becoming less urgent.

Turning to another domestic demand component, household investment in new dwellings or renovation projects posted exceptionally strong growth this year, which may be related to search-for yield effects in the low interest rate environment. Although mortgage rates would remain favourable, moderating purchasing power should weigh on household investment as well.

Chart 4

Household consumption and disposable income [1]

(volume data adjusted for seasonal and calendar effects, percentage changes compared to the previous year, unless otherwise stated)



Sources: NAI, NBB.

1 Data deflated by the household consumption expenditure deflator.

2 Excluding social contributions payable by employers.

3 "Other" comprises the gross operating surplus and gross mixed income (of the self-employed).

Finally, as regards public expenditure, public consumption is growing more strongly this year, partly as a result of an acceleration of health care spending that had been curbed in recent years due to various government measures. In the following years, public consumption should moderate somewhat again. Public investment growth is, as usual, affected by the local electoral cycle: following the sharp acceleration in 2018, in the run-up to the local elections, investment growth is considerably lower in 2019. For 2020, and especially for 2021, account is being taken of more substantial spending on a number of major public investment projects, e.g. in connection with the Oosterweel link infrastructure project around Antwerp.

As usual, according to the technical assumption adopted for all the quarters covered by the projection period, the growth contribution of changes in inventories is set at zero, particularly in view of the great statistical uncertainty surrounding this concept.

Table 4

GDP and main expenditure categories

(volume data adjusted for seasonal and calendar effects; percentage changes compared to the previous year, unless otherwise stated)

	2018	2019 e	2020 e	2021 e	2022 e
Household and NPI final consumption expenditure	1.5	1.2	1.8	1.5	1.5
General government final consumption expenditure	0.9	1.9	1.3	1.2	1.3
Gross fixed capital formation	4.0	3.8	1.8	1.8	1.1
General government	10.6	–2.5	0.8	5.9	–0.5
Housing	1.0	5.9	0.8	1.6	1.5
Businesses	3.9	4.2	2.3	1.3	1.2
p.m. Domestic expenditure excluding the change in inventories[1]	*1.9*	*2.0*	*1.7*	*1.5*	*1.3*
Change in inventories[1]	0.3	–0.5	0.0	0.0	0.0
Net exports of goods and services[1]	–0.7	–0.2	–0.4	–0.4	–0.3
Exports of goods and services	1.2	0.7	1.1	2.0	2.0
Imports of goods and services	2.1	0.9	1.6	2.5	2.3
Gross domestic product	1.5	1.3	1.2	1.1	1.0

Sources: NAI, NBB.

1 Contribution to the change in GDP compared to the previous year, percentage points.

3. Labour market

After five years of uninterrupted strong job creation, domestic employment will expand by a further 67 000 units in 2019. Already high in previous years, the employment intensity of activity growth is estimated to have risen even more, to above 1, in 2019. However, employment growth itself is projected to moderate gradually and economic growth will be supported more and more by increasing labour productivity.

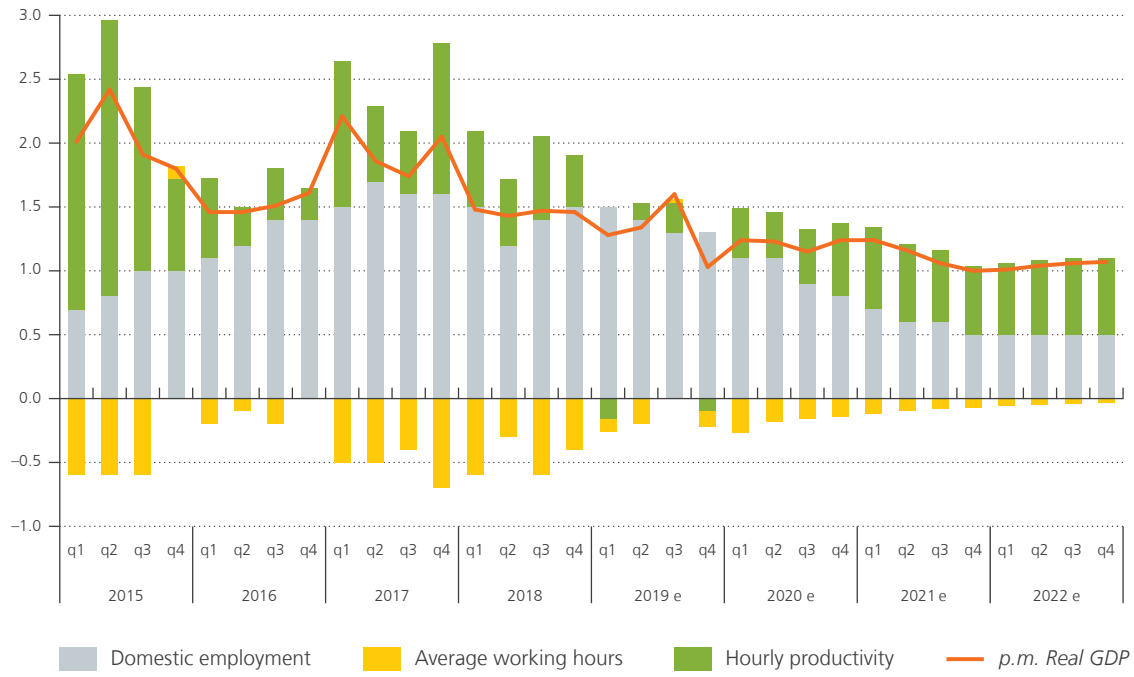
The slowdown of employment growth in the projection period not only reflects the slowing pace of activity growth, but also a return to a more standard level of employment intensity of growth against the backdrop of the recent acceleration in wage costs and the fading impact of reforms to boost the effective labour supply. In addition, after years of strong job creation combined with a steep fall in unemployment, labour shortages affecting certain occupations and particular segments of the labour market are still holding back the expansion of employment, even though labour demand pressure should decline over the projection horizon, as economic growth slows down.

In this context, average working time will decline slowly over the projection period. This is mainly related to a trend for self-employed workers. While the latter work more hours than employees, on average, there has been a sharp drop in the average working time of the self-employed since 2012. This can be largely traced back to changes in the composition of the self-employed workforce and, in particular, the fast-growing number of retired people that combine their pension with a professional activity under the status of self-employment, as well as the growing number of second jobs as self-employed for salaried workers: in both cases, this typically takes the form of a part-time arrangement. The average working time of employees is also expected to decrease, but to a lesser extent than that of self-employed workers.

Chart 5

Domestic employment, working time and productivity

(contribution to GDP growth, percentage points, data adjusted for seasonal and calendar effects)



Sources: NAI, NBB.

All in all, 169 000 jobs will be created over the 2019-2022 period, almost a third less than in the previous four years. The branches sensitive to the business cycle are contributing the most to job creation, but this increase is projected to decline over the projection horizon. The number of self-employed is also projected to decelerate, although to a lesser extent than the number of employees, thanks to the success of liberal professions and more generally the development of new forms of self-employment. In addition, the acceleration in wage costs obviously only weighs on the growth of salaried workers.

The strong job creation, coupled with a slower growth of the working age population, pushed up the harmonised employment rate from 67.2 % in 2015 to 69.7 % % in 2018. This upward trend is expected to continue to more than 72 % in 2022. The Belgian EU2020 objective of 73.2 % will not be reached, however.

The number of unemployed job-seekers is expected to decline by a further 63 000 over the projection period, but this is mainly driven by the gradual departure from the active population of a large cohort of unemployed persons aged 63 and over entering retirement. The harmonised unemployment rate – which measures the number of people actually seeking work on the basis of a survey – should be much less affected by this phenomenon as a large part of those older people currently disappearing from the unemployment figures were not actively looking for a job in the past either. This rate is projected to further decline this year to a historically low level of 5.5 %. Even though employment growth loses traction it should remain broadly constant thereafter and reach 5.4 % at the end of the projection period.

Table 5

Labour supply and demand

(seasonally adjusted data; change in thousands of persons, unless otherwise stated)

	2015	2016	2017	2018	2019 e	2020 e	2021 e	2022 e
Total population	59	57	54	55	54	53	51	47
Working age population [1]	16	16	12	13	13	11	9	6
Labour force	21	33	49	36	48	23	22	14
Domestic employment	40	58	76	66	67	47	30	25
Employees	30	46	64	53	51	32	18	13
Branches sensitive to the business cycle [2]	19	28	38	37	32	18	6	1
Administration and education	0	2	9	4	3	3	2	2
Other services [3]	12	16	17	11	15	11	10	10
Self-employed	10	12	12	13	17	15	13	11
Unemployed job-seekers	–19	–26	–28	–30	–20	–24	–8	–11
p.m. Harmonised unemployment rate [4, 5]	*8.6*	*7.9*	*7.1*	*6.0*	*5.5*	*5.4*	*5.4*	*5.4*
Harmonised employment rate [4, 6]	*67.2*	*67.7*	*68.5*	*69.7*	*70.8*	*71.6*	*71.9*	*72.2*

Sources: FPB, NAI, NEO, Statbel, NBB.

1 Population aged 15-64 years.

2 Agriculture, industry, energy and water, construction, trade, hotels and restaurants, transport and communication, financial activities, property services and business services.

3 Health, welfare, community, public social services, personal services and domestic services.

4 On the basis of data from the labour force survey.

5 Job-seekers in % of the labour force aged 15-64 years.

6 Persons in work in % of the total population of working age (20-64 years).

4. Costs and prices

4.1 Labour costs

Labour costs started to rebound as of 2017, after years of strong moderation via various government measures. In the 2017-2018 period, the increase in negotiated wages was still quite limited and clearly below the ceiling imposed by the nationwide wage norm. For 2019, however, negotiated wage growth seems to be somewhat higher than projected in the Bank's projection exercise last June. Information published by the Federal Public Service Employment, Labour and Social Dialogue points to a rapid translation of the 2019-2020 nationwide wage norm into industry agreements. Based on this, negotiated wages are expected to increase by 0.7 % in 2019. As it is still assumed that the maximum wage margin of 1.1 % for the period 2019-2020 will be fully used, the distribution of the wage increases over those years has therefore been adjusted, with slower wage growth of just 0.4 % in 2020. As regards negotiated wages in the 2021-2022 period, a technical assumption of a minor acceleration to 1.2 % in this two-year period was used, taking into account the macroeconomic situation, developments on the labour market with continued low unemployment and the expected productivity growth. In line with the more usual distribution over the two-year period covered by a wage norm, a somewhat stronger increase is projected for 2022 than in 2021.

Nominal wages are pushed up by indexation in 2019 in particular. This reflects the spike in the health index in the second half of 2018 and at the beginning of 2019, which is passed on only later to wages due to the usual time lags in indexation mechanisms. As indicated earlier, this has boosted real incomes in 2019. Given the expected

moderate growth of the health index near the end of 2019 and in 2020, the impact of indexation is projected to be significantly lower in 2020 but should pick up again in 2021 and 2022. Wage drift should also have a positive, albeit small, impact on hourly labour costs. This reflects, amongst other elements, the fact that the workforce is getting older, which leads to higher wages, as the latter are typically linked to seniority and/or age.

Finally, further steps in the tax shift still reduce employer-paid payroll contributions in 2019 and 2020, albeit to a more limited extent than in 2018. In 2020, this is due to an increase in a specific wage subsidy in the construction sector.

All in all, hourly labour costs increase quite significantly this year, by just under 2.5 %, due to the aforementioned strong indexation effect. They are expected to decelerate next year but gain traction again in the last two years of the projection period. Productivity is flat in 2019 but then increases at a broadly constant rate until 2022.

Table 6

Price and cost indicators

(percentage changes compared to the previous year, unless otherwise stated)

	2018	2019 e	2020 e	2021 e	2022 e
Private sector labour costs [1]:					
Labour costs per hour worked	1.5	2.4	1.2	2.1	2.5
of which:					
Negotiated wages	0.4	0.7	0.4	0.5	0.7
Indexation	1.7	1.8	1.0	1.5	1.6
Social contributions [1]	–0.8	–0.2	–0.3	0.0	0.0
Wage drift and other factors	0.2	0.1	0.1	0.1	0.1
p.m. Labour costs per hour worked according to the national accounts [2]	*1.5*	*2.5*	*1.6*	*2.1*	*2.5*
Labour productivity [3]	0.6	0.0	0.5	0.6	0.6
Unit labour costs [1]	0.8	2.4	0.8	1.5	1.9
Total inflation (HICP)	2.3	1.3	1.3	1.5	1.7
Core inflation [4]	1.3	1.5	1.5	1.7	1.8
of which:					
Services	1.6	1.8	1.8	2.2	2.3
Non-energy industrial goods	0.8	1.0	1.0	1.1	1.2
Energy	8.9	–0.8	–0.3	–0.7	–0.2
Food	2.7	1.3	1.6	1.9	2.0
p.m. Inflation according to the national index (NCPI)	*2.1*	*1.4*	*1.3*	*1.5*	*1.6*
Health index [5]	1.8	1.5	1.3	1.6	1.7

Sources: EC, FPS Employment, Labour and Social Dialogue, NAI, Statbel, NBB.

1 Labour costs are not shown here according to the national accounts concept but according to a broader concept that also includes reductions in contributions for target groups and wage subsidies. That concept gives a better idea of the true labour cost for firms.

2 Excluding wage subsidies and reductions in contributions for target groups.

3 Value added in volume per hour worked by employees and the self-employed.

4 Measured by the HICP excluding food and energy.

5 Measured by the national consumer price index excluding tobacco, alcoholic beverages and motor fuel.

All in all, growth in unit labour cost peaks in 2019. Given the projections for hourly labour costs and productivity, it moderates as of next year but unit labour cost growth remains clearly more buoyant than the increases seen in the years preceding the projection period.

4.2 Prices

Accelerating unit labour costs exert upward pressures on prices but stylised facts suggest that, in the past, movements in unit labour costs were partly offset by changes in profit margins. The latter had expanded strongly up to 2016, as the reduction in unit labour costs was not entirely passed on to consumer prices. The current projections suggest that profit margins will not grow anymore but remain broadly constant up to 2022 at a level that exceeds the historical average. This reduces domestic inflationary pressures.

Nevertheless, the decline in core inflation observed in the final months of the summer, should be only temporary. Core inflation should be fuelled by the recent and future increases in wage costs and rise gradually throughout the projection period to just below 2 % by end-2022.

This can be mainly traced back to services inflation, which is more sensitive to domestic cost pressures. At the start of 2019, it accelerated strongly, notably due to a base effect : as of January 2018, the radio and television licence fee was abolished in the Walloon Region, which moderated the inflation rate for that year as a whole. Since the second half of 2019, services inflation has moderated somewhat, owing notably to lower price increases for restaurants, bars and hotels, package holidays and transport services. However, it picked up again in October and while it should still stay somewhat subdued until well into 2020, it should rise gradually throughout the projection period. Prices of non-energy industrial goods typically react less to domestic cost pressures than those of services and, hence, they should increase significantly less.

While the pick-up in core inflation should be reflected in total inflation, the latter is also affected by price developments of the more volatile components. This is the case in 2019 in particular, as total inflation drops significantly despite the uptick in core inflation. The reason is a big slowdown in energy inflation, that turned out negative in the second half of the year. Oil prices are on average lower than in 2018 while gas prices have also fallen, mostly due to increased supplies of (shale) gas. In addition, reduced distribution fees have curbed electricity prices. Energy inflation should not change much over the projection horizon. Due to the aforementioned assumption for Brent prices based on oil futures, in particular, oil prices should continue to fall very gradually up to 2022.

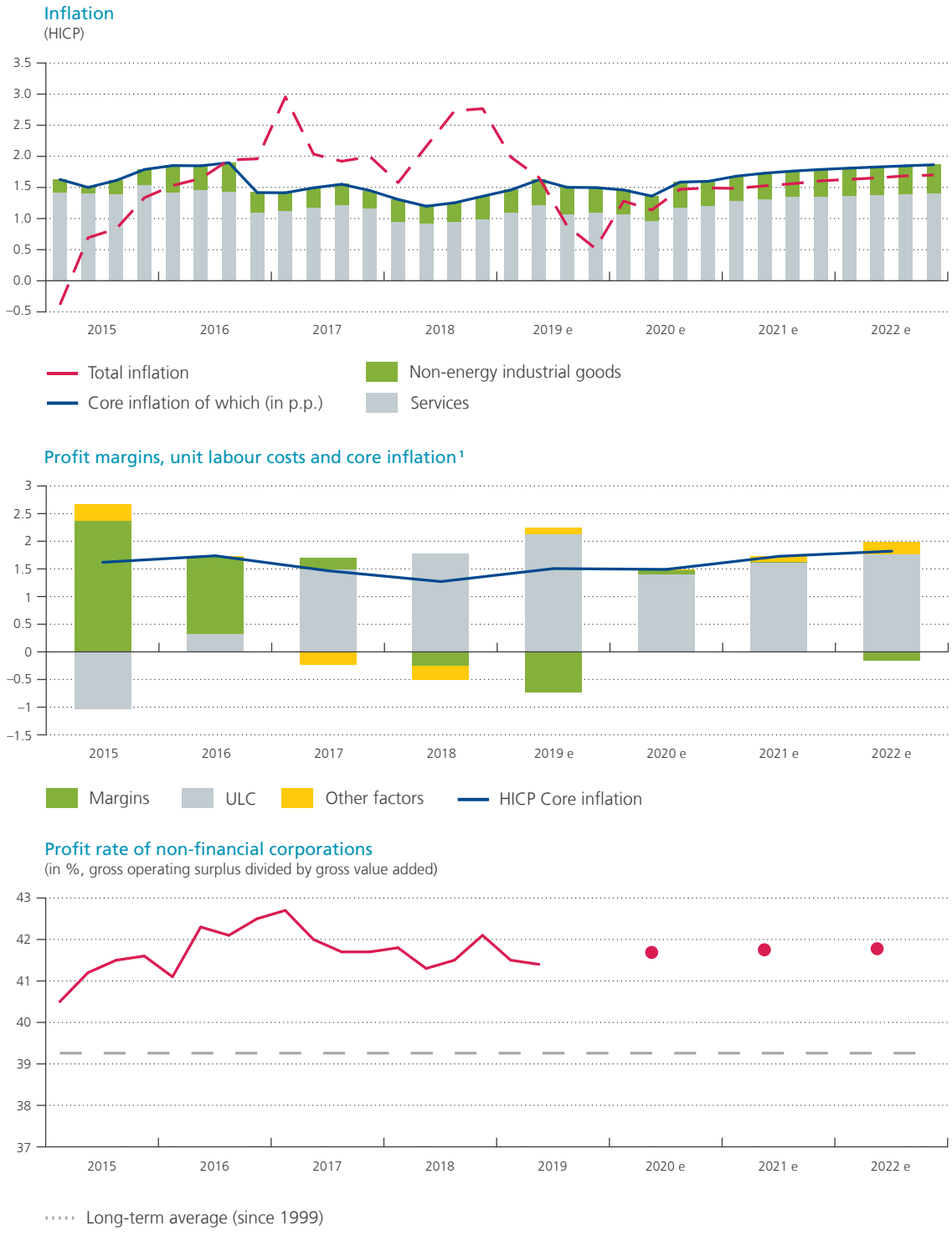
Food inflation also contributed, albeit to a lesser extent, to the divergence between core and total inflation in 2019. At the start of the year, average food inflation has declined due to a base effect : in January 2018, food inflation was boosted by an increase in the so-called sugar tax on soft drinks introduced in 2016. Moreover, excise duties on tobacco have been raised more moderately in 2019 than the year before. Food inflation should pick up a little to about 2 % by 2022.

All in all, total inflation should rebound over the projection horizon, in line with the developments for core inflation. The above analysis pertains to the HICP, which permits comparison of inflation rates across the EU member countries. Inflation measured according to the Belgian national consumer price index (NCPI) may deviate slightly from that figure owing to methodological differences. The NCPI is used to calculate the health index, which excludes tobacco, alcoholic beverages and motor fuels, and serves as a reference for price indexation of wages and replacement incomes. The growth rate of the health index should continue to moderate in 2020, after which it will pick up again. The different evolution of the HICP and the national indices is notably due to a different treatment of heating oil in the calculation of the index : the NCPI (and hence the health index) applies the so-called "payment approach", that uses the average price over the past 12 months as reflected in the annual invoices actually paid by consumers. In the HICP, heating oil is calculated using the "acquisition approach", which means taking into account the prices at the time inflation is calculated.

Chart 6

Inflation and determinants

(percentage changes compared to the previous year, unless otherwise stated)



Sources: EC, NAI, NBB.

1 The chart is inspired by an article in the Bulletin of the Banque de France no. 225 (September/October 2019) by Diev, Kalantzis and Lalliard: "Why have strong wage dynamics not pushed up inflation in the euro area?". Margins are defined as GDP deflator growth minus unit labour cost growth. "Other factors" are mainly determined by changes in the terms of trade excluding energy and food, and by price differences between private consumption and other domestic demand components such as government consumption and investment. The term "other factors" also comprises a statistical adjustment due to differences between the consumption deflator and the HICP inflation.

5. Public finances

5.1 Budget balance

According to the latest estimates, the public finances will end the year 2019 with a deficit of 1.6 % of GDP, more than doubling the previous year's deficit. In the macroeconomic context described above, the general government budget deficit is expected to increase in the coming years.

Table 7

General government accounts

(in % of GDP)

	2018	2019 e	2020 e	2021 e	2022 e
General government					
Revenue	51.4	50.4	50.1	49.9	49.9
Primary expenditure	50.0	50.1	50.5	50.8	51.1
Primary balance	1.4	0.3	–0.4	–0.9	–1.2
Interest charges	2.1	1.9	1.8	1.6	1.5
Financing requirement (–) or capacity	**–0.7**	**–1.6**	**–2.1**	**–2.6**	**–2.8**
Overall balance per sub-sector					
Federal government [1]	–0.2	–1.3	–1.8	–2.1	–2.3
Social security	0.0	–0.1	0.0	0.0	0.0
Communities and Regions [1]	–0.4	–0.2	–0.4	–0.5	–0.5
Local authorities	–0.1	0.0	0.1	0.0	0.0

Sources: NAI, NBB.

1 These figures include the advances on the regional additional percentages on personal income tax although, according to the methodology of the ESA 2010, those advances are regarded as purely financial transactions and the regional additional percentages are only taken into account at the time of tax settlement.

Revenue is estimated to have dropped sharply in 2019, and should then further decline until 2021 and remain stable thereafter. Corporation tax revenue is set to normalise after the temporary hike in 2017 and 2018. The tax burden on labour is being further reduced via the tax shift aiming to improve firms' competitiveness and to promote employment, the final phase of which is scheduled for 2020. Primary expenditure is expected to gradually rise over the projection horizon, while interest charges will continue to decline.

The deficits are expected to occur mainly at the level of the federal government, although the Communities and Regions sub-sector will also continue to record deficits during the projection period. In contrast, the local government and social security accounts should remain broadly in balance.

As usual, the projections are based on the assumption of no change in policy. Consequently, they only take account of budget measures which have already been announced and specified in sufficient detail. Hence, the measures decided by the Communities' and Regions' governments are integrated, while there are no new measures for the federal government and social security as a federal government agreement had still not been reached at the cut-off date for these projections.

5.2 Revenue

Government revenue is expected to decline by 0.9 percentage point of GDP in 2019 and by an additional 0.3 and 0.2 of a percentage point in respectively 2020 and 2021. In 2022, the revenue ratio should broadly remain stable and hover around half of GDP.

Table 8

Public revenues

(in % of GDP)

	2018	2019 e	2020 e	2021 e	2022 e
Fiscal and parafiscal revenues	44.2	43.2	42.9	42.8	42.8
Levies applicable mainly to labour incomes	24.4	24.2	24.3	24.3	24.3
Personal income tax	10.9	10.6	10.8	10.7	10.8
Social contributions	13.5	13.6	13.6	13.5	13.5
Taxes on corporate profits	4.3	3.7	3.5	3.4	3.4
Levies on other incomes and on assets	4.0	3.8	3.7	3.7	3.7
Taxes on goods and services	11.5	11.4	11.4	11.4	11.4
of which:					
VAT	6.8	6.7	6.7	6.8	6.9
Excise duty	2.7	2.6	2.6	2.5	2.5
Non-fiscal and non-parafiscal revenues	7.2	7.2	7.2	7.1	7.1
Total revenues	51.4	50.4	50.1	49.9	49.9

Sources: NAI, NBB.

The drop in government revenue in 2019 is mainly due to the decline in corporation tax receipts. Indeed, revenue collected from the corporation tax settlements is set to decline, that being the corollary of the higher advance payments in 2017 and 2018 – resulting in a temporary rise in corporation tax revenues in both years – due to the increase in the basic tax surcharge rate applied to inadequate advance payments. Additionally, measures relating to the tax shift have resulted in a 0.3 percentage point of GDP reduction in revenue from personal income tax. Moreover, revenue from VAT and excise duties are both down by 0.1 percentage point of GDP, while the low interest rate environment has had a negative impact on withholding tax receipts.

The fall in the revenue ratio in 2020 is caused by an additional decline in corporation tax receipts due to the offsetting impact of the rise in advance payments in 2018, and the impact of the December 2017 reform, lowering the standard Belgian corporate tax rate to 25 % in 2020 (2021 tax year). Additionally, the levies on other income and on assets will decrease as a result of the Constitutional Court's ruling to abolish the tax on securities accounts.

In 2021, the introduction of the Flemish "job bonus" – a tax break for taxpayers on low incomes – will reduce personal income tax revenue.

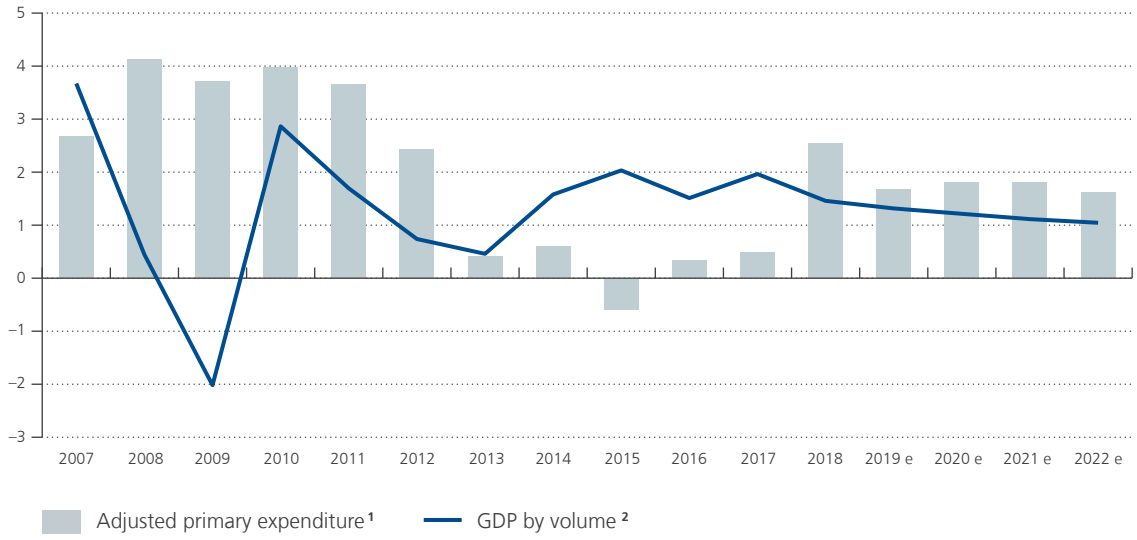
5.3 Primary expenditure

The primary expenditure ratio is expected to go up slightly to 50.1 % of GDP in 2019. Spending growth should just exceed growth of economic activity. The rapid growth of spending on pensions and health care is the main driver behind the increase in expenditure, but its impact is tempered by a decline in public investment, which had been boosted in the run-up to the municipal and provincial elections in October 2018. In addition, no indexation of social benefits and public sector wages is envisaged until 2020, and that will have a moderating effect on the expected expenditure trend for 2019.

Chart 7

Primary expenditure of general government and GDP

(percentage changes compared to the previous year)



Sources: NAI, NBB.

1 Primary expenditure deflated by the GDP deflator and adjusted for cyclical, one-off and fiscally neutral factors, and for the effect of indexation. The latter is due to the difference between the actual indexation (or the theoretical figure for 2015 and 2016, as a result of the approved index jump) of civil service pay and social benefits and the increase in the GDP deflator.

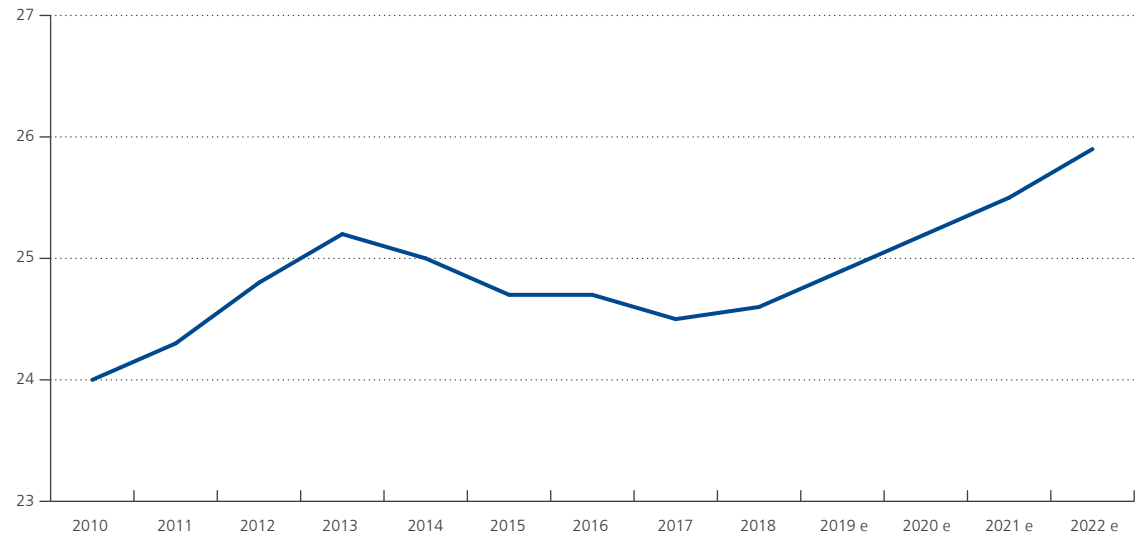
2 Calendar adjusted data.

Under unchanged policy conditions, the spontaneous expansion of primary expenditure is expected to exceed the GDP growth rate in the period from 2020 to 2022, leading to an increase in the expenditure ratio. This situation is due mainly to the drift in social benefits resulting from population ageing. Demographic pressure on pensions, other social benefits and health care expenditure (itself also fuelled by the cost of new treatments) combined with the welfare adjustments will place a heavy burden on public finances. In recent years, it has been possible to neutralise the demographic pressure on social benefits by strict control of spending on health care, the 2015 index jump and the fall in unemployment.

Chart 8

Social benefits

(in % of GDP)



Sources: NAI, NBB.

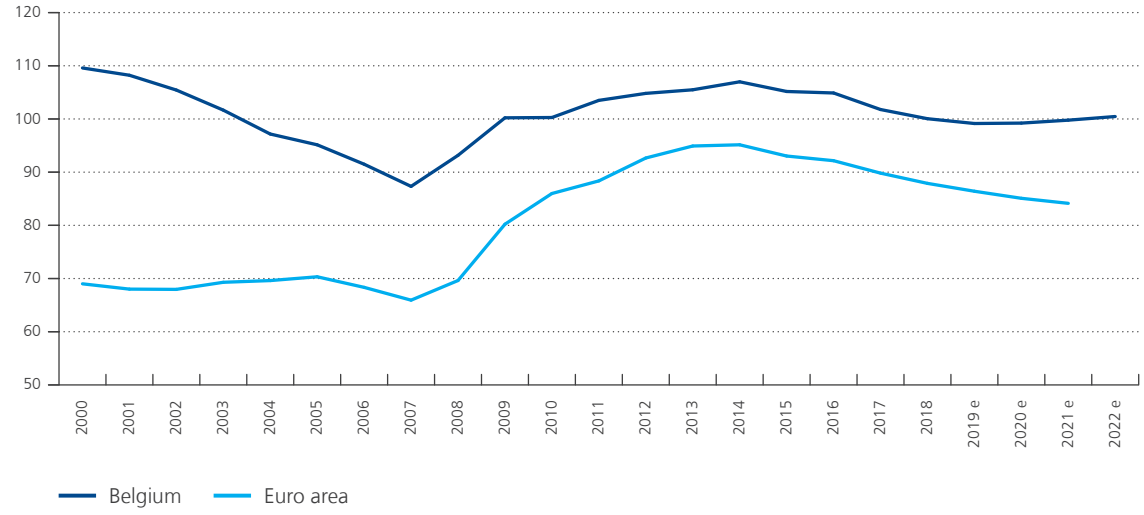
5.4 Debt

In 2018, the public debt ratio declined to 100 % of GDP. A modest reduction in the debt ratio is expected for 2019, but the trend will most likely reverse for the rest of the forecast horizon.

Chart 9

Consolidated gross debt of general government

(in % of GDP)



Sources: EC, NBB.

In 2019, debt expressed as percentage of GDP will fall to 99.1. After that, it will increase again, to 100.5 % in 2022. The initial favourable impact of the primary balance will quickly fade over the projection period, as the surplus is much smaller in 2019 and should turn into a deficit from 2020 onwards.

Based on the latest EC forecasts, the debt ratio is expected to decline in the euro area, resulting in a widening gap between Belgium and the euro area.

Conclusion and risk assessment

The Eurosystem's autumn 2019 projections point to very subdued growth in the euro area until well into 2020 and a rebound afterwards. Against this backdrop, a gradual deceleration of Belgian economic growth in the coming years, to just 1 % by 2022, is projected. Revisions with respect to the previous growth projections in June 2019 are, all in all, limited.

Domestic demand will still be the primary driver of Belgian GDP growth in the coming years. Household consumption picks up due to increases in purchasing power and accelerating healthcare costs are causing an expansion of government consumption. Nevertheless, consumption growth cannot fully compensate for the gradual normalisation of the corporate investment cycle and the continuously negative growth contribution of net exports.

Table 9

Comparison with the estimates of other institutions

(in %)

Institution	Publication date	GDP growth (in volume)				Inflation (HICP, unless otherwise mentioned)			
		2019	2020	2021	2022	2019	2020	2021	2022
Federal Planning Bureau [1]	September 2019	1.1	1.1			1.5	1.4		
Belgian Prime News	September 2019	1.1	0.9			1.2	1.2		
IMF	October 2019	1.2	1.3	1.3		1.5	1.3	1.5	
EC	November 2019	1.1	1.0	1.0		1.3	1.4	1.4	
OECD	November 2019	1.3	1.1	1.1		1.3	1.1	1.5	
Consensus Economics	December 2019	1.2	1.0	1.2		1.4	1.3	1.6	
NBB	December 2019	1.3	1.2	1.1	1.0	1.3	1.3	1.5	1.7

1 Economic Budget (September 2019) for 2019-2020. The inflation rates are the NCPI figures.

The Bank's growth estimates are more or less in line with the most recent forecasts by the other institutions. The higher estimate of 2019 annual growth can be traced back to the positive surprise of third-quarter growth, which could not be reflected in the projections that were released in September or October. However, despite the convergence in views regarding the medium-term outlook, the uncertainty stays high.

As regards the international environment, risks continue to be tilted to the downside. At the current juncture, short-term indicators send out mixed messages. Certain confidence indicators seem to suggest that the recession in euro area manufacturing may be bottoming out. At the same time, there are tentative signs that the weakness in manufacturing is spilling over to other industries as confidence in the services

industry has softened after the summer. In addition, the slowdown in job growth may start to erode the resilience of domestic demand in the euro area. Finally, further trade restrictions would of course weigh on both the euro area and Belgian growth outlook.

At the domestic level, risks appear to be more balanced. First, in 2019, private consumption growth remains clearly lower than the increase in household disposable income (boosting the savings rate) and is projected to slightly outpace it thereafter. Given the recent strengthening of consumption growth, a risk on the upside could be that households, with their rising incomes (in 2019 in particular), consume more than currently expected for the coming years. Regarding investment, both residential and business investment may slow down less than foreseen in the current projections, given continued favourable financing conditions and taking into account past upward surprises. Finally, government expenditure growth is currently projected to contribute significantly to GDP growth over the coming years. However, given the projected large structural deficit throughout the projection period, it is clear that future governments will need to restore balance to public finances. The size and nature of those measures will determine how the Belgian growth outlook will be affected.

Annex

Projections for the Belgian economy: summary of the main results

(percentage changes compared to the previous year, unless otherwise stated)

	2018	2019 e	2020 e	2021 e	2022 e
Growth (calendar adjusted data)					
Real GDP	1.5	1.3	1.2	1.1	1.0
Contributions to growth:					
Domestic expenditure, excluding change in inventories	1.9	2.0	1.7	1.5	1.3
Net exports of goods and services	–0.7	–0.2	–0.4	–0.4	–0.3
Change in inventories	0.3	–0.5	0.0	0.0	0.0
Prices and costs					
Harmonised index of consumer prices	2.3	1.3	1.3	1.5	1.7
Health index	1.8	1.5	1.3	1.6	1.7
GDP deflator	1.5	1.6	1.5	1.6	1.6
Terms of trade	–1.0	–0.2	0.2	0.2	0.1
Unit labour costs in the private sector [1]	0.8	2.4	0.8	1.5	1.9
Hourly labour costs in the private sector [1]	1.5	2.4	1.2	2.1	2.5
Hourly productivity in the private sector	0.6	0.0	0.5	0.6	0.6
Labour market					
Domestic employment (annual average change in thousands of persons)	65.7	67.2	47.0	30.4	24.8
Total volume of labour [2]	0.9	1.3	0.8	0.5	0.5
Harmonised unemployment rate (in % of the labour force aged 15 years and over)	6.0	5.5	5.4	5.4	5.4
Incomes					
Real disposable income of individuals	1.3	2.7	1.5	1.4	1.2
Savings ratio of individuals (in % of disposable income)	11.9	13.2	12.8	12.8	12.6
Public finances					
Primary balance (in % of GDP)	1.4	0.3	–0.4	–0.9	–1.2
Budget balance (in % of GDP)	–0.7	–1.6	–2.1	–2.6	–2.8
Public debt (in % of GDP)	100.0	99.1	99.2	99.8	100.5
Current account (according to the balance of payments, in % of GDP)	–1.0	–1.4	–2.0	–2.1	–2.3

Sources: EC, NAI, Statbel, NBB.

1 Including wage subsidies (mainly reductions in payroll tax) and targeted reductions in social contributions.

2 Total number of hours worked in the economy.

Low wage growth in the euro area: main conclusions from an ESCB Wage Expert Group with a focus on Belgium

J. Jonckheere
Y. Saks (*)

Introduction

Since 2012, inflation has been surprisingly moderate, particularly in the euro area, falling to very low levels considering the recovery in economic activity and giving rise to a "missing inflation puzzle" (Constâncio, 2015, Cicarelli and Osbat, 2017). Similarly, a "wage growth puzzle" has also been identified. Despite improvements in the economic activity since 2013 in the euro area, wage growth remained subdued over the years from 2013 to 2017. Moreover, during that period, wage growth was systematically overpredicted in Eurosystem and ECB staff projection exercises. For that reason, the ESCB set up a Wage Expert Group (WEG), to identify the drivers behind this phenomenon. This article will highlight its main findings [1] and look more closely at the Belgian situation in particular.

Every country within the euro area has its own particularities as regards wage formation, which are related among other things to the institutional set-up and cultural factors. In Belgium, the wage formation process is strictly framed by the Law on the Promotion of Employment and the Preventive Safeguarding of Competitiveness (see box), hence the economic cycle plays more of an indirect role. Real wage increases are determined every two years, in principle by the social partners in an interprofessional agreement. Wages in Belgium are also systematically adjusted to inflation developments (as measured by the health index [2]). Over the period under investigation however, wage moderation policies were imposed by the federal government in order to restore the country's competitive position. So, the negative forecast errors were more limited for Belgium and were mainly made in the 2013-2015 period.

* Results presented in this article are partly based on microdata from Eurostat, specifically the EU-SILC. We wish to thank Eurostat for the provision of the data. The responsability for the results drawn from the data lies entirely with the authors.

1 Nickel *et al.* (2019), *Understanding low wage growth in the euro area and European countries*, ECB occasional paper, 232, September.

2 The health index is derived from the national consumer price index, and excludes products that are deemed detrimental for health, i.e. tobacco products, alcoholic beverages and motor fuels.

Chart 1

In the euro area, compensation per employee was systematically overpredicted from 2013 to 2017

(Year-on-year growth, in %)

Source: ECB.

Note: Data for Belgium are updated with the new statistics, published in October 2019. The new figures deviate mostly from the old ones for the year 2018, as new statistics have become available to estimate notably the wage drift more accurately for that year. For the WEG report the cut-off date was 2018Q4.

BOX 1

Reformed 1996 Law on Competitiveness

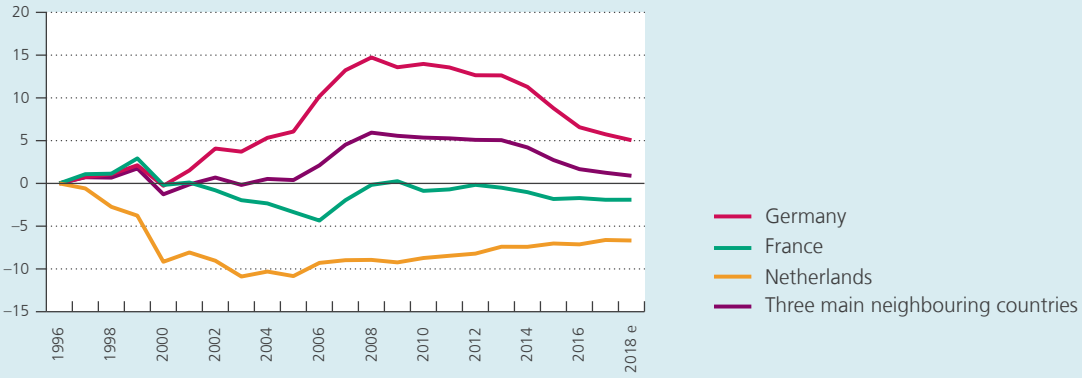
Wage formation in the private sector in Belgium depends largely on a centralised wage bargaining framework centred around the Law on the Promotion of Employment and the Preventive Safeguarding of Competitiveness.

The Law passed in 1996 created a framework to keep labour costs in the Belgian private sector in line with those in the country's three main trading partners, namely Germany, France and the Netherlands.

Its cornerstone is a comparison of the cumulative changes in hourly labour costs since 1996 to those in the neighbouring countries, referred to as the "wage gap" (handicap if positive), which is officially established by the Central Economic Council (CEC). The bargaining process to determine the maximum available margin for wage negotiations every two years is both backward-looking (taking into account the wage handicap) and forward-looking (taking into account the forecasts for the next two years of hourly labour costs in the neighbouring countries and the forecast for inflation in Belgium).

Belgium's wage handicap in terms of hourly labour costs

(cumulative differences[1] since 1996 in the private sector, in %)



Source: CEC.

1 In keeping with the calculation methodology as set out in the amended Employment and Competitiveness Law. A positive sign indicates a competitiveness gain for the relevant economy compared with Belgium.

Yet, the Law failed to prevent Belgium from seeing the wage gap open up in the 2005-08 period, a gap that it did not manage to close until 2016. In practice, the 1996 Law has not always proved suitable for the task of preventing labour costs from derailing. For that reason, the federal government proposed a series of adjustments and an amended Law was adopted in March 2017. Although the new legislation

provides for an arsenal of measures to prevent and/or rapidly correct any build-up of a wage handicap, there are still some elements that need to be monitored:

- First, the adjusted method of calculating the wage margin resulted in a maximum of 1.1 % on top of indexation for the period 2019-2020 due to a safety margin (minimum 0.5 %) and a correction mechanism (based on the cumulated wage handicap since 1996). Such a small margin for wage increases could potentially contribute to the already low wage dispersion in Belgium.

- Secondly, wage formation is not yet strictly linked to changes in productivity. The reformed Law requires the wage handicap calculation to also take productivity into account. However, this indicator is not binding for the determination of the maximum available wage margin.

The relationship between wage growth ("wage inflation") and unemployment can typically be identified within a Phillips curve setting, which aims to capture the cyclical drivers of wage growth. One would expect the Phillips curve slope to have flattened, since wage growth has not developed in line with the cyclical drivers in the last few years. Besides that, it is also possible that other, more structural, factors have been slowing down wage growth. For instance, changes in the composition of the workforce in terms of age and education also have a significant impact on wage developments.

1. Cyclical drivers of wage growth in a Phillips curve setting

1.1 Phillips curve setting

1.1.1 A thick-modelling approach

The relationship between the unemployment rate and wage growth can be given a formal setting within a Phillips curve. Back in 1958, William Phillips identified a negative relationship between unemployment and wage inflation in the United Kingdom for the period 1861-1957. When unemployment falls, the labour market becomes more constrained, which in turn leads to higher wage growth. Two years later, Samuelson and Solow (1960) revealed a similar type of relationship, this time between the unemployment rate and price inflation, for the United States.

A quick preview from chart 1 shows that, in the euro area too, such a relationship between wage growth and the unemployment rate could be identified. The fact that wage inflation has been lagging behind even though the unemployment rate started to fall in 2013 – which led to overpredictions of wage growth by international institutions and professional forecasters – has raised questions as to whether the traditional Phillips curve relationship in the euro area and in its individual countries still holds, or whether its slope has flattened. In Belgium, the two variables also move in opposite directions, although the correlation is less strong than in the euro area. As wage formation in Belgium is strictly framed by the Law on the Promotion of Employment and the Preventive Safeguarding of Competitiveness, the macroeconomic environment exerts its influence on wages more indirectly.

Suppose we have the following model:

$$\pi_t^w = c + \rho(L).\pi_t^w + \beta(L).y_t + \gamma(L).prod_t + \delta(L).\pi_t^e + \varepsilon_t$$

where π_t^w is compensation per employee, y_t is a real economy variable (such as the unemployment rate), $prod_t$ is a measure of productivity, π_t^e represents inflation expectations and L are lag polynomials.

By extension, the unemployment rate can be replaced by other variables that determine the cyclicality of the economy, such as (real) GDP, the unemployment gap, etc. All these variables are intended to proxy the cyclical "economic slack", which is in fact an unobservable variable, hence the choice of various indicators. Similarly, inflation expectations can be measured by backward inflation expectations, such as the past HICP inflation rate, or by forward inflation expectations, such as forecasts by professionals or surveys. Both measures of inflation expectations are defendable, but here the focus will be on backward inflation expectations, since in this set-up, this indicator has been shown to perform better (Nickel *et al.*, 2019).

When combining all the different indicators with one another, a wide range of Phillips curve specifications are possible. The approach of estimating various specifications using different variables that represent economic slack and inflation expectations addresses model uncertainty. It is called a "thick-modelling approach" and is particularly useful in the context of a common euro area research project, like the WEG, to the extent that it is not possible to estimate a single model that fits both the area as a whole and each individual country, as each country has its own characteristics. In total, the approach uses a dataset that contains 17 real economy variables and 7 inflation expectation measures: this gives a total number of 119 different Phillips curve specifications.

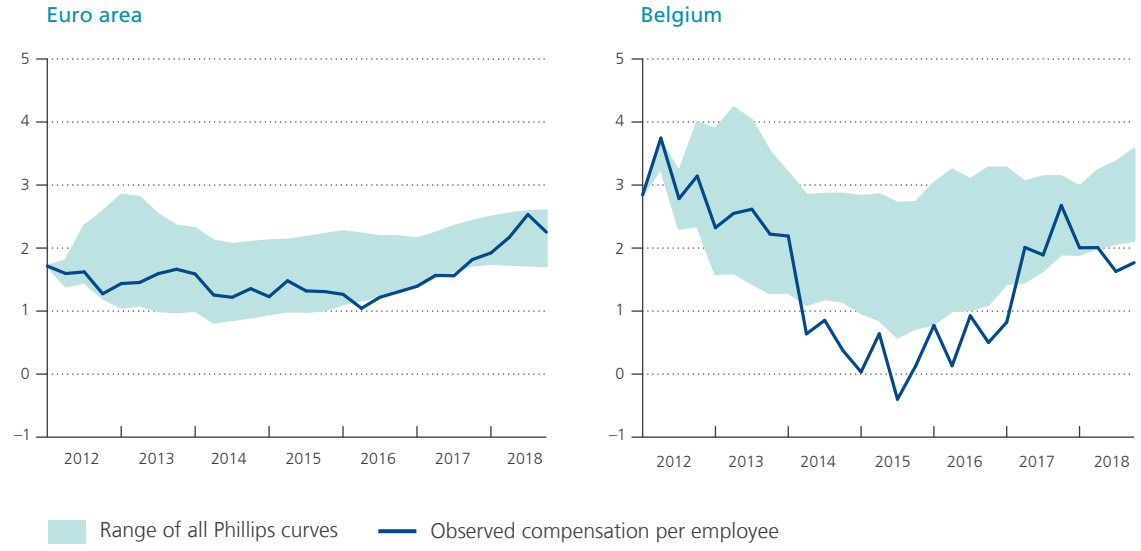
An out-of-sample forecast, conditional on the observed path of the independent variables, is conducted in order to see whether the Phillips curve is useful in explaining wage growth. In the euro area's case, the observed compensation per employee lies within the range of estimates. However, during the period of wage overestimation, the observation lies at the bottom of the range of Phillips curves and for some observations below the range. This leads to the conclusion that the cyclical variables explain a large part, but not everything, about the subdued wage growth.

In the case of Belgium, the observed compensation per employee lies outside the range of Phillips curves over the 2014-2016 period. This is not surprising, since there were strong wage moderation policies at play at the time, to restore Belgium's competitiveness. In 2018, the declining labour cost growth was not entirely forecast by the models either. Part of it is due to a new package of tax shift measures for 2016-2020 that came into force in that year (most importantly, a further reduction of the base rate for employers' social contributions). However, a part of this more recent decline cannot be explained by tax shift measures, nor by the Phillips curve.

Chart 2

The Phillips curves confirm low wage growth and explain a large part, but not everything

(Year-on-year growth, in %)



Sources: ECB, NBB.

Notes: Data for Belgium are updated with the new statistics, published in October 2019. For the WEG report the cut-off date was 2018Q4.
The regressions are estimated by OLS. The range includes out-of-sample forecasts conditional on the actual realisations of the independent variables. Estimation sample spans 1995Q1-2012Q1 and forecasts are made for the period 2012Q2-2018Q4.
The dependent variable is compensation per employee.
The real economy variables that are included in the various models are the unemployment rate, unemployment gap, DFM lowpass[1], unemployment gap according to the European Commission, unemployment gap according to the IMF, unemployment gap according to the OECD, unemployment gap according to the ECB estimated by an unobserved components model, u6[2], u6 estimated by the ECB using an unobserved components model, narrow u6[3], narrow u6 gap, *underemployment* rate[4], uxx[5], average hours of work of employment according to the ECB estimated by an unobserved components model, labour force shortage in the manufacturing sector, labour force shortage in the construction sector, participation rate estimated by the ECB using an unobserved components model.
The productivity measure is productivity per employee.
The inflation expectations measures included are: past YoY HICP inflation, past HICP index, past HICP excluding energy index, past HICP excluding energy and food index, past GDP deflator, past consumer deflator, and the consumer survey according to the European Commission that reflects consumer expectations for prices over the next 12 months.

1 DFM lowpass: 1st common factor of the cyclical components of various labour market series, each filtered with a low pass filter with cut-off periodicity of 150.

2 u6: Constructed as ratio of (Population Unemployed + Available but do not seek work + Seek work but not available + Underemployed) to Augmented Labour force (Population Unemployed + Available but do not seek work + Seek work but not available + Employed).

3 Narrow u6: Constructed as ratio of (Population Unemployed + Available but do not seek work + Underemployed) to Augmented Labour force (Population Unemployed + Available but do not seek work + Employed).

4 Underemployed part-time workers (in percent of the labour force).

5 Unemployment plus underemployment rate (in percent of the labour force).

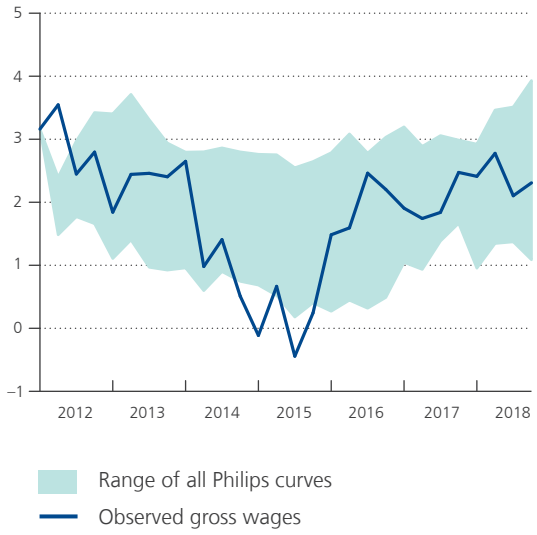
1.1.2 Compensation per employee as dependent variable

Compensation per employee can be decomposed into gross wages and employers' social security contributions on wages. As the Phillips curve studies how (wage) inflation variables interact with the cyclical macroeconomic environment, one might wonder why the explained variable used here is compensation per employee and not gross wages alone. Employers' social contributions on wages may in fact be subject to discretionary measures by the government and thus less related to the economic cycle, which could blur the relationship. As illustrated in chart 3, Belgian observed gross wages indeed lie closer to their Phillips curve range. Still, the observation does not lie in the middle of the Phillips curve forecasts, as the moderation policies not only affected employers' social contributions; they also encompassed an index jump in March 2015 and zero real wage increases for 2014-2016.

Chart 3

Phillips curve using gross wages per person as dependent variable

(Year-on-year growth, in %)



Sources: ECB, NBB.
Note: The specifications are the same as in chart 2 except for the wage measure.

However, in Europe, social contributions represent an important part of the labour costs borne by the employer and, for the employee, if workers understand that these contributions give them right to future benefits, they will consider them not as taxes but as a component of their earnings (see Bozio *et al.*, 2019). So, compensation per employee – that include social contributions on wages – may indeed be the most relevant variable in the European context. The WEG was also set up to improve the Eurosystem/ECB staff forecasts of wage growth and provide cross-checking tools. For these exercises, compensation per employee is the variable of interest. That is, during the projection exercises, not only wage costs are forecast, but also other variables such as inflation, GDP, government budget, etc. The coherence between all the macroeconomic variables is strongest when looking at total labour costs, rather than only at gross wages.

For these reasons, the WEG chose to use compensation per employee in the Phillips curve exercise. In this article, it has been decided to use the same measure for Belgium, to ensure comparability.

1.2 Decomposition of cyclical factors that drive wage growth

The Phillips curve model makes it possible to calculate the contributions of the different cyclical drivers to wage growth. Looking at the benchmark specification, that is using the unemployment rate as the measure of slack and the past year-on-year inflation rate as the inflation expectations measure, it is found that the high unemployment rate explained the low wage inflation period up to 2014 for the euro area. After that, as the unemployment rate started to decline, this variable lost its explanatory power in favour of the inflation rate, that was particularly low in 2014 and 2015. Hence, the so-called "wage puzzle" can be partly explained by integrating inflation expectations – in particular based on past inflation – into the model.

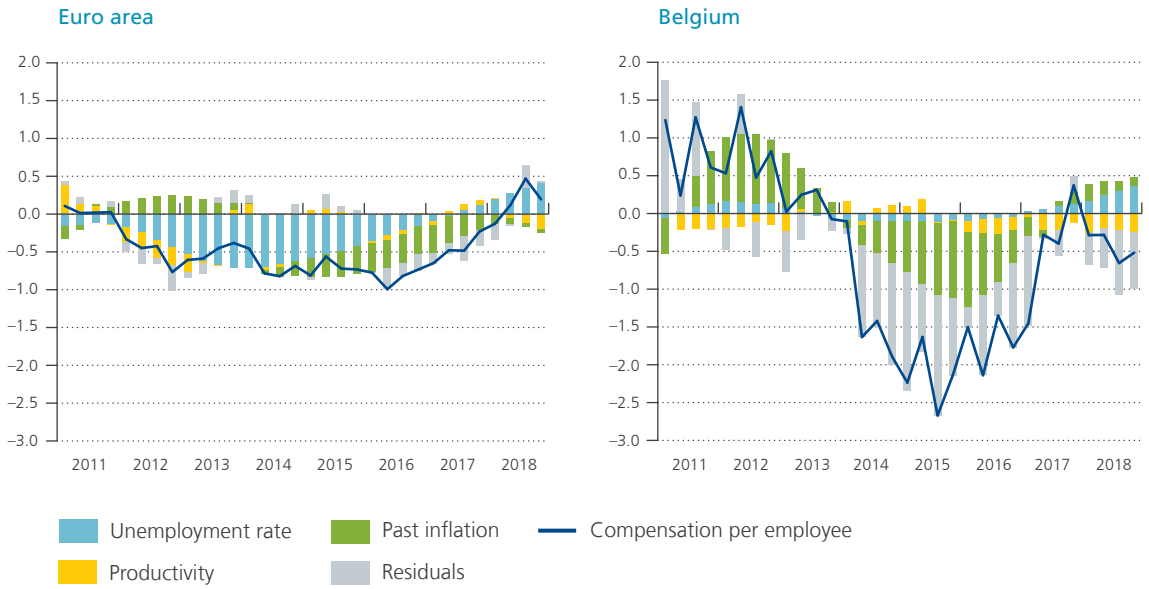
For Belgium, the Phillips-curve-based decomposition shows that it has mostly been the low inflation and the residuals (i.e. the wage moderation policies) that explain wage growth. Notably due to some government

measures that have had an impact on consumer prices (among others, the higher tuition fees in Flanders, the higher excise duties on alcohol and the introduction of the so-called "soda tax" on soft drinks containing sugar), inflation rates in Belgium picked up faster in 2015 than in the euro area. The relative contribution of the unemployment rate appears to be marginal for Belgium, according to this decomposition.

Chart 4

Decomposition of the cyclical factors to wage growth [1]

(contributions of factors in percentage points)



Sources: ECB, NBB.

Note: Data for Belgium are updated with the new statistics, published in October 2019. For the WEG report the cut-off date was 2018Q4.

1 The compensation per employee here is a deviation from its model-implied mean.

In both the euro area and in Belgium, weak productivity growth has also played a role in tempering wage growth, albeit to a limited extent. This weak productivity growth is partly related to the fact that the services sector has gained in importance in relation to the manufacturing sector – where productivity is typically higher. However, even within individual sectors, weak productivity gains have been observed, owing to a deceleration in the rate of technological progress and business dynamism [1].

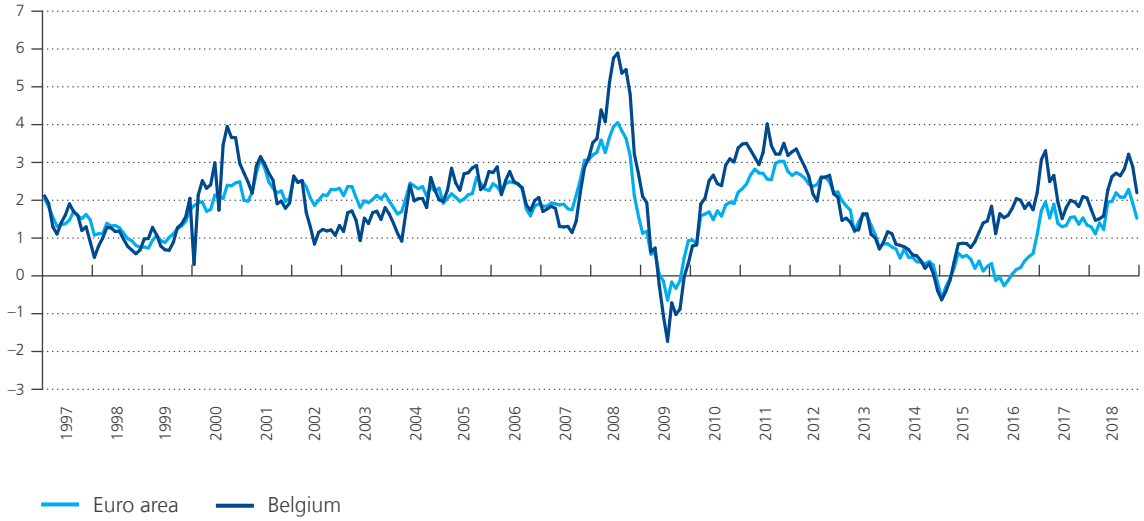
As pointed out before, the reductions in employers' contributions cannot entirely explain the renewed slowdown in wage growth in 2018 in Belgium, hence the large residuals in the decomposition. The real wage increase concluded under the interprofessional agreement in 2017 and 2018 was 1.1 % for the two years; a relatively high figure compared to the previous years of wage moderation. At the time of conclusion, it was expected that this real wage increase would be entirely granted, given that real wage rises had been very modest for some years. Quite surprisingly, the observed real conventional wage increases (0.2 % in 2017 and 0.4 % in 2018) have been well under the agreed margin. The puzzle of the incomplete use of the margin at sectoral level could be explained notably by the will to leave more room for manoeuvre at local level, allowing increases to be granted in companies that could afford it without jeopardising the competitiveness of others.

1 In the WEG report, the link between productivity and wage developments is discussed in box 5.

Chart 5

Inflation[1] in Belgium and in the euro area

(year on year growth, in %)



Source: EC.

1 Total inflation rate according to the Harmonised Index of Consumer Prices (HICP).

It should be emphasized that these results should be interpreted with caution. That is, there is not necessarily a causal relationship between the explanatory variables and low wage growth, as all of them could potentially be reacting to the same common shocks that are not included in this reduced-form framework.

2. Going further: structural explanatory factors

2.1 Compositional effects

The hourly wage derived from the national accounts is by construction an aggregate measure of hours-weighted workers' wages. In this way, those who work more hours receive more weight in this statistic. The same holds true for average employee compensation per person. It is well documented that low-skilled workers' employment and youth employment are very sensitive to cyclical fluctuations, which means that low-skilled workers/youth – who are generally lower paid than higher-skilled or older workers – get less weight in aggregate wage statistics during recessions than they do during expansions. This imparts a countercyclical bias to aggregate wage statistics (Elsby *et al.*, 2016).

Structural movements in the workforce also alter its composition over time. The increasing participation of women in the labour market and the ever-larger share of entrants with a higher educational level also contribute to changes in the aggregate wage. However, the wage rate related to these characteristics changes as well. For example, the gender pay gap has narrowed over time, while the education pay gap has widened. Economic policies and reforms also have a direct impact on the composition of the labour force. In all European countries, including Belgium, the curtailing of early retirement schemes since the beginning of the 2000s has partly succeeded in raising the employment rate of older workers. In the longer term, these policies have both price and quantity effects, with the consequence that the age pay gap is shrinking.

The objectives of the WEG's study of compositional effects were twofold. The first question was whether compositional effects did contribute to the subdued wage growth in the 2013-2017 period in the euro area. The second was to calculate a wage time series purged from compositional effects and to check whether such a series does actually provide a better fit for the wage Phillips curve.

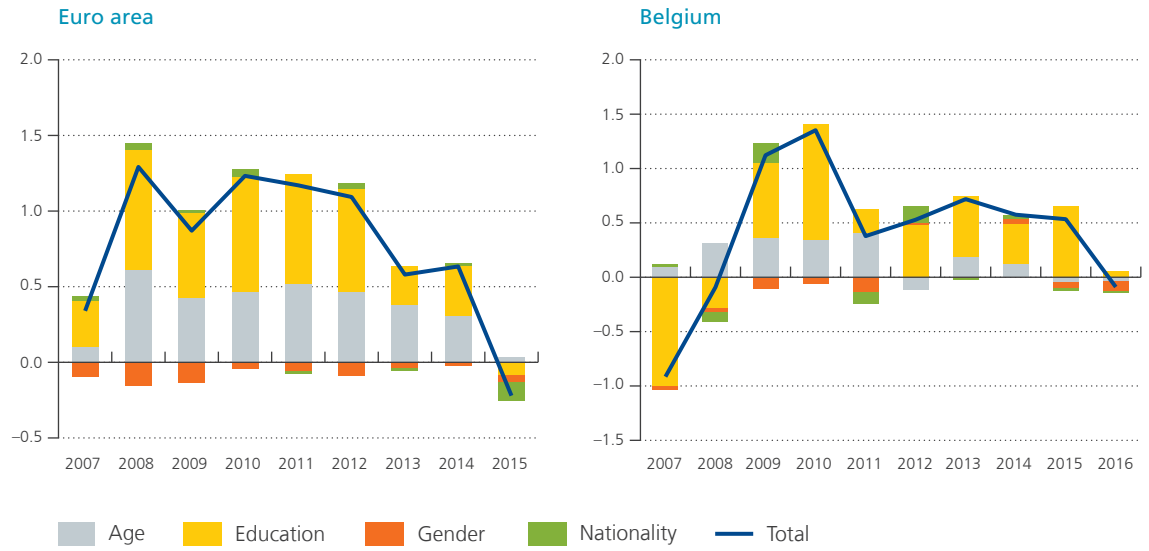
The research work in the WEG was mainly based on the EU Statistics of Income and Living Conditions (EU-SILC), as well as on the Structure of Earnings Survey (SES). Administrative individual data from the social security systems of the different Member States are not easily accessible and do not allow for a consistent approach covering all euro area countries, while the EU-SILC and the SES were developed precisely to provide comparative statistics within the European Union.

One of the advantages of the SES is that the information on wages is provided by employers themselves, while household survey measures of wages like in EU-SILC are notoriously less accurate. Both the wage rate and hours worked are often tainted with uncertainty, even more so if the survey questionnaire is completed by a proxy for the household and not the wage-earner him- or herself. The main drawback of the Structure of Earnings Survey is that it is only mandatory once every four years within the European Union, making it for most Member States ill-suited to identifying cyclical changes in the composition of the salaried workforce and its impact on aggregate wages. Only the Belgian and Czech national statistical offices collect these data with at least a yearly frequency. Given the necessity to dispose of annual data to calculate year-on-year changes and in order to ensure comparability between the euro area and Belgium, this article presents the results using the SILC database.

Chart 6

Impact of compositional effects on wage growth for the euro area and for Belgium

(percentage points)



Source: EU-SILC, ECB calculations, based on Nickel *et al.* (2019).

There are many ways to compute compositional effects. Those used here are based on an Oaxaca-Blinder decomposition and defined as the differences in aggregate wages only due to the changed composition of employees from year to year. The determinants of hourly gross wage growth are assumed to be only driven by four characteristics of the employee (age, education, gender and nationality). Alternative specifications give different results (in particular, a higher volatility if education is replaced by skills) but no substantial changes (Kouvavas *et al.*, 2019).

As explained previously, recessions imply a lower share of low-skilled and younger workers. Besides these cyclical evolutions, trend movements are at play, such as more women and more high-skilled workers in the workforce. Note that the year-to-year effects do not distinguish between cyclical and trend movements. According to Kouvavas *et al.*, trend developments might have a pronounced impact on compositional effects but are unlikely to cancel out cyclical patterns.

With the chosen specification, the largest contribution to the overall effect comes from changes in education and age structure. Euro area aggregate results suggest that compositional effects pushed wage growth up early on in the economic and financial crisis. However, from 2013 onwards (when the "wage puzzle" started to emerge), this effect has worn off. It has even turned slightly negative in 2015, "thereby contributing to the relatively muted response of aggregate wage growth to cyclical improvements" [1].

However, the country-by-country results are much more heterogeneous. According to the WEG results, compositional effects seem to be particularly important in Spain and Italy, while Germany and France experienced only small compositional effects throughout the cycle. The results for Belgium seem to be more cyclical than for the euro area as a whole. At the onset of the great recession, large positive compositional effects are observed, driven by the increases in average age and level of education of the salaried population, even if the Belgian labour market has been very resilient in terms of job losses. The effects remained sizeable in the following years before turning slightly negative in 2016.

To sum up, compositional effects may have had a role in the observed subdued wage growth for both the euro area and Belgium, but it appears to be rather marginal.

Even if it is appealing to estimate a Phillips curve for wage growth net of compositional effects, the experience of the WEG has shown that it seems very difficult to implement in practice, in particular because of the substantial time lag before the release of the microdata (Nickel *et al.*, 2019).

2.2 Other (structural) factors

The WEG report argues that the greater the slack in the economy, the less steep the slope of the Phillips curve (or the less strong the relationship between wage growth and the amount of slack in the economy). In other words, there is a non-linearity in the relationship between wage growth and the cyclical position of the labour market. For the euro area as a whole, the slope would be flat and at a low level, for unemployment rates above 9.5 %. In fact, the unemployment rate reached a peak in 2013 (12 %) and even though it started to decline again after that, it remained above its "turning point value" of 9.5 % up to 2017.

Besides this, the WEG points out that the trend in wage growth in the euro area seems to have been moving downwards, which is primarily linked to the decline in trend inflation. Ciccarelli and Osbat (2017) found a decline over the period 2012-2015 in particular and related this to increased inflation persistence. In other words, decelerating oil price growth has slowed the inflation rate down significantly since 2011, which in turn also affected inflation expectations. Secondly, the falling trend wage growth can also be linked to a slowdown in trend productivity growth; a global tendency caused by lower technological progress and business dynamism.

Lastly, the report gives some hint about the effects of globalisation, migration, demographic change or digitisation on wage growth, and suggests that further research is needed. As regards migration, some countries reported to have found some effect on their wage growth. In an augmented wage Phillips curve setting, the Deutsche Bundesbank (2018) shows that, in Germany, labour-market-oriented net immigration

1 Kouvavas *et al.* (2019).

flows from other EU Member States have helped to meet the increasing demand for labour. As many immigrant workers are active in sectors that are relatively low-paid, migration has generally dampened aggregate wage growth in Germany since 2013.

In Belgium, migrants account for a much lower share of entrants on the labour market, so that this factor is less relevant. It should be noted that posted workers are not included in this analysis, since they are included in the employment statistics of the country of their chief firm. Take, for example, the construction sector and to a lesser extent the transport sector, both of which have been characterised by an increasing share of their workforces coming mostly from Eastern Europe, whose wages are less costly for Belgian firms. However, secondment has no direct impact on the Belgian payroll. Still, Belgian firms have turned to foreign workers to cope with labour force shortages at home. Since their labour costs are lower, this has relaxed somewhat pressure on wages that would have risen sharply without the use of foreign workers. Hence indirectly, this has exerted downward pressures on wages in those sectors[1].

3. Conclusion and main findings of the WEG

Despite notable improvements in the labour market since 2013, wage growth has remained subdued in the Euro area and in Belgium. This has been investigated by the ESCB Wage Expert Group. The relationship between economic slack and wage growth can be formalised in a Phillips curve setting. Given that the precise functional form of the wage Phillips curve (in terms of lag structure, non-linearity, etc.) and its determinants remain subject to debate, a thick-modelling approach has been chosen to deal with model uncertainty. The results of the WEG have shown that a Phillips curve set-up explains cyclical changes in compensation per employee relatively well for the aggregate euro area data, but less well for individual country data. For Belgium, the results of this approach were satisfactory, except over the 2014-2016 period. This is not surprising since there were strong wage moderation policies at play at that time in a bid to restore Belgium's cost competitiveness.

A breakdown of the contribution of the explanatory variables confirms for the euro area that the slow decrease in the unemployment rate has had a dampening effect on wages mostly up to 2014. After that, when the labour market started to improve, the economic slack lost explanatory power in favour of the inflation rate, that was particularly low in 2014 and 2015. Note that there is not necessarily a causal relationship between the explanatory variables and low wages, as they could potentially be reacting to the same common shocks not included in this reduced-form framework. The same decomposition exercise for Belgium seems to attribute less weight to the economic slack variable than for the euro area as a whole. The large residuals in Belgium are directly related to the moderation policies, that are not captured by the model.

The empirical work done by the WEG has shown that compositional effects do exist in the aggregate wage data. These effects may have had a role in the observed subdued wage growth for the euro area and for Belgium but it appears to be fairly marginal.

Even if the wage Phillips curve remains one of the most useful conceptual frameworks for understanding the relationship between nominal labour cost growth and macroeconomics conditions, the WEG findings also point up the considerable heterogeneity that still exists between individual countries.

1 It has also positively contributed to the competitive position of Belgian enterprises in the light of Law on Competitiveness.

Bibliography

Bozio A., Th. Breda and J. Grenet (2019), *Does Tax-Benefit Linkage Matter for the Incidence of Social Security Contributions?*, Paris School of Economics Working Paper, 43.

Ciccarelli M. and C. Osbat (2017), *Low inflation in the euro area: causes and consequences*, ECB Occasional Paper Series, 181, January.

Constâncio V. (2015), "Understanding inflation dynamics and Monetary Policy", Panel remarks, Federal Reserve Bank of Kansas City, https://www.ecb.europa.eu/press/key/date/2015/html/sp150829.en.html

De Mulder J. and H. Godefroid (2018), "Productivity slowdown: findings and tentative explanations", NBB, *Economic Review*, December, 51-66.

De Sloover F. and Y. Saks (2018), "Is job polarisation accompanied by wage polarisation?", NBB, *Economic Review* September, 79-90.

Deutsche Bundesbank (2018), "Wage growth in Germany: assessment and determinants of recent developments", *Monthly Report*, April, 13-27.

ECB (2017), "The slowdown of euro area productivity in a global context", ECB, *Economic Bulletin*, Issue 3, 47-67.

Elsby M., D. Shin and G. Solon (2016), "Wage Adjustment in the Great Recession and Other Downturns: Evidence from the United States and Great Britain," *Journal of Labor Economics*, 34, January, 246-291.

Kouvavas O., F. Kuik, G. Koester and C. Nickel (2019), "The Effects of Changes in the Composition of Employment on Euro Area Wage Growth", *ECB Economic Bulletin*, Issue 8/2019 (forthcoming).

NBB (2002), "De Phillips-curve: een bewogen geschiedenis", NBB, *Economic Review*, December.

NBB (2019), *Annual Report 2018*, Brussels.

Nickel C., B. Bobeica, G. Koester, E. Lis and M. Porqueddu (Eds). (2019), *Understanding low wage growth in the euro area and European countries*, ECB Occasional Paper Series, 232.

Phillips A.W. (1958), "The relation between unemployment and the rate of change of money wages in the United Kingdom, 1861-1957", *Economica*, 25(100), 283-299.

Samuelson P.A. and Solow R.M. (1960), "Analytical aspects of anti-inflation policy", *The American Economic Review (Papers and proceedings)*, 50(2), 177-194.

Belgium's foreign trade: between restoring competitiveness and neo-protectionism

S. Cheliout
L. Walravens

Introduction

The context underpinning trade flows between the various economies of the world is currently beset by numerous uncertainties and upheavals, at both economic and geopolitical level. In view of this situation, the various parties involved in trade, particularly firms, are now obliged to come to terms both with trade being reorganised around new production locations and emerging technologies, and with an upsurge in inward-looking policies and protectionism in recent years. These changes are in fact contributing to relatively riskier and less favourable external conditions which may be directly detrimental to the trade and economic relations of many countries, including Belgium. These new contextual elements, discussed in the first part of this article, indicate among other things that the trade tensions are likely to have a significant net negative impact on the growth of global activity in both the short and the medium term.

Looking more specifically at Belgium, the country's prosperity is based partly on its ability to trade. In fact, given the relatively small size of its economy and its limited natural resources, it is obliged to play an active part in world trade, as demonstrated in particular by its close integration in the production value chains and by its high degree of openness to international trade. Therefore, in view of a new situation featuring the resurgence of uncertainties and trade tensions, it is vital to be able to analyse precisely how Belgium has fared in world trade over recent years, notably in regard to its main trading partners. The second part of this article aims to answer these various questions relating to the progress of Belgium's trading relationships over the past decade, and more generally, its export performance, in order to establish in particular whether the recent measures designed to improve cost/price competitiveness have enabled Belgium to make good its structural losses of market share to some extent, and thus to address the new changes and challenges that it faces today.

Finally, the last part of the article analyses the sources of growth for Belgian exporters in recent years in a context of risks and uncertainties. By using microeconomic data on firms' commercial transactions, we can break down the growth of firm's exports into an "intensive" margin – i.e. the export growth due to the intensification of existing economic relationships – and an "extensive" margin – i.e. the export growth due to the establishment of new economic relationships. Analysis of the latter makes it possible to judge the recent situation and the position of exporters in world trade, and to make some recommendations for economic policies. The article also examines one particular point relating to specific recent developments in the US (trade wars) and the UK (Brexit). In the face of these specific events, we need to be able to describe the structure of Belgian trade with those economies and to observe whether any significant impact is already apparent in Belgium's current trading relations.

1. A changing international context with protectionism on the rise

1.1 *"I think we're not in Kansas anymore"*

Between the fall of the Iron Curtain and the 2008 economic and financial crisis, world trade expanded rapidly. This strong trade growth was accompanied by further increasingly complex and advanced fragmentation of the production chains spread across the various countries of the world. Nonetheless, since the crisis, fundamental changes have disrupted that dynamism. The international trade framework in which businesses had been active worldwide until the crisis hit is considerably different in 2019. A number of stylised facts characterise these recent changes.

First, global growth has become less trade-intensive. Between 1990 and 2007 the volume of world trade grew twice as fast as real GDP, on average. But since 2011, there has been a turnaround and these two variables have ended up growing at the same pace : since the crisis, global trade growth has thus become less GDP-elastic.

Also, the intensification of production value chains seems to have stalled. For several decades, the rapid growth of trade has been accompanied by easier access to external inputs, apparent from the increasing incorporation of foreign value added in the goods and services traded. That reflected the greater international division of labour, referred to as (global) value chains. The rise of the value chains followed a trend towards the liberalisation of commercial and financial transactions, reductions in customs duties (especially where they had originally been highest) and lower transport costs, technological innovations (ICT revolution), and the growing role of multinationals. Together, these factors enabled countries and firms to specialise according to their competitive advantage while also importing more from other businesses : they helped to facilitate the geographical fragmentation of the production processes. China's accession to the WTO in 2001, the integration of the former Eastern Bloc into the Single Market, and the emergence of other economies contributed to this phenomenon.

This led to a change in the configuration of the main international trade players. Over time, the geographical centre of gravity of world trade has gradually shifted following the economic rise of the BRICS – particularly China – and the Asian countries, and the increasing fragmentation of the production processes. Initially regarded as the "world's factories", they gradually became fully fledged markets in themselves, with dynamic demand, while taking up their position further along the value chains (modified "smiling curve" [1]). The outcome is that international trade now has three interconnected focal points : North America (centred on the US), Europe (centred on Germany) and Asia (centred on China).

Apart from these main centres, the idea that "North-South" trade drives global commercial transactions is no longer necessarily the norm, and there has been an increasing trend towards intra-regional links. In particular, trading has intensified between developing countries ("South-South"), as suggested by the recent expansion of FDI, indicating the growing interest of large emerging economies in other new markets : in 2017, China, South Africa, Singapore and India were among the ten leading investors in Africa [2]. Moreover, even though some of the partners may look relatively similar at first sight, they still retain comparative advantages which suit the changing character of the production chains, e.g. as a result of the emergence of new tasks involving a larger element of digital skills. This goes beyond the basic matter of optimisation and outsourcing from developed countries to developing countries where costs are lower. The proliferation of regional preferential trade agreements in recent years (EU-Canada, EU-Japan, Mercosur, etc.) seems to capture this increased demand for closer integration of intra-regional links.

1 World Bank (2017). China, in particular, has demonstrated its ability to quickly move up the global value chain, most strikingly so in the electronics sector ; see Buysse *et al.* (2018).

2 UNCTAD (2019).

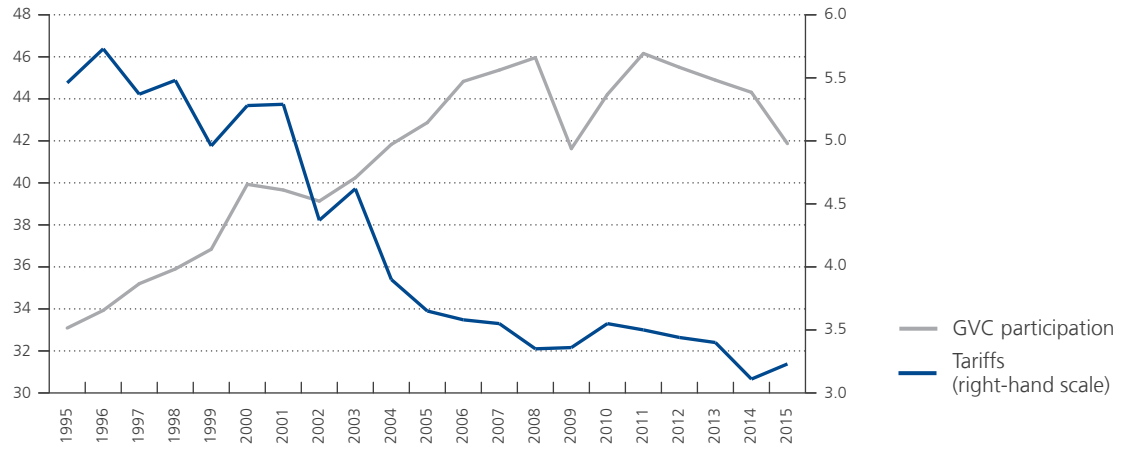
However, since 2011, there have been signs that the fragmentation of value chains is slowing, although it remains at a high level[1]. According to the OECD, the rising contribution of domestic supplies of intermediate inputs via "reshoring" or "nearshoring" seems to be a factor. The shift in the Chinese economic model towards growth sources geared more to domestic demand and towards other Asian partners may also have contributed to the pause.

Finally, the expansion of trade and the emergence of new players on the international scene may have been encouraged by the favourable context of declining trade tariffs. That being the case, their decline may at the same time have concealed the establishment of non-tariff barriers, such as quotas or the imposition of technical and phytosanitary barriers. *The general tendency towards tariff reductions seems to have come to a halt more recently amid the introduction of various protectionist policies.* More particularly, this strong resurgence of tariff barriers is noticeably linked to the escalation of trade tensions since 2018[2]. All these obstacles are tending to have a more significant impact on international trade, especially as certain global economies have been making greater use of non-tariff barriers. Ultimately, they represent new challenges for trade relations which, since the second world war, had been able to thrive thanks to a system of rules based on multilateralism. It is true that some regions and economies have adopted new free trade agreements even in the past few years (such as the EU-Canada "CETA" agreement in 2017, EU-Japan in February and EU-Mercosur in July 2019; also, to some degree, the renegotiation of NAFTA and its replacement by the USMCA at the end of 2018). But they seem to have been insufficient in view of the number and scale of the trade restrictions and retaliatory measures adopted in recent years.

Chart 1

Global value chain participation and tariffs

(value added-weighted average over countries and sectors, in %)



Source: IMF.

1 According to the OECD, more than 70 % of world trade now comprises multiple transactions in intermediate products originating from production chains scattered across countries, before incorporation into the end product consumed. See OECD (2018).

2 Without going into the debate on the factors which may explain the reversion to protectionism – a debate which is beyond the scope of this article – we might nevertheless mention the possibility of increased anxiety in public opinion and the mistrust, or even rejection, of globalisation, with the idea that the resulting benefits are not fairly distributed. This scepticism seems more marked in the United States and other advanced economies. See Pew Research Center (2018).

1.2 Has Protectionism 2.0 become the "new normal"?

Since 2018, two main facts have been symptomatic of the shift towards a new form of protectionism: on the one hand, the trade war started by the Trump Administration, with China as the main target – though other regions of the world, notably the EU, were not left unscathed; and on the other hand, the as yet unknown future repercussions of the UK's departure from the EU. In both cases, there have been periods of respite and dialogue interspersed with episodes of uncertainty and escalation. As a result, the framework underpinning international trade has become steadily more uncertain and riskier. For firms focused on international business, it has become hard to navigate in this new context and to form clear expectations of the future profitability of this type of activities. The main decisions which have been highlighted in the news relating to these two events are described below[1].

A tit-for-tat global trade war

The US and China are the two main protagonists in the international trade war[2]. Following an investigation by the Trump Administration highlighting "unfair" Chinese practices concerning intellectual property and the transfer of technology and innovation[3], in the summer of 2018, the US imposed an initial customs tariff on imports from China, triggering retaliatory measures by China involving equivalent amounts and tariffs. At the end of September 2018, Washington upped the stakes with new tariffs on quadrupled amounts. Following a period of reduced tension fostered by negotiations, hostilities took off again in May/June 2019 with a new increase in the American trade tariff and, above all, the blacklisting of a number of Chinese companies in the technology sector, some of which were well-established in the American market and had close links with other American firms, particularly as suppliers of semiconductors. Huawei was the most iconic case. Since then, talks have eased the tension between the two parties, and at the beginning of November 2019, they agreed to make gradual reductions in their import taxes.

Apart from the Sino-American dispute, the Trump Administration's protectionist attack has also concerned specific sectors and other regions of the world. From the beginning of 2018, the US imposed customs tariffs on washing machines and solar panels. Although the volumes involved were not large, the consequences were very significant owing to the symbolic offensive consequence of the tariffs. A second strike followed in the spring of 2018 aimed at steel and aluminium[4]. As in China's case where dialogue alternates with escalation – the American strategy being based on using punitive tariffs as a future bargaining tool – agreement was reached in the summer between the then European Commission President Jean-Claude Juncker and US President Trump on cooperation aimed at removing customs duties on industrial products, offering some hope of conciliation and avoiding any future outbidding. In particular, Washington had repeated some of its threats in regard to the motor vehicle sector. Although the threats were initially aimed at all countries exporting cars to the US, the risk ultimately applied specifically to the EU[5]. In view of the concerns of manufacturers operating in the US, the threat has not been implemented so far, but it is still lurking. Finally, in October 2019, in the dispute between the US and the EU over subsidies wrongly paid to aeronautical manufacturers on both sides of the Atlantic (Boeing and Airbus), the WTO decided in favour of the American authorities and gave the green light for punitive American tariffs.

1 See annexes 1 and 2 for a more comprehensive review.

2 See also Cordemans *et al.* (2018).

3 See Buysse K. and D. Essers (2019).

4 Despite an initial temporary exemption granted to the EU – and to Canada and Mexico, where the sanctions were eventually lifted once the Trump Administration considered that sufficiently satisfactory progress had been made in renegotiating the North American Free Trade Agreement – in the end, tariffs were actually imposed on those European products. In response, the EU adopted "rebalancing" measures to preserve a stable and continuous flow of imports, and hence the normal pattern of trade.

5 Bilateral agreements were in fact concluded with Canada, Mexico, South Korea and Japan.

A future (hard?) Brexit: to deal or not to deal?

Although Brexit has still not happened at the time of publication of this article, the uncertainty which has arisen in recent years over the definition of the future relationship between the two partners has nevertheless created an adverse climate for intra-European trade. In the June 2016 referendum, a majority of British people voted for Britain to leave the EU. The activation of Article 50 of the EU Treaty by the UK meant that the country had two years to negotiate an exit agreement and to define future arrangements with the EU. However, the passage which followed the start of this procedure was particularly stormy, with repeated instances of deals being negotiated and announced but then rejected, leaving a stalemate situation for much of the time. Following a further extension to 31 January 2020, granted at the end of October 2019, the uncertainty over the nature of future trade relations persists between "deal" – based on maintenance of a free-trade economic relationship – or "no deal" – a disorderly departure without any agreement, in which trade relations would, by default, be governed by WTO rules, entailing higher costs and restrictions on trade[1].

1.3 Negative repercussions evident at global level

Numerous institutions have assessed the likely impact of the recent trade restrictions on the international scene. This has led to publication of a range of estimates[2], each highlighting different aspects depending on the scenario and channels examined. The exercise is not a simple one, because the assumptions may vary widely, and the expected repercussions may be complex owing to interactions which make it difficult to model them perfectly. Nonetheless, the simulations agree that, overall, the trade tensions will have a negative impact on global GDP in the short and more medium term[3].

Various channels are identified through which trade tensions affect global economic activity. The first relates to trade, with a direct impact from a rise in trade costs (customs duties) which hamper the international competitiveness of firms and slow the pace of commercial transactions. Those costs may in turn fuel inflation, because corporate margins absorb only part of the increased production costs, passing on the rest of the rise in the consumer prices paid by households. The OECD[4] estimates that, in a scenario where the US and China mutually imposed 25 % customs duties on all their bilateral trade – a more critical situation than the present one – global production and trade would decline by 0.3 % and almost 1 % respectively by 2021.

Apart from these effects, there are others which may have a much more serious negative impact. That is true of the uncertainties eroding business confidence, with firms driven to postpone or even scale down their investment plans, and rendering financial markets more volatile, that being reflected in tighter financing conditions and higher capital costs for firms. In the same OECD exercise[5], increased risk premiums on investments would seriously exacerbate the negative impact, virtually doubling the decline in global output and trade.

If global value chains are taken into account, that adds a further complex effect amplifying the expected negative repercussions: they bring supplementary interactions into play and heighten the exposure to the repercussions of global trade wars. As firms make greater use of imported inputs in their production process, the imposition of customs duties is liable to engender cumulative production costs and "cascade effects"[6]. Customs duties may apply upstream to (direct and indirect) input suppliers, affecting the costs and international competitiveness of the firms concerned,

1 For example, with the introduction of customs declarations and controls, health certificates or even certain taxes.

2 See, *inter alia*, OECD (2019), Gunnella V. and L. Quaglietti (2019), Vicard V. (2018).

3 However, it is possible that some countries might secure temporary gains as a result of the opportunities for diverting and reorienting trade. See below.

4 OECD (2019).

5 Ibid.

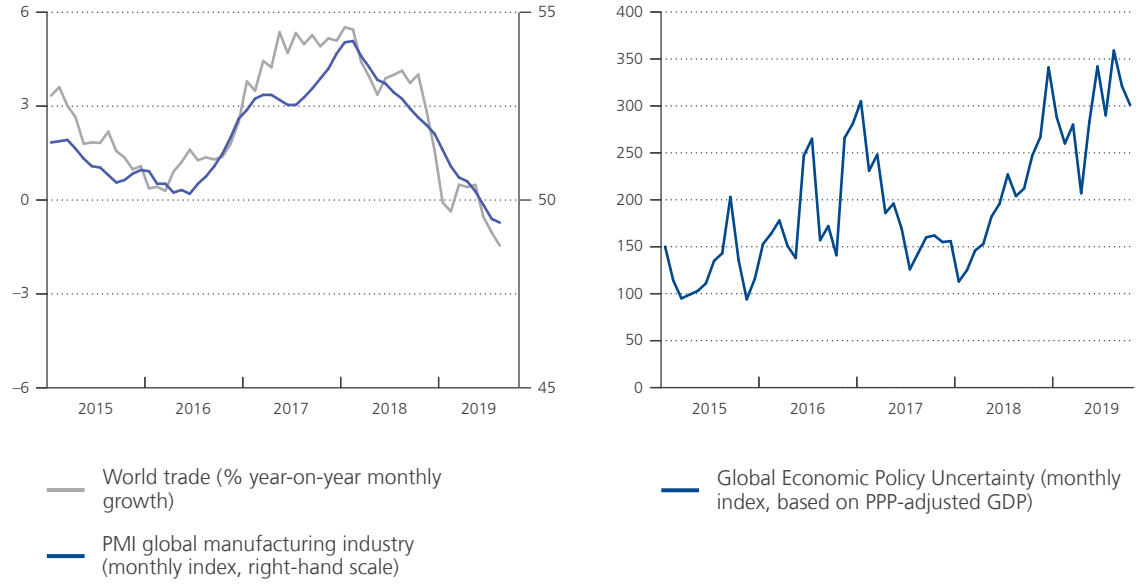
6 This so-called "cascade effect" arises since trade costs accumulate as intermediate goods are imported and then re-exported further downstream, going through different processing nodes before reaching the final consumer. See Diakantoni *et al.* (2017).

and downstream, affecting direct users of the taxed imports, causing a reduction in consumer demand[1]. According to the IMF, the effect of an increase in customs duty on real value added is amplified and negative for all countries, but to varying degrees depending on their sectoral specialisation – with manufacturing being particularly affected – and depending on their integration in global value chains. Germany, and to a lesser extent China and Japan, suffer more significant effects; conversely, for Canada and the US, whose manufacturing sectors are relatively smaller to their economic size and less closely linked into value chains, the impact would be less severe.

Finally, the impact of customs duties may vary depending on whether they are strictly confined to the two main protagonists (China and the US), or widespread affecting all the world's economies. In the first case, the IMF[2] estimates that the US, and China even more so[3], are the great losers from a mutual bilateral war, while in contrast, third countries may make net gains thanks to the effects of trade reorientation. Canada and Mexico would benefit the most because of their close proximity to the US. Nonetheless, in the second case, all the world's economies would suffer significant losses.

Chart 2

Slowing world trade and increased uncertainty



Sources: CPB, Refinitiv.

Several variables indicate that commercial or political tensions are starting to materialise. While there may be numerous other contributory factors (such as the slowdown in domestic demand in China), it seems that the trade channel has already been affected by the customs duties and retaliatory measures introduced: the volume growth of world trade slowed abruptly, from almost 5.5 % in 2017 to a decline of 1.2 % in the third quarter of 2019. Investment, which is traditionally very trade-intensive, also slowed sharply, especially in Europe and Asia; business and consumer confidence ebbed away. In manufacturing industry, output also contracted: this sector, where value chains hold a prominent place, was hard hit by the increased customs duties and the resulting uncertainty over future trade relations.

1 Especially in the short term, substitution effects which can mitigate such adverse consequences resulting from customs duties are hard to achieve: it takes time for firms to modify their production structure or find new suppliers.

2 IMF (2019).

3 The negative effects in China would be greater because Chinese exports to the US represent a bigger share of China's economy than vice versa.

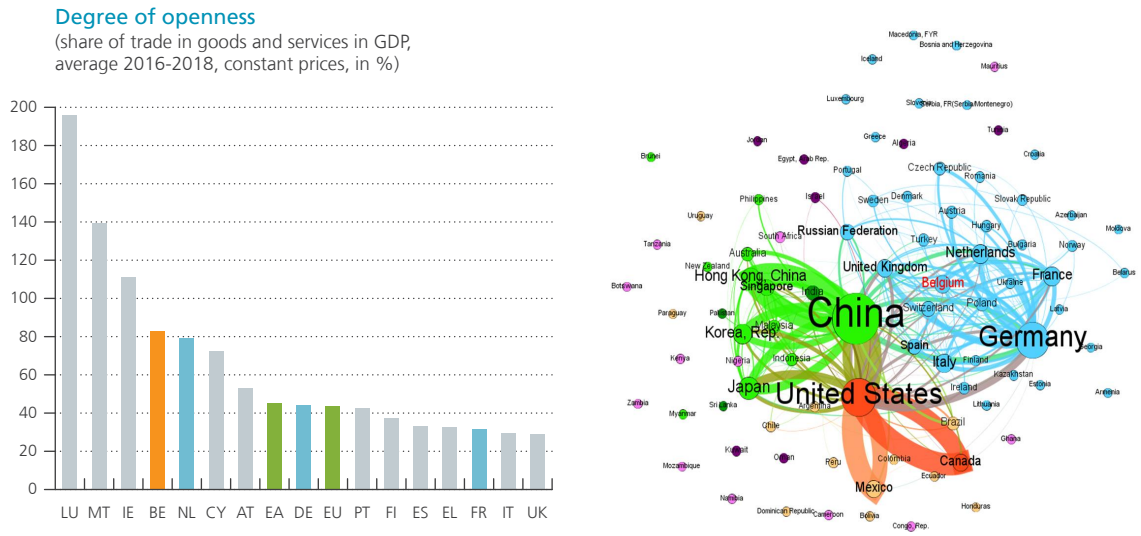
2. Belgium's foreign trade over the past decade

2.1 Belgium in world trade

In view of the recent international trade developments, it seems important to consider how Belgium manages to evolve in this context of significant movements and uncertainties. International trade is essential to its current prosperity but also its future economic development. In fact, owing to its relatively small domestic economy and limited natural resources, Belgium is obliged to trade with the rest of the world, by importing goods and services which are unavailable in its territory or which can be produced more cheaply abroad. Similarly, a significant proportion of the goods and services produced by firms in Belgium is ultimately destined for international export in order to finance Belgium's imports and its domestic economy. This relative dependence of the Belgian economy on the rest of the world is particularly clear from the level of exports and imports in proportion to its gross domestic product, making Belgium one of the countries with the highest degree of openness in the world, averaging around 80 % of its GDP over the period 2016-2018[1]. For comparison, a country such as Germany, the euro area's biggest exporter, has an average degree of openness which is only about 40 % of its GDP. This high degree of openness is also reflected in employment, with exporters based in Belgium accounting for almost 30 % of total private sector employment.

Chart 3

Importance of world trade for the Belgian economy



Sources: EC, NAI, UNCTAD, NBB.

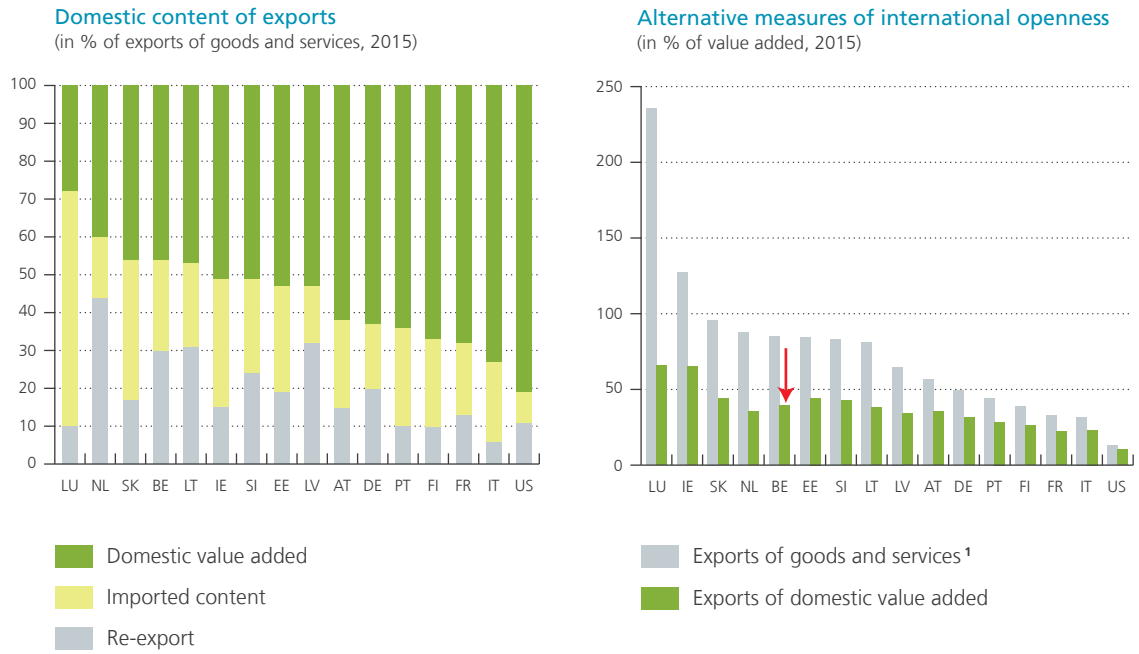
However, the importance of foreign trade in Belgian economic activity expressed in the form of gross export and import flows needs to be viewed in perspective, because – owing to its central position in Europe and the presence of key logistical infrastructure in its territory, particularly the port of Antwerp – Belgium represents a platform for the entry and exit of goods, a significant proportion of which is simply re-exported without any domestic value added being created. The level of this kind of transactions, estimated at just over 30 % of total Belgian exports, means that Belgium – together with the Netherlands – is among the countries most affected

1 The degree of openness is calculated as the average of exports and imports of goods and services in volume terms as a percentage of GDP over the period 2016-2018.

by this phenomenon at European level. However, measured in terms of exported value added, Belgium remains one of the countries with the highest degree of openness in the world : domestic value added exported accounts for more than 40 % of Belgian GDP.

Chart 4

Domestic content of Belgian exports



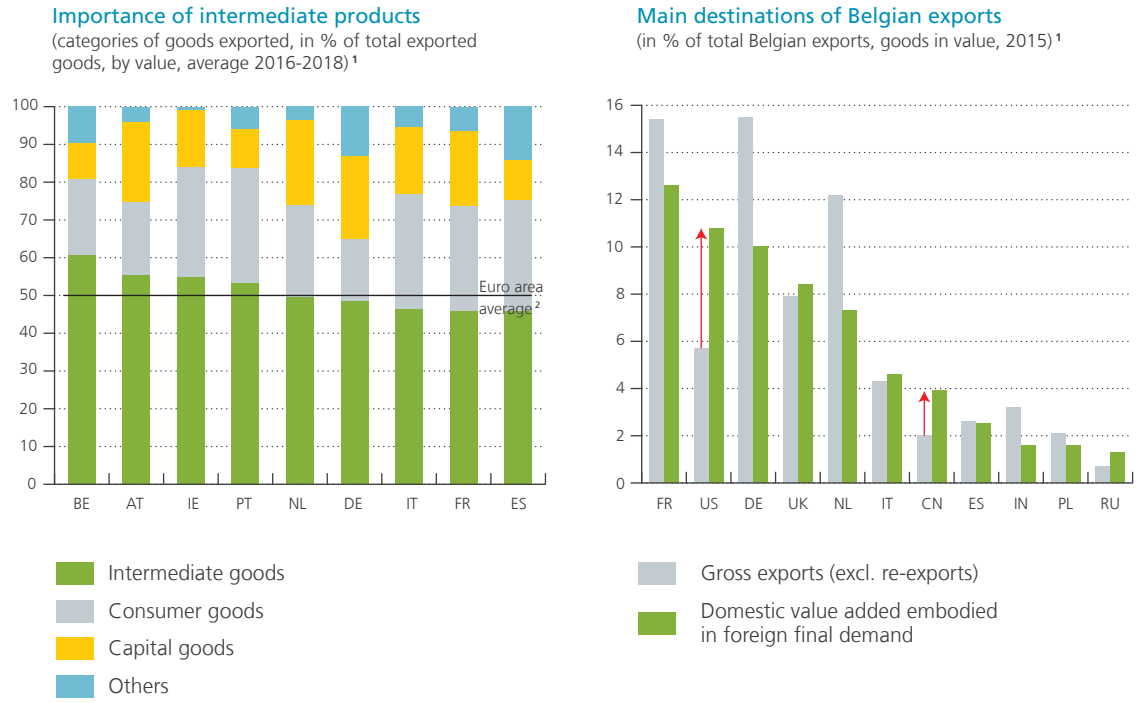
Sources : NAI, OECD.
1 According to national accounts.

The importance of foreign trade for the Belgian economy is also due to Belgium's considerable degree of integration in global value chains, which is also reflected in the large proportion of intermediate goods that Belgium exports throughout the world. Goods of this type represent about 60 % of total Belgian exports of goods to other countries, and especially to German industry. Nevertheless, while most of Belgium's direct exports are apparently destined for the European market (on average 70 % of total goods exports over the period 2016-2018, with around 55 % going to the euro area), and more particularly to Belgium's three neighbouring countries (43 %) [1], in terms of domestic value added in final foreign demand, the Belgian economy's exposure to distant destinations is much greater than it seems. Thus, the share of the US – which represents only around 6 % of Belgium's total direct exports – is almost 11 % if exports of domestic value added are viewed on their own. The same can be said about China (4 % as opposed to 2 %). In the case of the UK, both approaches indicate a relatively similar share.

1 Germany, France, Netherlands.

Chart 5

Types of goods and geographical destinations of Belgian exports



Sources: EC, NAI, OECD, NBB.

1 Data compiled according to the national concept of the foreign trade statistics for Belgium.

2 Intermediate goods for the euro area.

2.2 Growth and structure of Belgian foreign trade

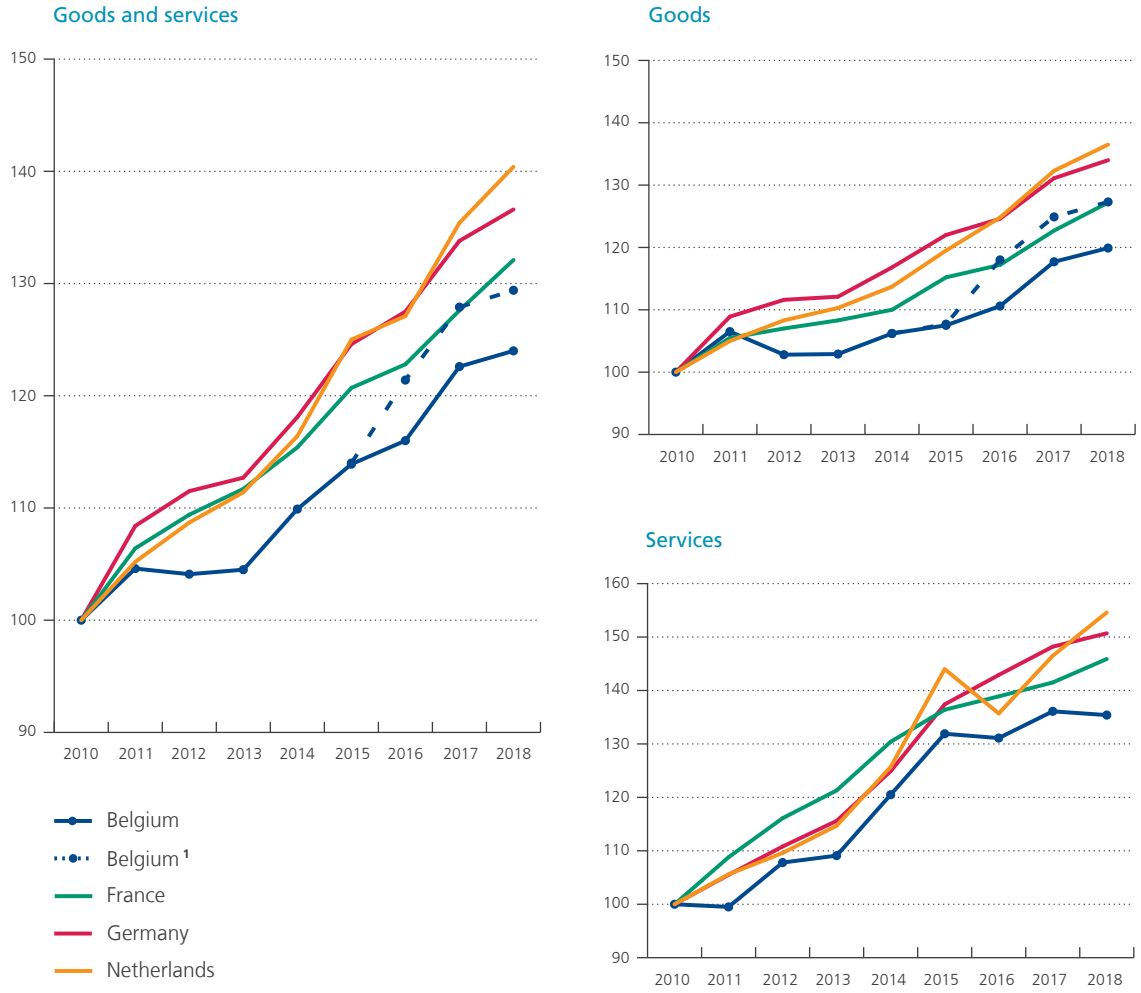
In view of the importance of this foreign trade for the Belgian economy, combined with the recent international developments featuring uncertainties and the marked slowdown in world trade, it is necessary to examine in more detail what has been happening in those respects over recent years.

In that connection, an initial analysis at aggregate level reveals that the growth of exports of goods and services, expressed in volume terms, has been relatively lower in Belgium since the beginning of the decade than in the neighbouring countries, both in terms of exports of goods and services. While exports of services had expanded relatively strongly during the period 2013-2015, that growth was then replaced by that of goods exports over the most recent period, 2016 to 2018.

Chart 6

Belgium's trade in goods and services

(volume data, indices 2010 = 100)



Sources: EC, NAI.

1 Belgian export data taking account of the reorganisation of a company in the pharmaceuticals sector in 2016-2017.

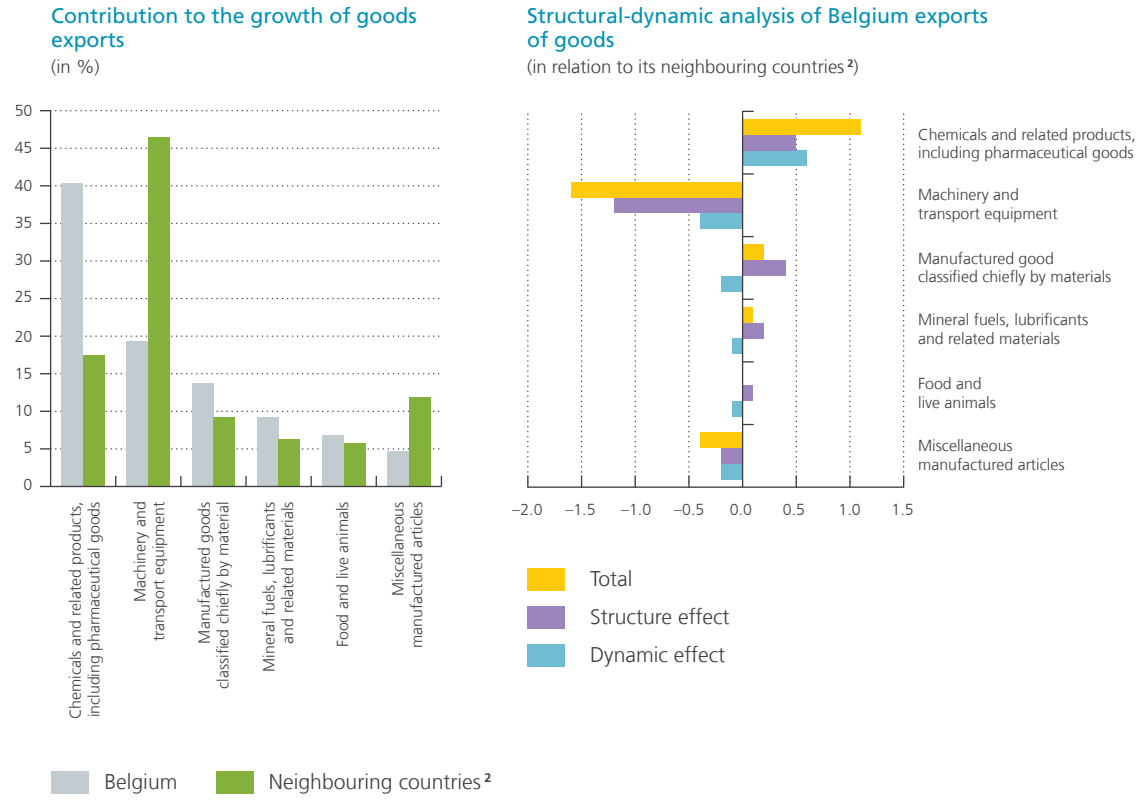
Analysis of trade in goods

Over the period 2016-2018, the growth of Belgium's exports of goods, in volume terms, was relatively stronger than that of its main trading partners: on average 5.7 % compared to 3.8 % for the euro area and 3.2 % for countries like Germany. However, that strong dynamism of Belgian goods exports in recent years needs to be qualified. It is partly due to one specific factor linked to the reorganisation of the trade flows of a major multinational company operating in the pharmaceuticals sector, which considerably inflated Belgium's trade flows in goods both on the export and import side, a fact which limited the net impact on the value of GDP. Apart from this company-specific reorientation, the average growth of Belgian goods exports over the recent period has actually been much lower at around 3.7 %, which is barely higher than the figures recorded in Germany (3.2 %) and France (3.4 %) but lower than in the Netherlands (4.5 %). Overall, for the whole period 2010-2018, disregarding the specific factor mentioned above, the volume growth of Belgian goods exports is lower than that of its neighbouring countries: 2.3 % against 3.7 % in Germany, 3.0 % in France and 4.0 % in the Netherlands.

This relatively weaker growth of Belgian goods exports may be partly explained by the importance of the type of goods which it trades with the rest of the world, or in other words its export structure. A detailed analysis by product categories shows that Belgium's goods exports consist mainly of products from manufacturing industry. This situation, comparable to the euro area and Belgium's neighbouring countries[1], nevertheless conceals the fact that the Belgian economy specialises to a higher degree in the export of products related to the chemicals and pharmaceuticals industry on the one hand, and manufactured products resulting from the processing of raw materials on the other, due in particular to the importance of the diamond trade.

Chart 7

Contribution of the various types of goods to the growth of Belgian exports[1]



Sources: EC, NAI.
1 Main categories of goods.
2 Germany, France, Netherlands

This specialisation of Belgium's goods exports also makes it possible to identify more precisely the product categories which have contributed positively or negatively to the growth – in value terms – of Belgian goods exports with the rest of the world over recent years[2]. In fact, like the growth in volume terms, the figures for the development of foreign trade in value terms indicate that the average growth of goods exports over the period 2010-2018 was weaker in Belgium than in neighbouring countries. This analysis reveals that the biggest contribution to the growth of Belgian exports over this period came from the goods categories "chemicals and related products" including pharmaceuticals, "machinery and transport equipment" and "manufactured goods classified chiefly by material", which respectively represent an average of around 25 %, 23 % and 20 % of the total exports of Belgian goods, or more than two-thirds of the total.

1 Germany, France, Netherlands.
2 The analysis via the disaggregation of exports by type of goods is based on data in value terms.

Apart from the level of the contribution of the various categories of goods to overall export growth, the export structure also makes it possible to explain, at least partly, the lower average growth of Belgian exports compared to those of neighbouring countries[1]. That weaker growth may be due to both under(over)-specialisation in product categories which (do not) generate strong growth, or it may be down to a lack of dynamism specific to Belgium in regard to some of those products, or a combination of both factors. In this connection, analysis of these "structure" and "dynamism" effects in comparison with the growth recorded within a reference region comprising Belgium's three neighbouring countries reveals that, of the three main goods categories which supported the growth of Belgian exports over the period 2010-2018, only the category comprising "chemicals and related products" including pharmaceuticals really helped to reduce the average growth differential, both via a favourable "structure" and "dynamism" effect. Conversely, goods from the category "machinery and transport equipment" contributed to the creation of this average growth gap between Belgium and its three neighbouring countries, both by their lower weight in its total exports ("structure" effect) and by a weaker average growth ("dynamism" effects). "Manufactured goods classified chiefly by material" contributed very little to reducing this growth differential, as the positive "structure" effect has been somewhat offset by the negative "dynamism" effect.

An analysis which combines the degree of over- or under-specialisation of Belgian exports – and those of neighbouring countries – in relation to the structure of world demand by types of goods and their contribution to the dynamism of that international demand also shows a number of additional indications which may explain the average growth differential in exports of goods between Belgium and its neighbouring countries. It thus appears that the category "machinery and transport equipment" – termed "progressive" on account of average growth outpacing total world demand – is also the category of goods which has done most to support the growth of global imports since the start of the decade. Belgium's weaker specialisation in this type of goods compared to its neighbouring countries may therefore also be part of the reason for its weaker export growth. Conversely, Belgium's over-specialisation in "chemicals and related products" including pharmaceuticals, which are also regarded as a "progressive" market and make a major contribution to the average growth of world demand, did not provide enough support for export growth to reduce the average growth differential in relation to neighbouring countries.

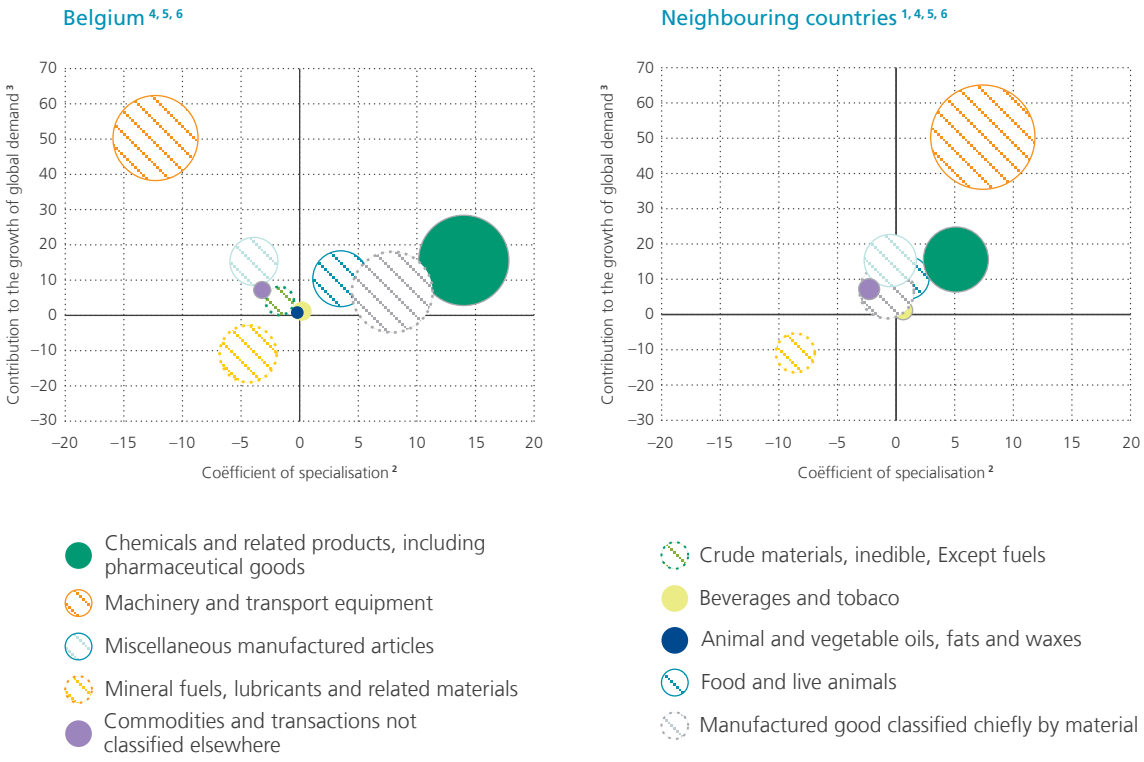
Beyond exports of goods, it is equally important to take account of imports since the balance of trade to and from other countries contributes directly towards supporting or curtailing the growth of the Belgian economy. In that connection, as export growth slightly exceeded import growth on average over the period 2010-2018, a trade surplus of around 0.3 % of GDP meant that, on average, trade in goods made a positive contribution to Belgian economic growth over the past decade[2]. One reason for that lies in excess net exports to the rest of the world in the categories relating to "chemicals and related products" including pharmaceuticals, and in "manufactured goods". In geographical terms, that average surplus was due essentially to excess net trade with countries such as Germany and France. Belgium's balance of trade in goods with the Netherlands shows a substantial deficit owing to the level of energy imports from that country.

1 Germany, France, Netherlands.

2 However, in value terms, the balance of trade in goods was negative, on average, at around 0.4 % of GDP over the period 2010-2018. Over the recent period (2015-2018), net trade nevertheless seems to be positive on average at around 0.3 % of GDP (0.7 % in volume).

Chart 8

Impact of country specialisation and the dynamism of world demand by types of goods



Sources: EC, NAI, UNCTAD.

1 Germany, France, Netherlands

2 The specialisation coefficient for each product category is calculated as the difference between the average share of the product category in the exports of Belgium or neighbouring countries over the period 2010-2018 and the corresponding share of world demand expressed in euros.

3 Contribution to the average growth of world demand, expressed in euros, of the various product categories over the period 2010-2018.

4 The size of the circles represents the average weight of that product category in the total exports of the country or reference region (neighbouring countries) over the period 2010-2018.

5 A shaded circle represents a product category for which Belgium recorded weaker average growth than the reference region (neighbouring countries) over the period 2010-2018.

6 A circle with a continuous outline represents a "progressive" market in terms of world demand, i.e. a product category which, at the level of world demand, recorded average growth in excess of the growth of total demand over the period 2010-2018. Conversely, a circle with a discontinuous outline represents a goods category on a "regressive" market.

Analysis of trade in services

Alongside trade in goods, trade in services is the second component of Belgium's trading relationships with the rest of the world. That component currently represents just under 30 % of Belgium's total trade. This proportion has risen considerably over the past decade: before the 2008 crisis it was still only just over 20 %. This high figure is due partly to the central role played by Belgium in relation to numerous – particularly multinational – businesses and organisations on account of its geographical location at the heart of Europe and its significant position in global value chains. Moreover, many transactions concerning the purchase or sale of goods are generally immediately accompanied by the provision of services such as maintenance, repair, logistics or finance. The importance of the pharmaceutical sector in Belgium, which already makes a considerable contribution to goods exports, also fosters this development owing to the frequent sale or purchase of specific licences worth substantial amounts of money.

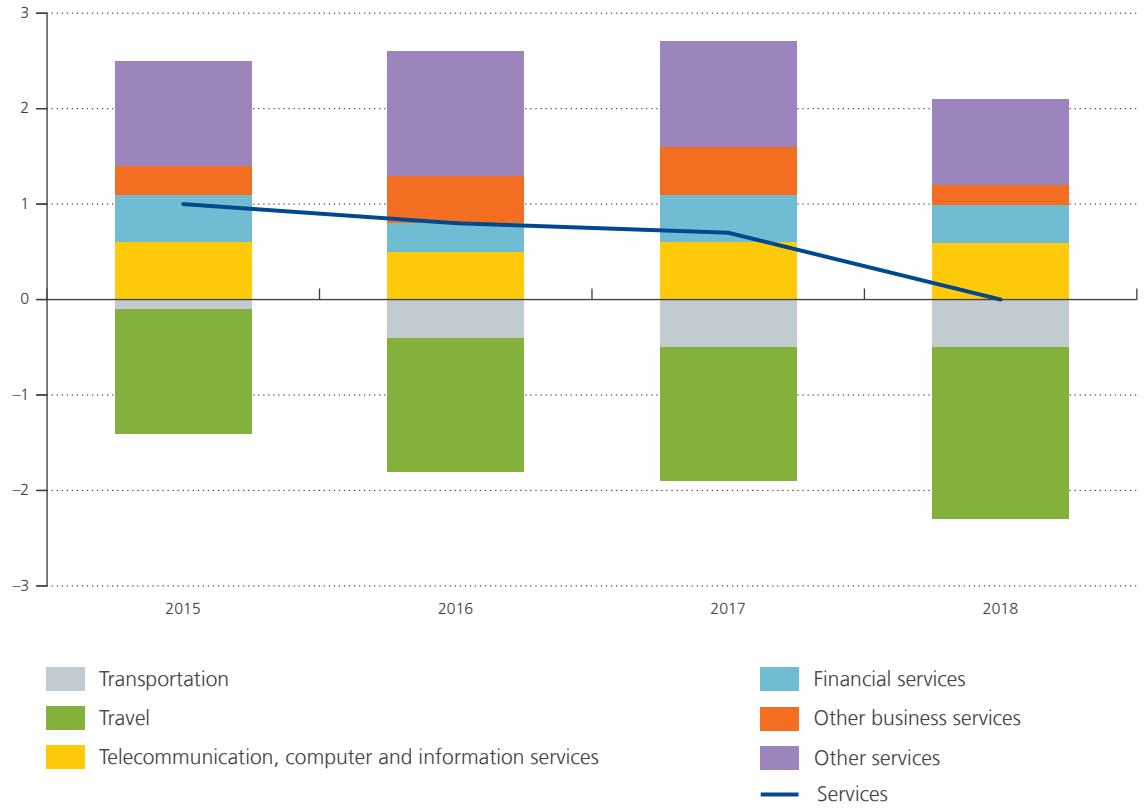
In terms of development, similarly to trade in goods, the volume of service exports recorded weaker average growth over the period 2010-2018 in Belgium, in comparison with neighbouring countries: around 4.0 % compared

to growth of around 5.0 % or more in those countries. This picture which is likewise apparent from the data in value terms may – by analogy with the analysis of goods exports – be due to the types of services exported by Belgium in comparison with neighbouring countries. However, owing to changes in the methodology used to calculate certain specific series of services over that period, the conclusions drawn from such a disaggregated analysis by service categories would be somewhat biased[1]. Nevertheless, it seems that "travel" and "transport" services have contributed to this growth differential, partly as a result of lower average dynamism.

Chart 9

Belgium's balance of trade in services

(in % of GDP)



Sources: NAI, NBB.

Despite the increasing share of services in Belgium's international trade, their net surplus has diminished in recent years (2015-2018) and Belgium's trade surplus in services is now close to balance, so that it contributes very little to Belgian GDP growth. The disappearance of the surplus in services is due mainly to the decline in net "transport" and "travel" services[2] which recorded a rising deficit during 2015-2018, and the deterioration in the surplus in "other business services" – which include R&D and professional consultancy services – in 2018, which was not sufficiently offset by the upward trend in other service categories such as "IT and communication" services.

1 Some important methodological changes were implemented at the time of publication of the balance of payments data in September 2019. In particular, those changes caused some breaks in the series, so that it is no longer possible to compare the series over a long period of time. For instance, the balance of transport services was automatically reduced following conversion from "CIF/FOB" calculation to an "FOB/FOB" approach without there being any other real economic reason that could explain that decline. So, there is a break in the statistical series from 2015 compared to previous years. For more information: https://www.nbb.be/doc/dq/e_method/bop300919_e.pdf

2 "Travel" services mainly concern tourism activities. Exports of this type of services correspond to expenditure by foreign tourists in Belgium, while imports represent expenditure by Belgian tourists in other countries.

2.3 Trend in market share of Belgium

In addition to the analysis of the intrinsic dynamism of exports and imports of goods and services, Belgium's foreign trade performance can also be analysed on the basis of the evolution of its trade balance with the rest of the world, and according to the trend in its market shares.

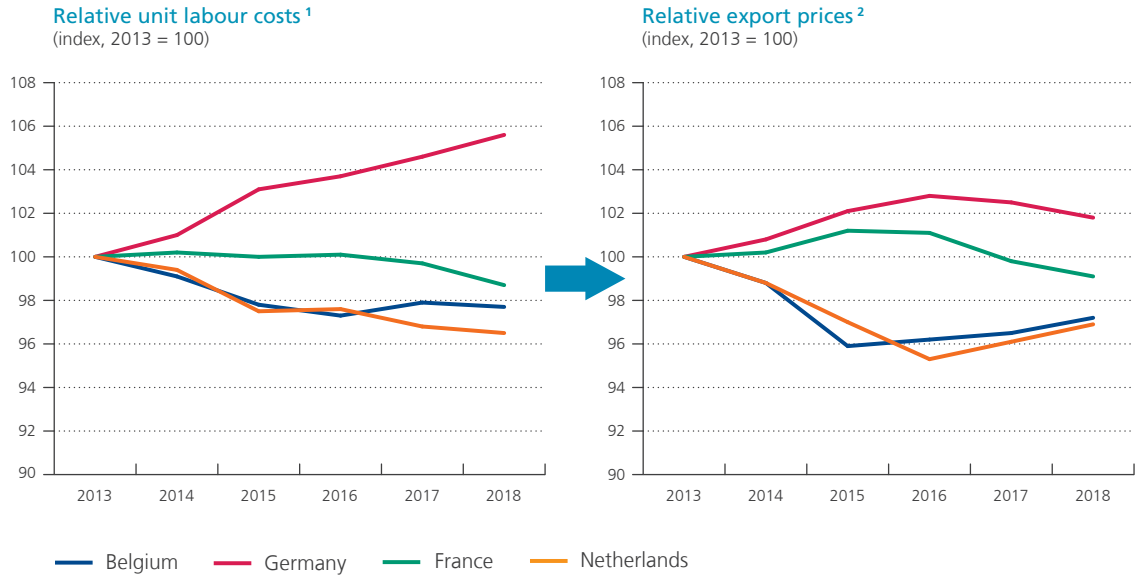
In this respect, while Belgium recorded a small surplus in its balance of trade in goods and services by volume, averaging around 2.8 % of GDP over the period 2010-2018 [1], it also suffered significant losses of export market share despite the cost-competitiveness measures adopted in recent years.

Cost competitiveness is considered to be a key factor determining export performance, particularly for Belgium in view of its high degree of openness to other countries, but also the level of its direct exports most of which are still destined for markets in the euro area and therefore face competition from domestic production or countries with a common exchange rate. However, while this particular focus on the cost-competitiveness aspect is important for Belgium, it is not the only factor having an impact on Belgian external performance.

Chart 10

Unit labour costs and relative export prices

(in % of GDP)



Sources: EC, NAI.

1 Relative nominal unit labour cost of the country considered in relation to the average for all euro area countries, weighted by the proportion of the country's goods exports to the countries in the panel.

2 Relative deflator of exports of goods and services of the country considered in relation to the average for all euro area countries, weighted by the proportion of the country's goods exports to the countries in the panel.

While the level (growth) of the volumes exported by an economy depends, among other things, on the external demand addressed to it and the relative cost/price of its exportable goods, the relationship between that growth and cost/price will also depend on a range of other factors. These include the transmission of costs in export prices, the price elasticity of exports – which may vary according to the type of products exported – or the amount of domestic value added contained in the exports.

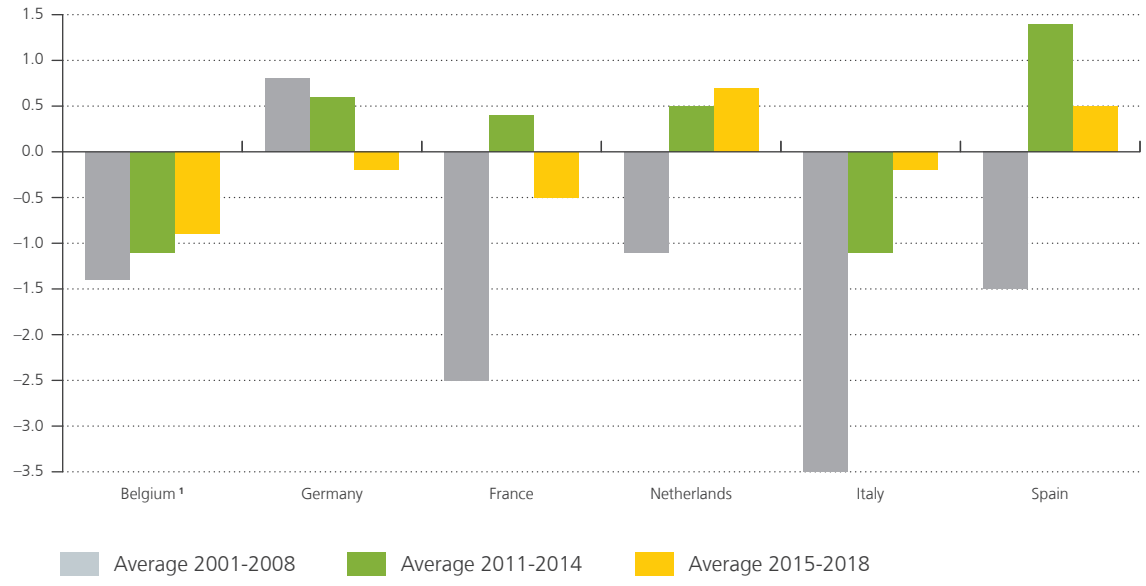
1 According to the national accounts statistics (0.8 % on average for value data).

In this context, recent analysis seems to indicate that while Belgium's relative unit labour costs have improved slightly in recent years, particularly in comparison with its neighbouring countries, those gains in cost-competitiveness have not been entirely reflected in export prices, notably owing to a relatively limited "pass-through" of the cost-price of exports[1]. Various studies have highlighted this point. For instance, it has been shown (De Ville *et al.*, 2016) that changes (reduction/limitation) in unit labour costs did not always seem to be passed on in full in export prices, but were partly – and particularly – reflected in corporate profit margins.

Similarly, the low cost/price elasticity of Belgian exports has likewise been demonstrated in certain studies (Decramer *et al.*, 2014), which could explain why Belgium's external performance has remained modest. One possible reason for this low price elasticity, as illustrated in section 2.1, is the importance of intermediate goods in total Belgian goods exports. In the globalised context of value chains, Belgian exporters are mainly active in exporting this type of goods, for which prices do not seem to play an essential role, at least in the short term. In fact, it seems difficult to make rapid changes to established value chains, especially if they take place between entities in the same group, which is often the case in Belgium. Moreover, as for its three neighbouring countries, the share of high-technology exported goods is high in Belgium, and goods which are highly R&D-intensive, such as pharmaceuticals, appear less sensitive to a change in the cost/price than goods involving more standardised technology *(Wierts et al., 2012).*

Chart 11

Trend in market shares of Belgium and its neighbouring countries



Sources: EC, ECB, NAI.

1 Disregarding the reorganisation of a company in the pharmaceuticals sector in 2016-2017.

Finally, the limited transmission of costs to export prices would also be explained by the fact that Belgium's exports have a larger import content than those of its neighbouring countries – or conversely, lower domestic value added. In fact, the pass-through of lower costs, particularly labour costs, to export prices and performance would therefore be weaker. Belgium's export competitiveness thus seems to require monitoring of the movement

1 In recent years (2013-2016), the decline in Belgium's export deflator was also supported by the reduction in prices of energy, especially petroleum products, which weigh on its exports.

in all the factors involved in export price formation, namely unit labour costs but also the profit margins of firms and the prices of inputs used in the exported goods.

Indeed, even though the losses of market share suffered by Belgium have been slightly lower than previously, the trend is still negative, on average, at around 1.0 % over the period 2015-2018, and considerably more marked than in neighbouring countries[1]. Therefore, while the wage moderation measures seem to have brought some improvement in Belgium's cost competitiveness, its export performance suggests that these measures adopted in recent years contributed only, to a small extent, to soften the trend towards less dynamic exports and the corresponding losses of market share which remain substantial in comparison with neighbouring countries.

3. Sources of export growth

On the basis of the above findings concerning Belgium's export performance, it has become apparent that the recent growth of exports has been subdued compared to the neighbouring countries, and that the efforts to master cost competitiveness have not fully translated as far as market shares are concerned. This final section aims to supplement the analysis from a microeconomic angle. It sheds light on the sources of activity growth for Belgian firms in other countries. Given the new, riskier international context, this section aims more specifically to trace the recent developments between 2015 and 2018 and the internationalisation strategies of Belgian firms.

3.1 Mapping of export firms

Before we proceed to analyse the sources of export growth, an initial mapping of Belgian firms active on foreign markets reveals a number of stylised facts.

Table 1

Concentration of Belgian export activity[1]

	Total number of Belgian exporters	Share of top 100 exporters (in %)	Number of Belgian exporters by destination		
			EU	US	China
2016	9 827	56	6 401	1 984	1 221
2017	9 796	56	6 450	2 041	1 255
2018	10 215	55	6 721	2 118	1 294

Source : individual foreign trade data, national concept.
1 Data include only firms whose exports to the EU exceeded € 1 million and those whose extra-Community exports represented at least € 100 000.

First, Belgium's international trade proves to be relatively concentrated : the number of export firms averaged around 10 000 units between 2015 and 2018, representing a small proportion of the total number of Belgian firms (just under 5 %). Nevertheless, there are significant numbers of entries and exits by firms each year.

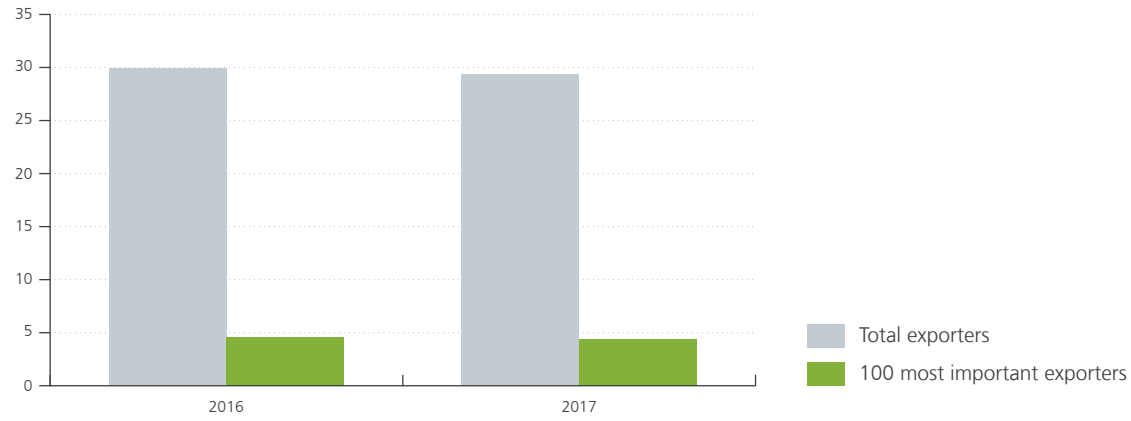
1 Disregarding the reorganisation of a company in the pharmaceuticals sector which inflated Belgian exports during the years 2016-2017 (otherwise the loss of market shares would be around 0.5 %).

Moreover, within the same relatively small number of Belgian exporters recorded, large firms make up the majority. Despite this relative concentration, the sector is not all that disconnected with the rest of the Belgian economic fabric: it directly employs almost one person in three in the private sector. In addition, and above all, it is connected with many other domestic firms which supply services or intermediate goods upstream: overall, nearly two-thirds of all Belgian firms are indirectly linked to foreign trade and are therefore connected with demand from the rest of the world. Thus, international trade has widespread spillover effects on the rest of domestic activity.

Chart 12

Share of exporters[1] in employment in Belgium

(in % of total private sector employment[2])



Source: individual foreign trade data, national concept.

1 Data include only firms whose exports to the EU exceeded € 1 million and those whose extra-Community exports represented at least € 100 000.

2 Excluding banks and insurance companies.

3.2 What are the recent growth sources for Belgian exports?

The use of microeconomic data on the commercial transactions of firms enables us to break down the firms' export growth into two different sources: an "intensive" margin and an "extensive" margin. The data and the methodology used are based on those of Dhyne and Duprez (2013) and are described below.

First, the individual transactions of Belgian firms with other countries are recorded as transactions by resident firms with the rest of the world, by country of destination (for exports) or origin (for imports) and by type of goods according to the HS6 classification of products (dividing exports into more than 5000 categories). As in the case of the macroeconomic series in the previous section, the transactions used to compile the foreign trade statistics adhere to the national concept, i.e. excluding transit flows and part of the quasi-transit. These data are obtained either from customs declarations, in the case of extra-Community trade, or from Intrastat declarations in the case of intra-Community trade. The data only include firms whose exports to the EU exceeded € 1 million at 2006 prices or whose extra-Community exports represented at least € 100 000 at 2006 prices. These are value data not volume data. The figures therefore capture not only variations in the quantities exported but also variations in prices or exchange rates.

Next, use of this microeconomic database enables the aggregate growth of exports between *t–1* and *t* to be subdivided into two main components:

- The first relates to the growth of international trade transactions that were maintained between *t–1* and *t*. It is called *the intensive component* of export growth, and can be seen as the intensification of existing trade relationships.

- The second relates to the fact that some international trading relationships recorded in *t–1* are no longer active in *t*, while others are newly formed in *t*. This process of creation/destruction of international trading is called the *extensive component* of exports. Exports grow (decline) because the amount of new transactions is larger (smaller) than the amount of transactions destroyed. In this study, an international transaction represents the export by a Belgian firm of a particular HS6 product to a specific country of destination. The extensive component of export growth may therefore have three dimensions: a "firms" component, a "countries" component and finally a "products" component. The "firms" component represents the extensive margin due to the entries and exits of firms on the international markets viewed as a whole. It is the contribution of new exporters compared to that of firms leaving the global markets altogether. The "countries" component is the extensive margin due to the entries and exits of existing exporters in *t* in a country of destination. This dimension therefore represents the conquest of new foreign markets or the pure departure of established exporters from a specific country. Finally, the "products" component corresponds to the extensive margin associated with the introduction or withdrawal of specific HS6 products by existing exporters in a country of destination in which they have already been present with other products.

To measure the contribution of the various components of export growth, the definition of that growth between two periods follows the one proposed by Davis and Haltiwanger (1992). It can be used to calculate the growth rate associated with the creation/destruction of transactions. It is given by:

$$\dot{X_{it}} = 2\frac{X_{it} - X_{it-1}}{X_{it} + X_{it-1}}$$

where X_{it} represents the amount of transaction *i* (one firm, one country, one product) observed for year *t* and $\dot{X}_{it}$ is the growth rate of that transaction between *t* and *t–1*. According to this definition, the growth rate associated with an entry is equal to 2, while the rate associated with an exit equals –2. Between these two extremes we can see the growth rate of the intensive margins.

Aggregate growth is obtained as:

$$\dot{X}_t = \sum_{i=1}^{N} \frac{X_{it} + X_{it-1}}{X_t + X_{t-1}} \dot{X}_{it}$$

where X_t represents the total amount of exports for year *t* and $\dot{X}_{it}$ is the growth rate of transaction *i* between *t* and *t–1*.

3.3 Overall export growth: intensive vs extensive margins

Overall export growth and its breakdown into intensive and extensive margins permits a better understanding of the underlying dynamics. As a preliminary point, it should be noted that aggregate growth is the outcome of large gross movements which partly offset one another. Every year, some trade relationships grow while others decline, many are created and others are terminated or suspended. To gain a better grasp of the main tendencies underlying aggregate export movements, we shall confine ourselves to analysing the various *net* growth margins which reflect the difference between the gross positive and negative contributions for each dimension (intensive, firm-extensive, country-extensive and product-extensive).

Assessed in the long term over various sub-periods, the net margins reveal that, before the introduction of the euro, the contribution of intensive margins predominated significantly over other sources of export growth. In contrast to the most recent period between 2015 and 2018, it appears that the growth of Belgian exports was supported by other contributions, particularly extensive ones, which became positive again. They thus indicate the emergence of new transactions with other countries as one factor supporting recent export growth. That is true in particular of the "new firms" component. However, its strong contribution during the period 2015-2018 does not necessarily reflect a steep rise in the number of exporters, because it is largely influenced by the decision by a major pharmaceuticals group to base its international activities in Belgium : that alone accounts for almost 60 % of the "new firms" component of the extensive margin. Nonetheless, even if the specific effect due to that group is neutralised, net export firm creations also supported Belgian export growth in the most recent period and more generally reflect changes in the structure of the population of exporters.

The contribution due to the introduction of new products (diversification of the range offered) also contributed to the increase in exports. Conversely, the extensive "country" component plays a minor role structurally, bearing witness to the difficulty of penetrating new foreign markets and the intra-European character of Belgian foreign trade. At the end of the period it was actually negative, indicating the termination of trading activities in a number of countries, perhaps in order to concentrate more effectively on certain key markets. True, during the recent period the positive contribution of the intensive margin shows that the intensification of existing relationships remains an essential basis for exporting. But the relative contribution of the extensive margins has also increased, which thus tends to point to underlying structural changes : in the new global context, the repositioning of Belgian firms is geared more to renewal of the fabric of exporters and the expansion of the product ranges offered abroad, rather than opportunities for penetrating new markets. Note also the link between extensive and future intensive margins : it is new relationships which could subsequently enjoy sustained growth.

Chart 13

Breakdown of long-term export and import growth : extensive and intensive margins

(in p.p. unless otherwise stated)

Source : individual foreign trade data, national concept.

A breakdown of the growth of Belgian imports gives a similar picture. Thus, over the period 2015-2018 we find a relative increase in extensive margins as opposed to intensive growth sources which had predominated in the past. So, it would seem that importers have recently diversified their input sources to a greater degree.

While imports are often seen as less important than exports, they nevertheless potentially represent a source of productivity growth for firms, particularly via extensive margins which give domestic firms access to a wider range of inputs. This channel acts as a real competitiveness lever and seems to have been more active in recent years.

BOX 1

Exports growth to the "sensitive" markets of the UK and the US

In recent years, serious tensions have arisen between the US and its main trading partners, culminating in the introduction and raising of customs tariffs on numerous traded goods. In addition, the forthcoming departure of the UK from the EU has continued to generate considerable uncertainty over the future trading relationship between these two partners. That general climate causing doubts about disruptions of known relationships implies that the economies concerned will need to find a new balance; that is especially true for export firms which are confronted directly or indirectly by these events. These two cases, symptomatic of a gradual shift away from a multilateralist free-trade view to a more protectionist and bilateral approach to international trade directly concerns two of Belgium's main trading partners in terms of direct exports, namely the ones in 4th and 5th place.

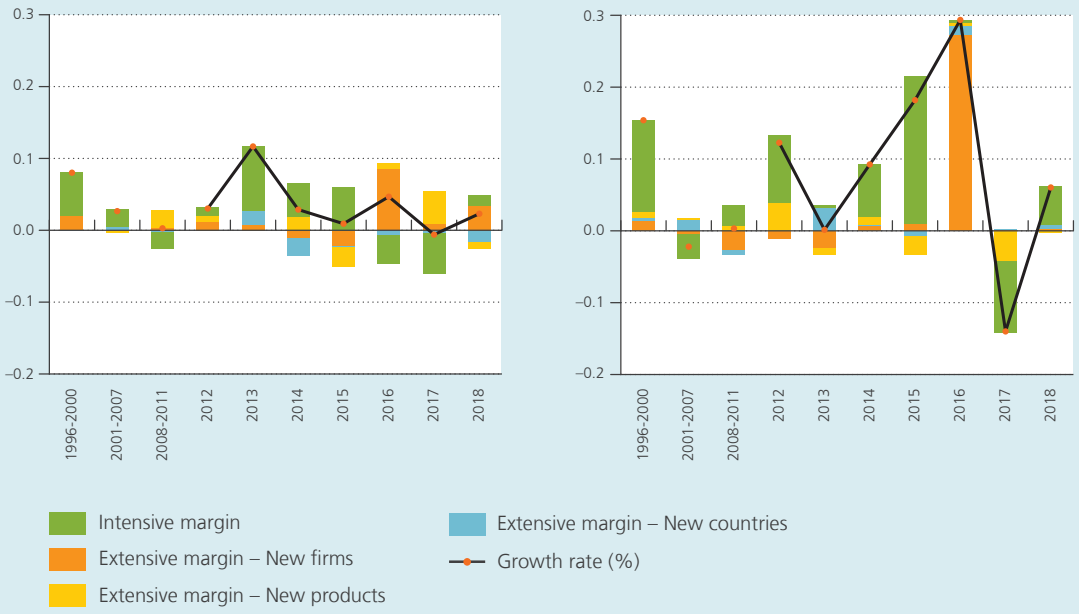
At the macroeconomic level, the protectionist measures adopted by the US are currently having little impact on Belgium. In fact, the Belgian value added involved in American imports of base metals – which include steel and aluminium – represents only 0.07 % of Belgian GDP. Also, Belgium's contribution to Chinese exports to the US amounted to only around 0.14 % of its GDP over the period 2009-2011 (partly indirect contribution specifically involved in Chinese sales of electrical, IT or optical equipment to the American market) and contributed only the equivalent of 0.03 % of that same GDP to American exports to China (mainly via chemicals and pharmaceuticals). At this stage, it therefore seems that these protectionist measures have little impact on Belgium. However, the effect could be greater in the event of a worsening trade war between China and the US. Nevertheless, on the basis of the Belgian economy's levels of exposure – and assuming that new tariffs do not extinguish the trade flows altogether – the macroeconomic effects should remain modest.

As regards the UK, although the final terms of any agreement covering post-Brexit trade will depend on the outcome of the negotiations with the European authorities, the main cost to Belgium is likely to stem from its trade relations. In fact, in terms of direct exports of goods and services, the UK represented on average almost 8 % of Belgium's total worldwide exports between 2016-2018. As for the sectors which might feel the biggest impact, Belgium seems particularly exposed as regards its exports of goods relating to the categories "machinery and transport equipment", "food and live animals", "chemicals and related products" including pharmaceuticals, and certain manufactured products. However, at this stage, and despite the current great uncertainty and exit postponements, the foreign trade figures do not indicate any break which can be clearly identified as due to Brexit: Belgium's surplus in trade in goods with the UK is still significant, at around € 5.5 billion in 2018 compared

to € 6.0 billion in 2017. However, from a microeconomic angle these flows concern numerous Belgian firms: in 2018, 19 122 Belgian firms supplied goods or services to almost 44 421 British businesses. Moreover, 28 400 Belgian firms obtained supplies from an indeterminate number of exporters located in the UK. In addition, 147 Belgian companies were partly owned by a business located in Britain in 2018, while 227 held at least 25 % of the shares in a British company, thus increasing their exposure to Brexit. Altogether, Britain's withdrawal therefore directly concerns almost 41 000 Belgian firms. For these firms, the introduction of tariffs or non-tariff and administrative barriers, such as conformity documents, customs declarations, will hamper their trade in varying degrees depending on the future shape of relations between the UK and the EU. Furthermore, their British counterparts might cut back their demand for Belgian goods and services if import tariffs are introduced. But Belgium's exposure to this shock is not confined solely to its direct exposure. Taking account of the relations of Belgian suppliers or customers with exporters and importers, the number of firms potentially concerned is much greater. For instance, it is estimated that almost two-thirds (67 %) of Belgian firms have links with British demand owing to their role in supplying the 18 510 exporters.

Breakdown of annual export growth to the UK and the US – extensive and intensive margins

(in p.p. unless otherwise stated)



Source: individual foreign trade data, national concept.

The effects associated with trade relations between Belgium and Britain are also added to the indirect effects resulting from trade between the UK and other EU countries in which Belgium is a partial contributor. On the basis of 2015 (the last available year), these various exposures are estimated at around 0.7 % of GDP and are therefore additional to the 3.1 % of Belgian GDP already directly

exported to the UK. Britain's departure from the EU could therefore affect around 3.8 % of Belgian GDP via a reduction in the volume of trade with that country. However, 0.2 % could be (partly) redirected to other European partners if the British link in these value chains could be readily relocated either in Belgium or in another Member State.

The analysis of intensive and extensive margins can be refined by considering these specific destinations in Belgian export transactions in the microeconomic database. In regard to the British market, it seems that intensive margins have been negative in the wake of the vote in favour of Brexit, perhaps reflecting a certain reduction in trade with Britain, but also other factors such as the depreciation of the pound sterling or the cyclical slowdown in the UK. Nonetheless, there is no sign of a mass exodus of Belgian firms from this market. On the contrary, the contribution of new exporters on the British market seems to have been positive in the recent period, despite the uncertainties surrounding Brexit.

The same exercise was conducted for the US. Although exports to the US account for a smaller share of total Belgian exports than the British market, they are still significant. Belgium's direct exposure to that market underestimates its importance, because Belgian producers are more exposed to it through their German partners, in particular, whose involvement ultimately enables Belgian firms to reach a more significant number of American consumers. In regard to Belgian exporters' margins, given the greater difficulty of penetrating new markets which are geographically more distant, it is mainly established relationships that influence export growth. This is reflected in the relative importance of the intensive margins. Once again, in 2016 we find the activities of the major pharmaceuticals group having a big impact on the outcome for the margins. Overall, since this market is farther away, the extensive margins are naturally less marked, reflecting the greater difficulty in serving economies which are geographically more distant.

In conclusion, in view of the findings of the exercise concerning extensive and intensive margins, it seems clear that the introduction of tariffs following the adoption of protectionist policies in other countries would be damaging for Belgian exporters. They would impede not only the existing trade relations at the level of intensive margins, but also at the level of extensive margins, although the latter's contribution to export growth had been revived in recent years and is important for the future development of intensive margins. Since a substantial proportion of the domestic economic fabric leans against the Belgian trade sector, trade barriers would initially affect exporters but then trigger cascade effects, e.g. among their Belgian suppliers, whose order books would also shrink.

Conclusion

With increasingly blurred lines of demarcation – between new global players, changing goods and services, and new technologies – combined with new forms of protectionism, the shape of international trade is changing. In the face of this situation, it seemed essential to take stock of Belgium's trading relations with the rest of the world in order to ascertain its position and see what role it can continue to play in the years ahead.

The article showed that Belgium is still an economy whose openness and integration into world trade remain important to its economic development and future prosperity. However, since the start of the decade Belgium's export performance has seemed to lag behind the average achieved by three of its neighbouring countries

which are also its main trading partners. In fact, Belgium is still suffering significant losses of export market shares in relation to the rest of the world. At this stage, it seems that the wage moderation policy introduced in recent years, intended in particular to promote Belgium's cost competitiveness, has not managed to reverse the trend towards less dynamic exports and, as the corollary to that, to improve Belgium's export performance. The reasons which might explain this are many: one is related to the price elasticity of Belgian exports which is relatively low, partly on account of the large proportion of total Belgian exports made up of intermediate goods. In fact, it seems more difficult to modify the existing value chains in the short term, especially if they are formed between entities in the same group, which is often the case in Belgium. Conversely, production cost comparisons exert a significant influence on the choice of location for production units in these chains, and that is therefore an essential factor for Belgium to monitor. In addition, as in the case of the three neighbouring countries considered in the analysis, the share of high-tech exports is substantial. These highly R&D-intensive goods such as pharmaceuticals are relatively less sensitive to price changes than goods involving more standardised technology, and that limits the impact of cost-competitiveness on Belgian exports. Finally, the import content of Belgian exports seems a little higher than that of its neighbouring countries, which is another factor which tends to limit the effects of a wage moderation policy.

This new context creates a need for adaptability to ensure better resilience, particularly on the part of Belgian firms. The increased contribution of extensive margins to Belgian export growth indicates renewal of the fabric of commercial transactions, mainly as a result of the advent of new firms exporting and diversification of the product range of existing exporters, auguring a future revival of growth if these new relationships develop. In order to remain resilient and maintain a degree of competitiveness, firms focusing on foreign markets will have to ensure that they can adjust their costs in response to shocks, if need be by absorbing the cost of tariffs or non-tariff barriers in their margins. All the same, use of competitive advantages on factors other than cost is quite important to enable firms to adopt a strategic position and secure lasting development internationally. To achieve that, firms will therefore need to do their best to ensure that they take up positions on buoyant markets where demand is dynamic, and in niche segments with a high technology content in order to maintain and even increase their share of foreign markets – a relatively less developed aspect in view of the smaller "country"– extensive contribution.

The Belgian authorities can help in various ways. Boosting export aid and export promotion, notably via regional agencies which have a positive effect on opportunities for penetrating new, more distant foreign markets[1], is an obvious approach. But apart from that, the macroeconomic framework and, in particular, the regulatory system, must be sufficiently favourable to offer the necessary incentives for the expansion of trade and to ensure that trade is not hampered by unnecessarily constraining barriers. For that purpose, the allocation of resources – whether labour or capital – needs to be flexible. Where labour is concerned, we must ensure that it is possible to recruit qualified staff with the competence and soft skills specific to international trade, such as knowledge of languages. Upstream, education will play a key role. Another prerequisite concerns guaranteeing and investing in good quality infrastructures, not only to enable firms to continue to perform and trade in the normal way, but also to preserve Belgium's attractiveness as a leading commercial centre on the European continent. The initiatives adopted by previous governments to stimulate entrepreneurial culture and risk-taking should be pursued to maintain the positive signals visible as regards extensive margins. Finally, all these measures form part of a broader European framework to which they must respond. In view of the new international context, the European authorities have already made significant changes, shifting from their traditional multilateral position towards defining a new, more cautious framework (considering a new strategy for screening Chinese FDI)[2] but also a more aggressive approach where necessary (balanced retaliatory measures in response to the American protectionist attacks).

1 Van Bisebroeck and Schminke (2016) find robust evidence that export promotion programmes raise firms' propensity to start exporting outside the EU single market.

2 See Buysse K. and D. Essers (2019). The idea of reforming the European competition rules to enable European champions to emerge is also part of this debate, in order to provide sufficient strike force to stand up to the Chinese giants with the massive financial support that they enjoy (via state aid or by being linked to state-owned enterprises).

Annexes

Table 1

Main events relating to the escalation of the global trade war

Global trade war		
US / China		
	Summer 2018	25 % customs tariff on Chinese imports worth $ 50 billion
		Retaliatory measures against the US for equivalent amounts
	September 2018	10 % customs tariff on Chinese imports worth $ 200 billion
		Retaliatory measures against the US consisting of a 5-10 % tariff on goods worth $ 60 billion
	Winter 2018-2019	Negotiations: easing of tension
	May-June 2019	Previous tariff increased from 10 % to 25 %; blacklisting of Chinese firms in the tech sector (Huawei)
		Retaliatory measures against the US consisting of a 25 % tariff on goods worth $ 110 billion
	November 2019	Negotiations: easing of tension
US / Rest of the world		
	January 2018	20-50 % customs tariffs on washing machine imports worth $ 1.8 billion
		30 % customs tariffs on solar panel imports worth $ 8.5 billion
		Retaliatory measures against the US
	March-April 2018	Customs tariffs of 10 % on aluminium and 25 % on steel concerning goods worth almost $ 20 billion
		Retaliatory measures against the US
	June 2018	Rebalancing measures against the US: 10-25 % tariffs on goods worth $ 3.2 billion
	Summer 2018	Negotiations with the EU: easing of tension
	January 2019	Definitive safeguard measures on imports of certain American steel products
	May 2019	New NAFTA agreement (USMCA): lifting of US sanctions on aluminium and steel for Canada and Mexico
	October 2019	WTO dispute over aeronautical industry subsidies: 10 % tariffs on imports of aircraft and 25 % tariffs on other European products

Source: NBB.

Table 2

Main events relating to Brexit

Brexit		
	June 2016	Referendum in favour of Brexit
	March 2017	Activation of Article 50 of the EU Treaty
	November 2018	Exit agreement negotiated by the 27 heads of State and government and Theresa May (UK Prime Minister)
		Divorce settlement: citizens' rights, financial settlements, transfer of European agencies located in Britain, transitional period (end 2020) before the UK actually leaves
		Protocol providing for a "backstop" to avoid the reinstatement of a physical frontier between the Republic of Ireland (an EU member) and Northern Ireland (part of the UK)
		Political declaration on the future relationship: maintenance of free-trade economic relations ("deal") to avoid a disorderly departure with no agreement where WTO rules would apply by default ("no deal")
	Spring 2019	Rejection of the withdrawal agreement by the British parliament
	March-June 2019	Brexit date postponed multiple times
	July 2019	Boris Johnson becomes Prime Minister of the UK
	October 2019	Amendment of the withdrawal agreement
	31 Januari 2020	*Brexit?*

Source: NBB.

Bibliography

Baugnet V., K. Burggraeve, L. Dresse, C. Piette. and B. Vuidar (2010), "Belgium's position in world trade", NBB, Economic Review, June, 27-53

Buysse K. and D. Essers (2019), "Cheating tiger, tech-savvy dragon: Are Western concerns about "unfair trade" and "Made in China 2025" justified?", NBB, *Economic Review*, September, 1-23.

Buysse K, D. Essers and E. Vincent (2018), "Can China avoid the middle-income trap?", NBB, *Economic Review*, June, 63-77.

EC (2019), Commission Implementing Regulation (EU) 2019/159 of 31 January 2019 imposing definitive safeguard measures against imports of certain steel products.
https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:32019R0159&from=EN

Cordemans N., C. Duprez and K. Kikkawa (2018), "America's new trade policy and its impact on the Belgian economy", NBB, *Economic Review*, September 7-35.

Davis S. and J. Haltiwanger (1992), "Gross job creation, gross job destruction, and employment reallocation", *Quarterly Journal of Economics*, 107(3), 819-63.

Decramer S., C. Fuss and J. Konings (2014), "How do exporters react to changes in cost competitiveness?", ECB Working paper series, December, no 1752

De Ville F. and M. Vermeiren (2016), "Rising powers and economic crisis in the euro area", Global reordering, Palgrave, Macmillan

Dhyne E. and C. Duprez (2013), "Structural dynamics of Belgium's foreign trade", NBB, Economic Review, June, 1-13.

Diakantoni A., H. Escaith, M. Roberts and T. Verbeet (2017), *Accumulating trade costs and competitiveness in global value chains*, WTO Working Paper, January.

EC (2019), "Draft Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community, as agreed at negotiators' level on 14 November 2018" : https://ec.europa.eu/commission/sites/beta-political/files/draft_withdrawal_agreement_0.pdf.

EC (2019), "Political declaration setting out the framework for the future relationship between the European Union and the United Kingdom" : https://www.consilium.europa.eu/media/37059/20181121-cover-political-declaration.pdf

EC (2019), "Working document – Consolidated version of the Withdrawal Agreement following revision of the Protocol on Ireland/Northern Ireland and technical adaptations to Articles 184 and 185, as agreed at negotiators' level and endorsed by the European Council" :
https://ec.europa.eu/commission/sites/beta-political/files/consolidated_withdrawal_agreement.pdf

EC (2019), "Revised Protocol on Ireland and Northern Ireland included in the Withdrawal Agreement" :
https://ec.europa.eu/commission/sites/beta-political/files/revised_withdrawal_agreement_including_protocol_on_ireland_and_nothern_ireland.pdf

EC (2019), "Revised Political Declaration" :
https://ec.europa.eu/commission/publications/revised-political-declaration_en

Gunnella V. and L. Quaglietti (2019), "The economic implications of rising protectionism : a euro area and global perspective", ECB, *Economic Bulletin*, Issue 3.

IMF (2019), *World economic outlook, April, Chapter 4*.

Melyn W., "Characteristics and development of Belgium's foreign trade" (2004), NBB, Economic Review, September, 7-27

OECD (2018), *Trade policy implications of global value chains*, Trade policy brief, December.

OECD (2019), *OECD Economic Outlook, 2019(1)*, OECD Publishing, Paris.

Pew Research Center (2018), *Americans, Like Many in Other Advanced Economies, Not Convinced of Trade's Benefits*, September.

UNCTAD (2019), *World investment report 2019, Special economic zones*, June.

Van Bisebroeck J., A. Schminke (2016), *The impact of export promotion on export market entry*, NBB, Working Paper 316, December.

Vicard V.(2018), *Une estimation de l'impact des politiques commerciales sur le PIB par les nouveaux modèles quantitatifs de commerce*, Conseil d'analyse économique, focus n°22, July.

Wierts P., H. van Kerkhoff and J. de Haan (2012), "Trade dynamics in the euro area : the role of export destination and composition", DNB Working paper, October, No. 354

World Bank (2017), *Global value chain report 2017: measuring and analyzing the impact of GVCs on economic development*.

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[1] (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[2].

* We thank V. Bogaerts, N. Cordemans, Ph. Delhez, E. Dhyne, Ch. Goethals, M. Maeseele, D. Muraille, Ch. Piette, F. Tournay and participants to the NBB internal seminar for their helpful comments and data assistance.

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

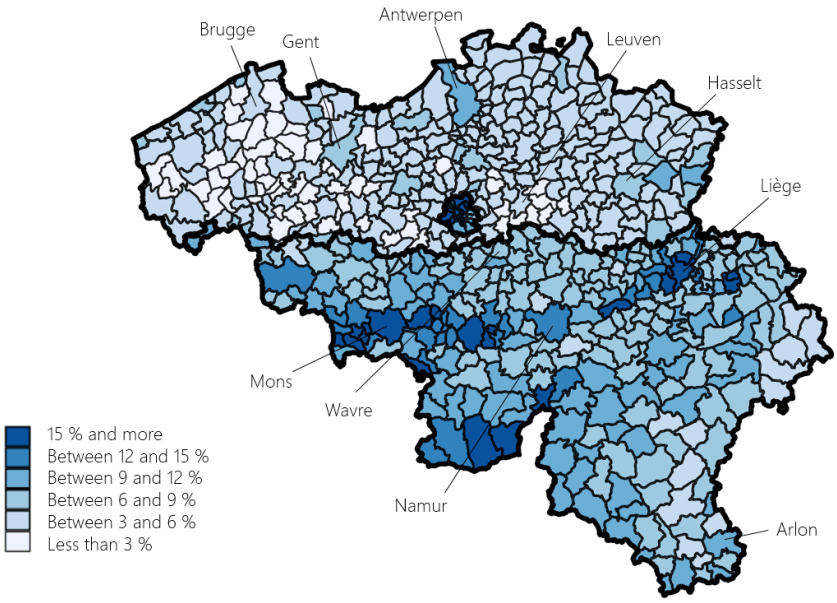
2 According to OECD (2005), some regional disparities may be explained by sectoral specialisation or the labour force composition, in terms of age and education, but many of the disparities remain unexplained.

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[1].

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[2]. Although these findings should be interpreted with some caution[3], 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 %).

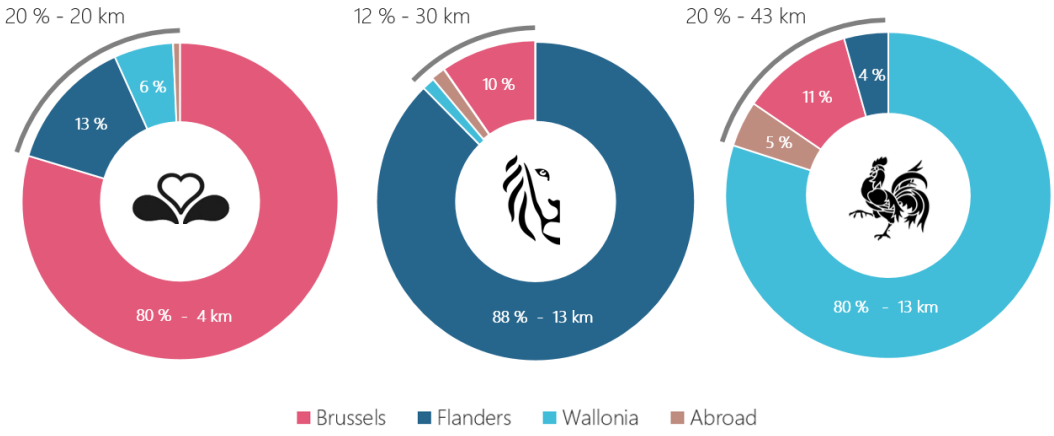
1 In a different Belgian Region or abroad: international mobility being also considered here.
2 Eurostat (2016).
3 The physical size of the NUTS2 geographical units varies widely across countries, reducing the relevance of international comparison. In Belgium, NUTS2 classification refers to provinces, 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 time 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 [1]. 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

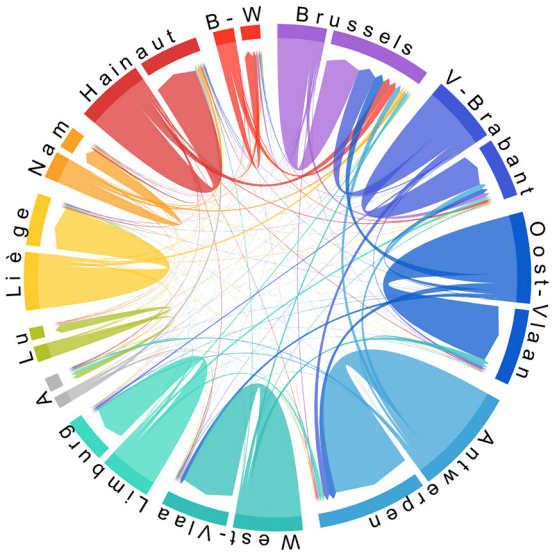
1 See FPS Transport and Mobility (2019).

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[1] 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[1]. 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[2], 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 of 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

1 61 % if international commuting is also considered.
2 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 [1]. 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 [2] (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 [3]. 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 %) [4].

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).

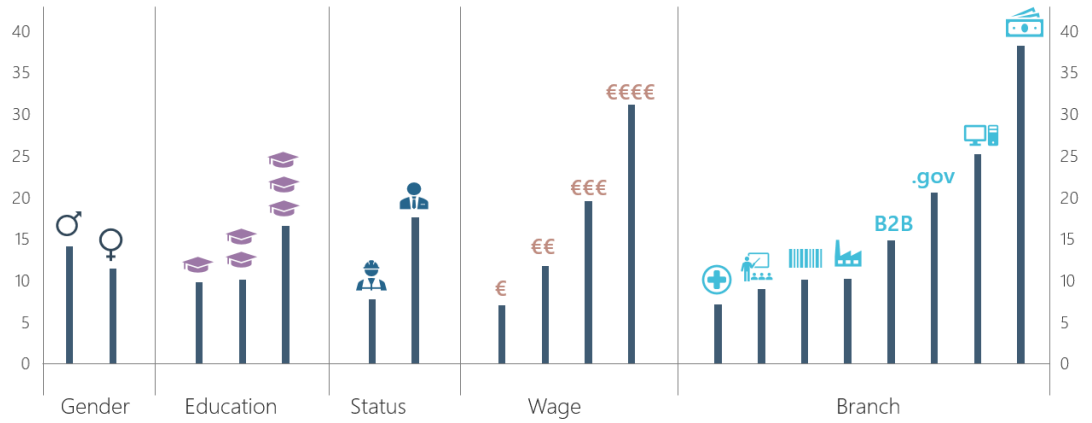
1 FPS Transport and Mobility (2018).
2 In Brussels, about 40 % of firms offer the option of teleworking, against 20 % for the national average.
3 The TomTom Traffic Index ranks Brussels about equal with Paris or London in term of congestion.
4 FPS Transport and Mobility (2019).

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[1] of interregional commuters

(in % of the corresponding employment, 2015)



Source: Statbel.

1 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[1]. Those strategies come in two forms, namely acquisition

1 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[1]. 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[2] 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?[1]

(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[3]. 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.

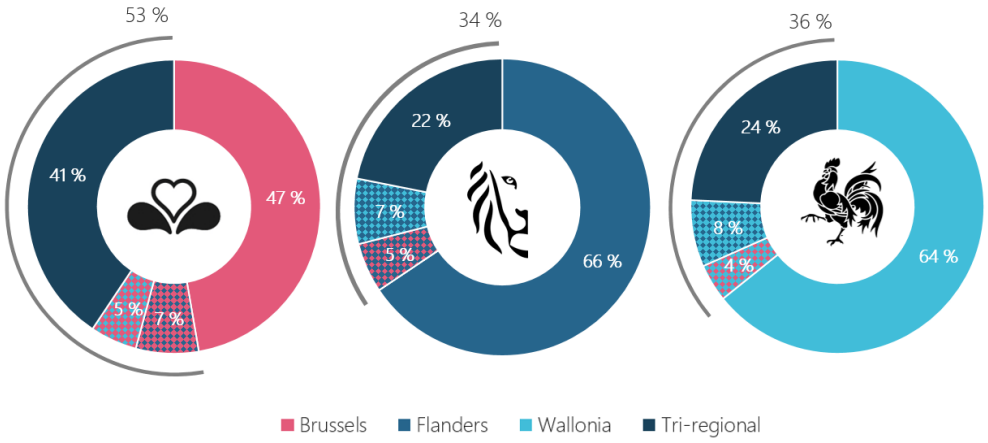
2 An establishment is any place of activity geographically identifiable by an address where the firm conducts at least one activity. The establishment is therefore any place of business, division or subdivision of the firm (e.g. workshop, factory, warehouse, office, etc.) in a separate location in a 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 [1]

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



Source : NBB.

1 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 [1]. 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 [2], over a third of private sector workers are active in bi-regional or even tri-regional groups [3]. 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

1 690 employees if temporary work agencies are excluded from the sample.

2 We refer here to the place of work, not of residence.

3 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[1]. For that purpose, we use detailed individual data on commercial transactions between firms subject to VAT[2].

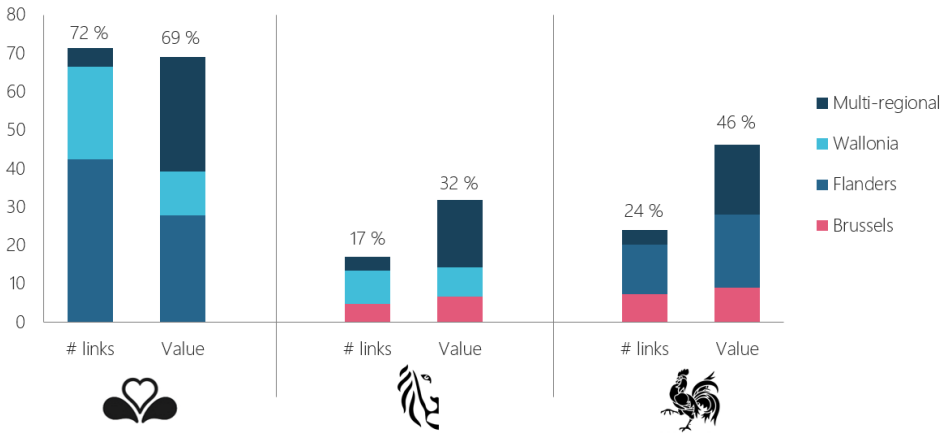
Analysis of the geographical profile of the customer firms again demonstrates the importance of multiregional firms, i.e. those with establishments in more than one Region. In the case of sellers based in Wallonia, 28 % of their turnover comes from customers located in Brussels or in Flanders, and 18 % 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[1]

(in % of domestic private sector sales, 2014)



Source: NBB.

1 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

1 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.

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

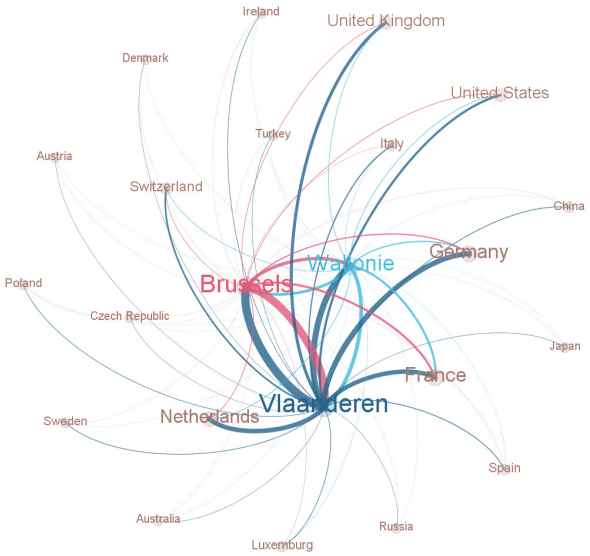
100 euros to this firm A, we assume that sales to the Antwerp establishment total 90 euros and sales to the one in Namur come to 10 euros. The same apportionment key applies to sales. If firm A sells goods worth 100 euros, we assume that the Antwerp establishment's sales come to 90 euros and Namur's 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 [1]

(interregional and international [2] 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 [1]

(interregional and international [2] 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.

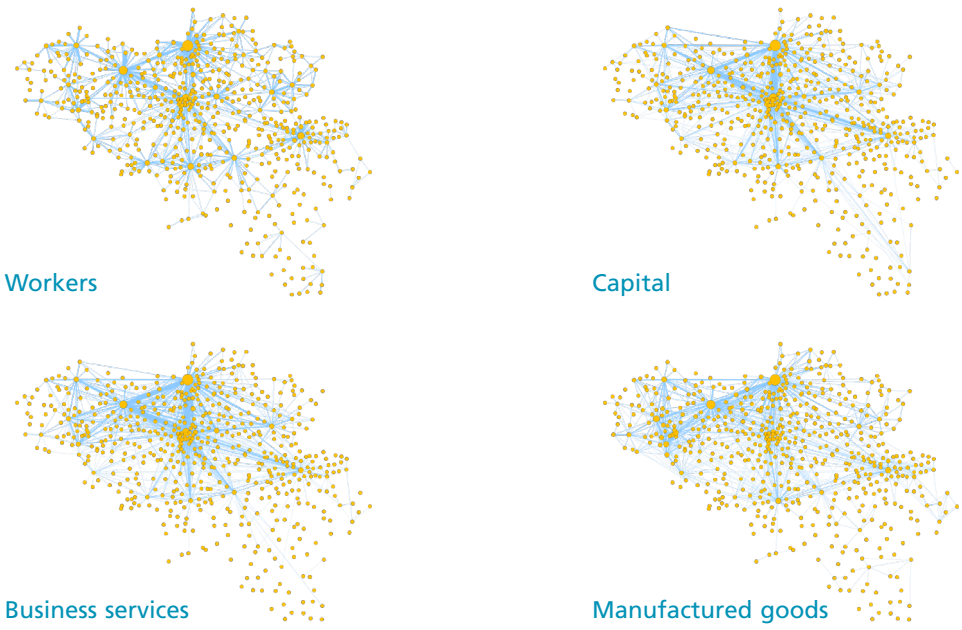
For commuters, the map depicts a star-shaped pattern of movements converging on urban centres at the heart of the provinces. The commuter flows to Brussels can also be clearly identified. It is interesting to compare them with the main capital movements, arranged more like a spider's web with each major 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 [1]

(2015)



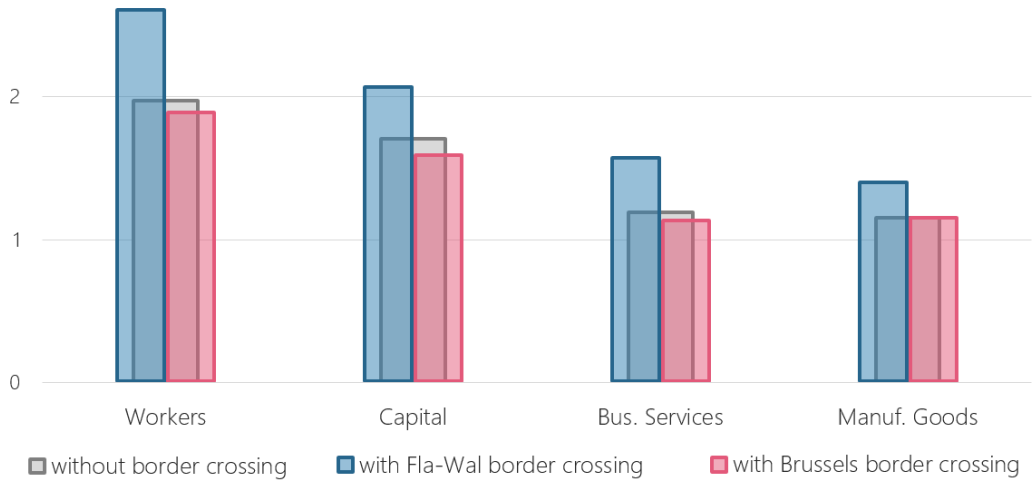
Source : NBB.

1 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 [1]

(elasticities, 2015)



Source: NBB.

1 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 [1]. There is therefore a barrier between these two Regions. It is mainly an impediment to commuters,

1 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?[1]

(2015)

	Workers (1)	Capital (2)	Business Services (3)	Manufactured goods (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.

1 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.

Bibliography

Dhyne E., B. Magerman and S. Rubinova (2015), *The Belgian production network 2002-2012*, NBB, working paper, 288, October.

Eurostat (2016), *Eurostat regional yearbook*.

FPS Transport and Mobility (2018), *Chiffres clés du télétravail en Belgique*, March.

FPS Transport and Mobility (2019), *Diagnostique fédéral sur les déplacements domicile-travail 2017-2018*, March.

Hindriks J. (2007), *Face aux disparités régionales, faut-il promouvoir la mobilité ou régionaliser les salaires ?* Itinera Institute Nota, August.

IFOP (2018), *L'impact de la mobilité sur le bien-être au travail – Paris Workplace*. (https://www.ifop.com/publication/paris-workplace-impact-de-la-mobilite-sur-le-bien-etre-au-travail/)

OECD (2005), "How persistent are regional disparities in employment ? The role of geographic mobility", *OECD Employment Outlook*, 83-139.

Statbel (2018), *Faire la navette vers Bruxelles en vaut la chandelle*, October. (https://statbel.fgov.be/fr/themes/emploi-formation/salaires-et-cout-de-la-main-doeuvre/salaires-mensuels-bruts-moyens)

Transporama (2019), *TomTom Traffic Index: Bruxelles reste la ville la plus bondée de Belgique*, juin. https://www.transporama.be/fr/2019/06/06/tomtom-traffic-index-bruxelles-reste-la-ville-la-plus-bondee-de-belgique/#

Insights from the 2017-2018 US fiscal stimulus

N. Cordemans
M. Deroose

Introduction

Fiscal stimuli support economic activity and a hot economy boosts inflation. Such is the simple logic of standard economic thinking. Yet, despite the adoption of a substantial fiscal package by the Trump Administration in late 2017-early 2018, and with the unemployment rate near an all-time low, price pressures have largely been declining in the US since mid-2018.

Against this background, this article takes stock of the macroeconomic impact of the 2017-2018 US fiscal stimulus, focusing on the link between higher fiscal deficits and inflation. Section 1 summarises the main features of the fiscal package. Sections 2 and 3 look at the inflationary consequences of fiscal easing, respectively, from a theoretical and an empirical point of view. Sections 4 and 5 address the expected and actual macroeconomic effects of the stimulus. Finally, section 6 briefly discusses the current inflationary environment and the risk of fiscally-induced inflation going forward. The article concludes that while the link between fiscal deficits and inflation has actually been rather weak (generally, and in particular when considering the 2017-2018 package), it should not be dismissed altogether. Fiscally-induced inflation may indeed materialise, most likely suddenly, and especially when economic agents expect government debt to move onto an unsustainable path.

1. The 2017-2018 US fiscal package in a nutshell

At the end of 2017 and beginning of 2018, the US Congress enacted two significant pieces of legislation entailing a reduction in the level of taxation and an increase in public spending.

The first is the **Tax Cuts and Jobs Act (TCJA)**[1], involving a comprehensive overhaul of the US tax system. According to the Joint Committee on Taxation (JCT, 2017), a non-partisan US Congress committee, it is the most significant change in the US tax code since 1986 and the Reagan era. It is expected to reduce taxes by an estimated $ 1.5 trillion over 10 years. It was signed into law by the President on 22 December 2017 and took effect on 1 January 2018. Its main provisions include[2]:

1 The Tax Cuts and Jobs Act is the original name, which was not approved by the Senate in the final enactment of the law. The official name is the "Act to provide for reconciliation pursuant to titles II and V of the concurrent resolution on the budget for fiscal year 2018". The short title has nevertheless gained large currency in the public sphere and, by way of convenience, we will refer to it.

2 For more details about the provisions, see for instance CRS (2019), CBO (2018) or Barro and Furman (2018).

1) For individuals, substantial tax cuts until the end of 2025, including a drop in the top income tax rate from 39.6 to 37 %.
(2) For corporations, a permanent cut in the statutory business tax rate, from 35 to 21 % and a full deduction of investment in equipment from the corporate tax base for 5 years.
(3) With respect to international tax rules, a shift from a worldwide tax system (in which foreign income of domestic corporations is taxed when repatriated) towards a more territorial tax system (in which foreign income of domestic corporations is largely exempt). It also imposes a one-time tax on existing overseas earnings, amounting to 15.5 % on cash and 8 % on other assets.

The TCJA was largely expected to encourage workers to work more hours, due to higher after-tax income, and businesses to step up investment, thereby raising employment, income as well as potential output.

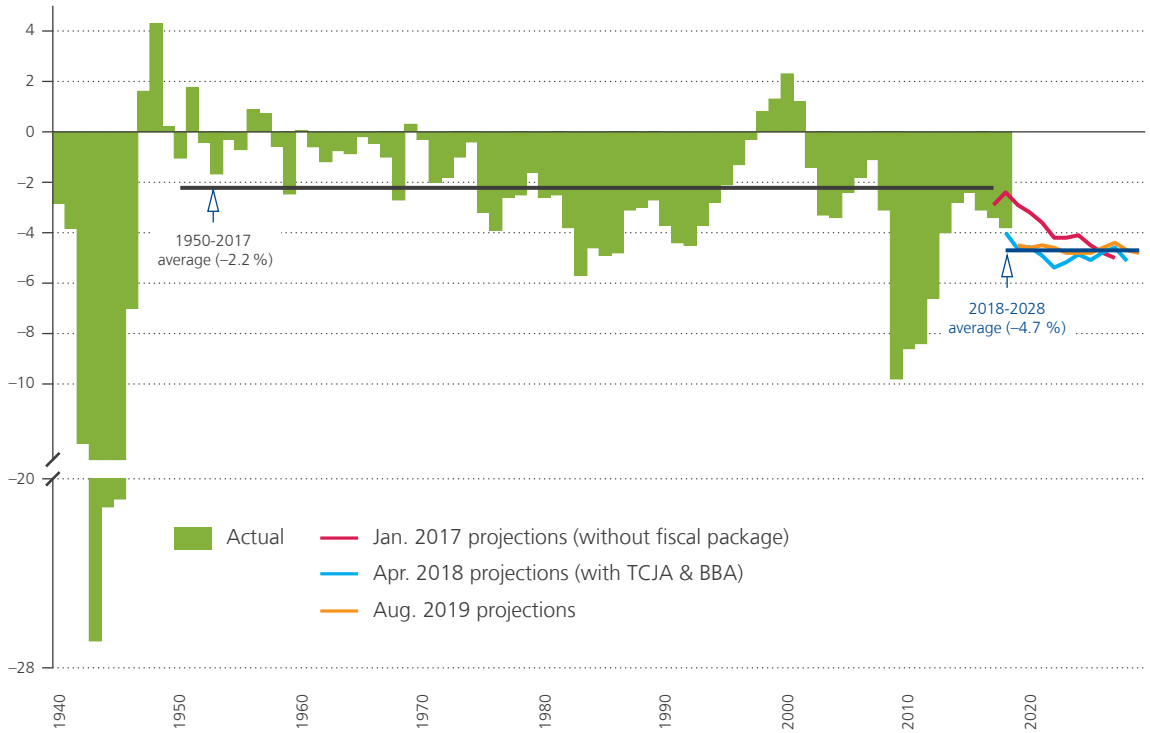
The second piece of legislation is the **2018 Bipartisan Budget Act (BBA)**, which raised the spending caps for two years in anticipation of a fiscal stimulus that would begin in the second quarter of 2018. It was signed into law on 9 February 2018 and provided for big increases in defence and non-defence spending. The defence discretionary funding cap was thus raised by $ 80 and $ 85 billion respectively in fiscal years 2018 and 2019, while the non-defence domestic discretionary spending cap was increased by respectively $ 63 and $ 68 billion. In addition to raising the budget caps, the Act provided for $ 90 billion in disaster relief.

Taken together, these major pieces of legislation significantly reduce federal revenues and increase federal spending, leading to a marked rise in budget deficits. In its April 2018 projections, the Congressional Budget

Chart 1

US federal budget deficit / surplus and projections

(in % of GDP)



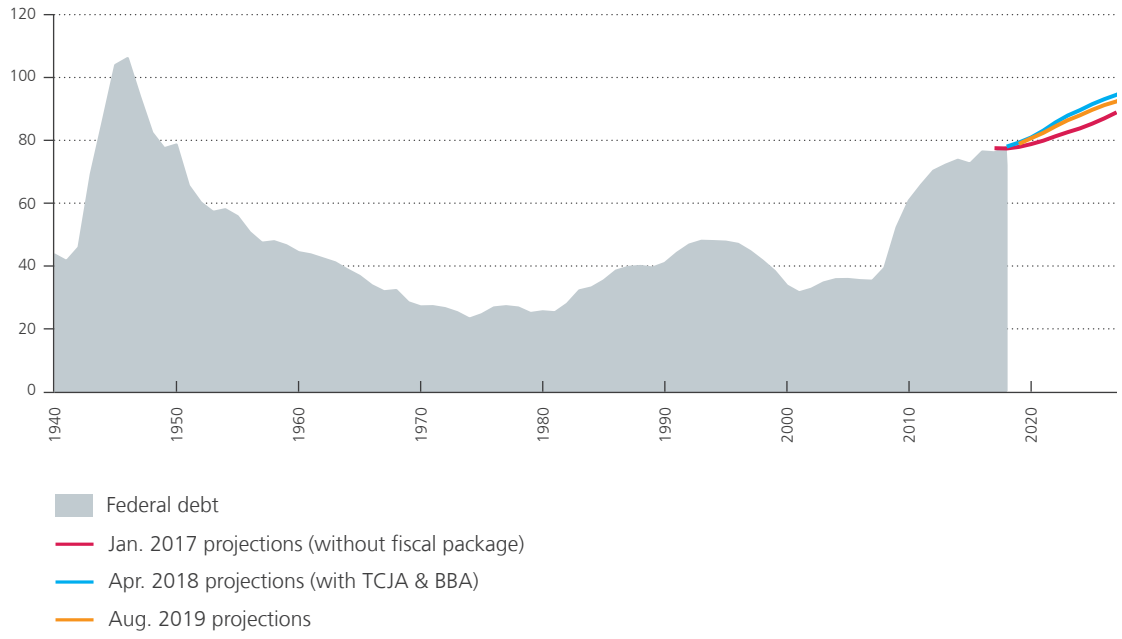
Source: CBO.

Office (CBO, 2018) – which produces independent analyses of budgetary and economic issues in support of the US Congress – said it expected the total budget deficit to rise to 4 % of GDP in 2018 and 4.6 % in 2019, up from 3.4 % in 2017 and 2.9 % in 2016 (see chart 1). Over the 2018-2028 period, the deficit would average 4.7 % of GDP, compared to 2.2 % between 1950 and 2017. In line with this, federal debt held by the public[1] would climb from 76.5 % of GDP in 2017 to 96.2 % by 2028 (see chart 2).

Chart 2

US federal debt and projections

(in % of GDP)



Source: CBO.

According to estimates by Cohen-Setton *et al.* (2018), the new laws are expected to induce a fiscal stimulus of some 1.4 % of GDP in calendar year 2018, 1.9 % in 2019 and 1.7 % in 2020. About ¾ of the stimulus stems from the TCJA. The package represents the most procyclical fiscal policy stance since the mid-1970s and the end of the Vietnam War (Mahedy and Wilson, 2018). The new Acts actually arrived at a time when the US economy had been steadily expanding for more than eight years and US unemployment had fallen back to a near-historic low of 4 %.

2. What does macroeconomic theory say about fiscal deficits and inflation?

There are several theories that explain how an exogenous increase in the budget deficit could have an impact on the real economy and inflation, with the sign of the impact differing from one theory to the other. The purpose

1 This includes US households, the Fed, pension and retirement funds, mutual funds, state and local governments and foreign owners.

of the review below is to highlight three main channels through which a fiscal stimulus may, in general, affect prices; these being aggregate demand, expectations and aggregate supply.

According to the Keynesian view, which has regained importance since the great recession, higher government deficits may, through stimulating aggregate demand, put upward pressure on inflation (see, for example, Keynes, 1936). Through more government spending and (in the case of tax cuts) higher private consumption and investment, bigger deficits boost aggregate demand in the short run and thus push up the output gap (meaning that it becomes more positive or less negative), which in turn creates upward inflationary pressures (i.e. the Phillips curve relationship linking domestic economic activity with inflation). The impact of a fiscal stimulus depends upon a lot of factors though. It is, for instance, state-dependent, i.e. the fiscal multiplier tends to be above one in bad times but below one in good times. This notably reflects monetary policy's different reaction to the fiscal stimulus. When the economy is operating at or close to full capacity, in reaction to the fiscal stimulus and the inflationary pressures it generates, the central bank will raise interest rates which may in turn reduce private investment. Consequently, the fiscal multiplier may be below one as the fiscal stimulus crowds out private demand. On the other hand, when there is considerable slack in the economy and monetary policy is constrained by the lower bound on interest rates (i.e. in a liquidity trap, when monetary policy loses traction on the economy), the central bank will not counteract the impact of the fiscal stimulus by tightening monetary policy. The subsequent rise in (expected) inflation drives down the real interest rate, thus supporting private spending. As a result, the fiscal multiplier may be above one. Other important factors that determine the macroeconomic impact of a fiscal stimulus include, for example, its composition, the extent to which it benefits hand-to-mouth consumers, the slope of the Phillips curve and economic agents' expectations.

Once agents' expectations are taken explicitly into account, the effects of fiscal stimulus can be different. Under Ricardian equivalence, agents expect that higher fiscal deficits need to be reversed in the future in order to stabilise government debt. Consequently, they may not have any real nor nominal effects (see, for example, Buchanan, 1976). Under this view, forward-looking agents save the proceeds from a debt-financed fiscal stimulus in anticipation of future tax increases or spending cuts that will offset the debt increase. In an extreme case, private consumption might even drop to further support private savings, leaving total spending unchanged. Ricardian effects may come into play especially when public debt is already high or expected to rise to unsustainable levels.

The fiscal theory of the price level (FTPL) points out that higher fiscal deficits may equally lead to expectations of higher inflation, which is in fact another way of stabilising the public debt (see for example Cochrane, 2011)[1][2]. In the Ricardian view, public debt is real, implying that an increase in the debt requires an adjustment in budget deficits to keep the debt level stable. In the FTPL, however, public debt is nominal, implying that a higher debt can also be offset by an increase in prices (i.e. the debt can be inflated away). It is worth noting that, in contrast to the Keynesian view in which the impact of the fiscal stimulus depends upon its materialisation – it must be spent –, the FTPL (like the Ricardian view) stresses that a fiscal expansion is not a stimulant in itself. Expectations about future deficits are crucial. If policy-makers want an increase in the debt to push prices up, they have to clearly communicate that there will be no future consolidation as a counterpart to the fiscal expansion. It should also be noted that the FTPL explicitly acknowledges that inflation is determined by both monetary and fiscal policy. In order to stabilise inflation, both policies must work together. The FTPL is inconclusive about the real effects of fiscally-generated inflation: it may lead to a boom (through a combination of Keynesian demand and FTPL inflation expectation effects) but just as well to stagnation (in line with the stagflation of the 1970s).

1 See also the NBB article on the interactions between monetary and fiscal policy by Boeckx and Deroose (2016) and the article by Sargent and Wallace (1981) which lays the ground for the FTPL.

2 The government debt valuation equation (which in a simple form reads as "nominal government debt/price level = expected sum of future discounted real primary surpluses") illustrates this clearly. It shows that an increase in nominal government debt can either be offset by an increase in the price level or by expectations of higher government surpluses in the future, in order for the real value of government debt to be stabilised.

A deficit-financed fiscal stimulus may also have important supply-side effects, which will tend to dampen inflation. This channel is generally considered to work in the longer term : productivity-enhancing fiscal measures (e.g. on the one hand, increased spending on infrastructure, education and research and development and, on the other hand, reducing distortionary taxes like those on personal and corporate income) may raise potential output over time and consequently lower the output gap (meaning that it becomes more negative). The disinflationary supply-side effects of such a fiscal stimulus may thus reduce its inflationary demand-side effects. More recently though, theoretical models have been developed through which a general, rather than a productivity-enhancing, increase in government spending may already boost the economy's supply side in the short run, while reducing inflation (see e.g. D'Alessandro *et al.*, 2019 and Jorgensen and Ravn, 2019).

3. Can empirics and past experience provide some guidance ?

Theory is ambiguous about the inflationary effect of fiscal stimulus and so is empirical evidence. Some studies find that prices go up in response to a fiscal expansion (Caldara and Kamps, 2008), others that they decline (Mountford and Uhlig, 2009 ; Jorgensen and Ravn, 2019) and yet others find that the response is insignificant (Fatas and Mihov, 2001) or somewhat mixed (Perotti, 2004), depending on the model specification. While they offer varied results across time and space, estimates point overall to a loose relationship between fiscal policy and inflation, certainly for low-inflation countries. This seems, in part, to reflect the importance of institutional constraints, like monetary policy independence and credibility as well as fiscal rules, in reducing the link between fiscal deficits and inflation (see, for example, Catao and Terrones, 2005).

Yet, studies on the relationship between fiscal stimulus and inflation are relatively limited. By contrast, there is a large literature addressing the link between fiscal policy and GDP growth (see, for instance, Blanchard and Perotti, 2002 ; Romer and Romer, 2010 ; and Mertens and Ravn 2013). Studies differ in methodologies and estimates of the tax multiplier, but a large majority conclude that fiscal stimulus has a positive effect on output.

Looking at past US fiscal expansions highlights the importance of the interaction between the fiscal and monetary authorities in driving macroeconomic outcomes. The monetary policy stance does indeed play a key role in the transmission of fiscal policy to the economic activity and prices. Two prominent episodes deserve a closer look : (1) the mid-1960s and (2) the mid-1980s.

In the mid-1960s, monetary policy accommodated fiscally-induced inflation

At the beginning of the 1960s, the US economy was coming out of a recession, the nation's output was below its potential and unemployment was close to a post-war record high. After taking office in 1961, President Kennedy thus pushed for a Keynesian discretionary fiscal policy, to steer the economy towards full employment. The combination of tax cuts and new major spending programs – the Great Society Programs of 1964-65 [1] and the Vietnam War – pushed the budget deficit higher, from 0.7 % of GDP in 1963 to 2.7 % in 1968.

From 1961 until late 1965, monetary policy was also continuously expansionary and accommodated the growth in credit demand while maintaining remarkably stable and relatively low long-term interest rates. Federal funds rates were raised – reflecting a deliberate action to keep key short-term rates in the US aligned with those abroad to limit capital outflows –, but their inflation-adjusted counterparts remained moderate. Following the fiscal expansion, GDP growth was boosted from 4.3 % in 1963 to 6.6 % in 1966 while the unemployment rate fell below 4 % in 1966. Inflation rose substantially, from 1.2 % in 1963 to 2.5 % in 1966 and 4.5 % in 1969,

1 The Great Society was a set of domestic programmes in the United States launched by President Lyndon B. Johnson with the main goals of ending poverty, reducing crime, abolishing inequality and improving the environment.

despite a significant rise in interest rates as from 1966. It would accelerate further over the 1970s, a period infamously known as the Great Inflation.

In the mid-1980s, monetary policy tamed fiscally-induced inflation

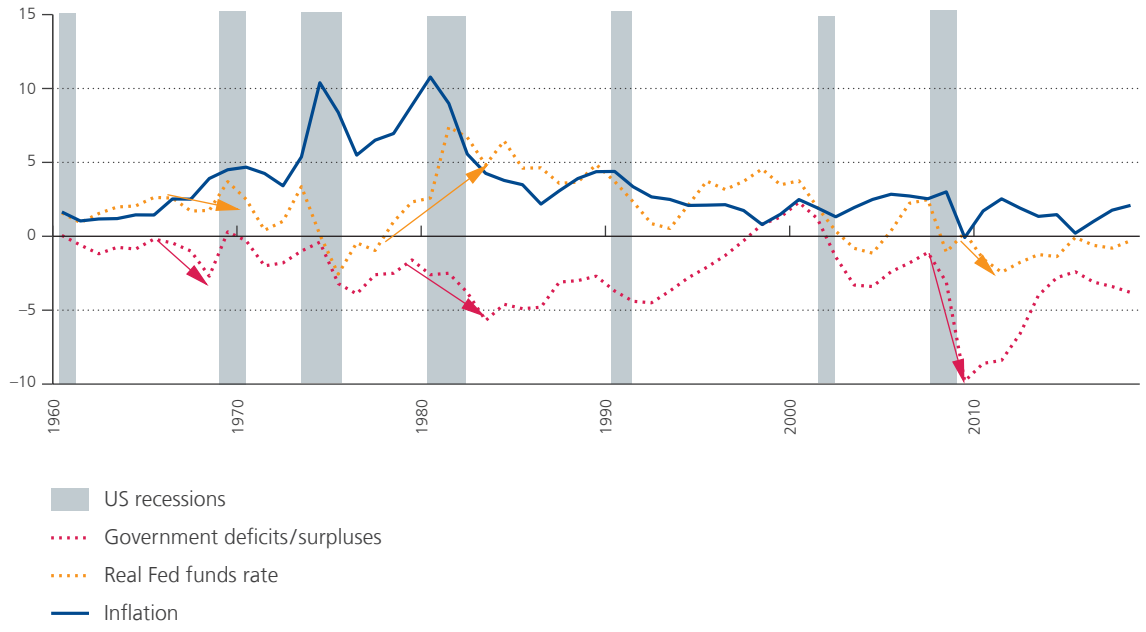
At the beginning of the 1980s, President Ronald Reagan inherited an economy mired in stagflation. To spur economic growth, he aggressively cut income and corporate taxes. For instance, in 1981, the top personal income tax rate was cut from 70 % to 50 %. This helped boost GDP growth for the next few years, with the economy growing by 7.9 % in 1983, 5.6 % in 1984 and 4.2 % in 1985. At the same time, the unemployment rate fell from 10.8 % at the end of 1982 to below 7 % at the beginning of 1986. In that year, the highest tax rate was cut again to 38.5 %, declining further to 28 % in 1988. The US federal budget deficit surged from 2.5 % of GDP in 1981 to 5.7 % in 1983 and 4.8 % in 1986.

In 1981, inflation was above 10 % and, under Chairman Paul Volcker, the Federal Reserve had pushed interest rates into double digits, peaking at 11.5 % in the summer of 1984. The real policy rate was also effectively raised. In this context, despite the expansionary character of fiscal policy, inflation declined rapidly and significantly. It fell to 4.8 % at the end of 1982 and remained below 5 % for the rest of the 1980s.

Chart 3

US government deficit, Fed funds rate, inflation and GDP growth

(in % of GDP, in %)



Sources: CBO, Datastream.

When looking at historical data since the 1960s, it is hard to see any clear relationship between government deficits and inflation, even when accounting for the monetary policy stance (see chart 3). Over the more recent period, inflation's muted response to the sizeable US fiscal and monetary stimulus following the global economic and financial crisis of 2007-2009 has also raised questions about both policies' effectiveness in steering it. In this respect, considering the impact of other shocks that are hitting the economy is crucial. In fact, they may actually blur the link between fiscal deficits and inflation.

4. *Ex-ante* assessment of the 2017-2018 fiscal stimulus

Based on economic theory and past experience, what did economists expect the US fiscal package to deliver in terms of output and inflation? This section briefly reviews some institutional forecasters' macroeconomic projections in this respect and touches upon the role of other factors – some of which are more predictable (like the monetary policy reaction function) than others (as the escalating trade tensions) – in shaping the economic outlook and thus blurring the impact of the fiscal package.

Estimates of the economic impact of the fiscal package have varied widely, although most indicated a noticeable response of GDP. For instance, the CBO (2018) estimated that the TCJA and BBA would boost real GDP by 0.6 % in 2018 and by 1.2 % in 2019. In the longer term though, higher interest rates – reflecting monetary policy's endogenous reaction to the fiscal stimulus – were projected to temper the increase in real GDP. Cohen-Setton *et al.* (2018) calculated that the fiscal package would raise real GDP growth by 0.3 to 1.4 percentage points in 2018 and by 0.2 to 0.8 of a percentage point in 2019, depending upon whether they use a state-dependent multiplier (lower estimates) or a linear multiplier (higher estimates). As the latter multiplier does not account for the state of the business cycle, they consider its estimates less plausible[1]. With real effects estimated to be positive, the fiscal stimulus has led to significant upward revisions in the short-term economic growth path of the US (see table 1). Besides the impact of the fiscal package, other shocks, like stronger-than-expected domestic activity in 2017 and higher projected external demand, have also contributed to these upward revisions, albeit to a smaller extent. On the other hand, escalating trade restrictions and retaliations were mentioned as a downside risk to the outlook.

Table 1

US GDP and inflation projections

(annual percentage change)

	Real GDP				Inflation			
	2018	2019	2020	2027	2018	2019	2020	2027
IMF								
October 2017	2.3	1.9	1.8		2.1	2.6	2.4	
April 2018	2.9	2.7	1.9		2.5	2.4	2.1	
CBO								
January 2017	2.0	1.7	1.5	1.9	2.0	2.0	2.0	2.0
April 2018	3.0	2.9	2.0	1.8	1.8	1.9	2.1	2.0

Sources: CBO, IMF.

By contrast, analyses of the fiscal package have tended to neglect or not explicitly quantify its impact on inflation. When comparing the CBO's and IMF's 2017 and 2018 inflation projections, it appears that the real inflation profile has been much less affected. For instance, while the CBO (2018) expected inflation to pick up[2], the increase is rather muted. The CBO mentions several factors explaining the very marginal increase in its inflation profile.

1 Most analyses focus on the macroeconomic impact of either the TCJA or the BBA; combined analyses are rare. For an overview of other organisations' estimates of the real effects of the TCJA see for instance Box B-2 in CBO (2018).

2 Note that the downward revision in the projection of inflation in 2018 reflects the unexpectedly low inflation in 2017.

First, it points out that the fiscal stimulus raises both aggregate demand and aggregate supply, limiting upward price pressure. On the one hand, increased fiscal spending (via the BBA) and higher disposable (after-tax) income for households (due to the TCJA) should boost aggregate demand and thus push up actual GDP too. On the other hand, the Tax Cuts and Jobs Act should stimulate investment (and therefore labour productivity which may lead to higher wages, but not necessarily higher prices) and labour supply (the lower marginal income tax rates should encourage workers to work more hours) thereby raising aggregate supply and potential GDP. Indeed, the CBO assumes that the rise in the output gap (due to excess demand throughout the 2018-2022 period) is mitigated by the acceleration in potential GDP (as a result of the TCJA). Consequently, upward inflationary pressures are also dampened.

Second, the CBO assumes that the link between domestic economic activity and inflation is weak. Even if the fiscal stimulus is likely to substantially raise actual GDP growth and the output gap, the rather flat price Phillips curve implies that it does not have to result in significantly higher inflation.

Third, the CBO considers inflation expectations to be well-anchored, thus keeping a lid on wage and price rises. With little role for economic slack, inflation expectations are an important driver of actual inflation (see e.g. Jordà *et al.*, 2019). With inflation being close to target over the past two decades, the Fed has gained credibility in its ability to control price rises as evidenced by inflation expectations being well-anchored around the target. So, with respect to the fiscal stimulus, consumers and businesses probably expect the central bank to remain successful in preventing inflation from deviating excessively from its target.

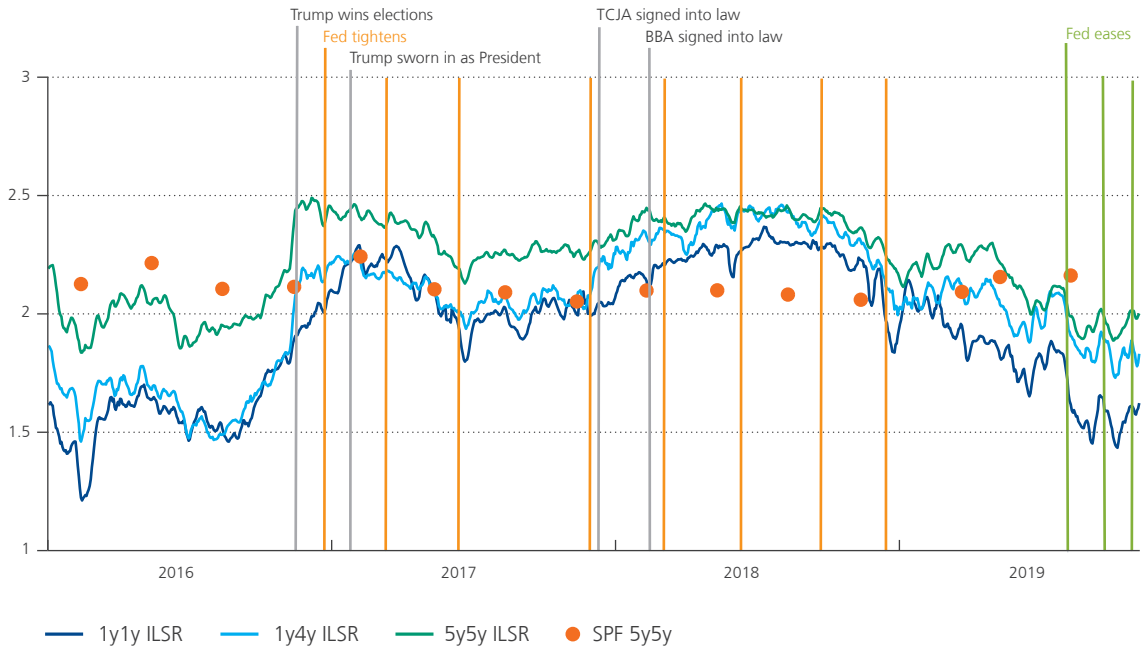
And indeed, US survey- and market-based inflation expectations have reacted modestly to the fiscal package, remaining overall well-anchored. As the fiscal package was pre-announced – Donald Trump presented his tax-cut plan already back in Autumn 2015 – the impact of the stimulus on financial markets' inflation expectations can probably already be traced back to the day that Mr Trump won the presidential elections, i.e. 9 November 2016. With his victory coming as a surprise, financial markets significantly reassessed their expectations regarding longer-term inflation. More precisely, the 5y5y inflation-linked-swap rate (ILSR) jumped by 13 basis points, with the change belonging to the top 5 % daily movements since 2005. Shorter-term inflation expectations also increased but less so. This could reflect the fact that financial markets expected the extra government debt to be partly inflated away in the future (in line with the FTPL) and thus not fully being wiped out by higher taxes in the future (as Ricardian equivalence would predict). The jump in inflation expectations was, however, temporary, and there was no meaningful reaction to the signing into law of the TCJA and BBA.

Finally, the CBO takes into account the belief that monetary policy will tighten, preventing a significant or persistent increase in inflation (expectations) above 2 %. According to conventional economic thinking and market expectations, adding fiscal stimulus to a full-employment economy should prompt the central bank to tighten monetary policy. And indeed, the Fed reduced its monetary stimulus, raising the federal funds rate seven times over 2017-2018. Over 2019, however, it has reversed its tightening stance, cutting the federal funds rate in July, September and October. The Fed's tightening over 2017 and 2018 could explain *inter alia* the lack of any persistent or more pronounced response of inflation expectations to the fiscal stimulus. But other factors have also had an impact, the sign of which is sometimes difficult to determine. For instance, while upbeat and subsequent downbeat expectations about the global economy appear in line with the rise in inflation expectations over 2018 and their decline as of late 2018, the impact of hikes in trade tariffs is less straightforward : do they reflect an adverse supply shock or rather a contractionary demand shock ?

Chart 4

US inflation expectations from financial markets (full line) and surveys (dots)

(in %)



Sources: Bloomberg, Federal Reserve Bank of Philadelphia.

Note: the AyBy ILSR refers to the average inflation rate over an A-year period starting in B years' time. Inflation expectations from surveys were taken from the Survey of Professional Forecasters (SPF).

5. *Ex-post* realisations: the effects of the fiscal stimulus have been small so far

In practice, the economic effects of the fiscal package are difficult to assess, for several reasons: first, macroeconomic data are regularly revised; second, a counterfactual is not available; third, the impact of the various shocks impacting the economy cannot easily be isolated; and fourth, economic agents may only react to policy changes with a time lag. Thus far, the response of real and especially nominal macroeconomic variables seems to be rather limited, which is in line with what empirical evidence and economic projections suggest (see chart 5).

Impact on economic growth in line with expectations

In 2018, real GDP grew by 2.9%, up from 2.4% in 2017 and 1.6% in 2016. By comparison, in its April 2018 forecast, the CBO projected a 3% growth rate, including 0.6% attributed to the fiscal package. The first-year effect of the package on economic growth thus appears broadly in line with expectations, when factoring in the counter-effects arising from new trade tariffs and tightened monetary policy.

Growth in personal consumption expenditure – accounting for about 70% of US GDP – remained relatively contained. It reached 3% in 2018, up from 2.6% in 2017 and 2.7% in 2016. A limited increase in personal consumption could indicate that consumers are only responding with a time lag to the fiscal package. But it

may also reflect that much of the TCJA was directed at businesses and higher-income individuals, who are less likely to spend. Finally, this may be evidence of some Ricardian effects.

Likewise, growth in government consumption expenditure and gross investment accelerated but remained moderate, as it takes some time to spend the extra government funds authorised by law. It reached 1.7 % in 2018, up from 0.7 % in 2017 but below the 1.8 % growth rate seen in 2016.

Finally, private non-residential fixed investment further intensified in the first half of 2018, but it has declined since then. Annual growth was 7.8 % in 2018, up from 5.4 % in 2017.

In a recent IMF working paper, Kopp *et al.* (2019) find that US business investment grew more significantly over the two years 2017-2018 than had been forecast before the enactment of the TCJA. The uptick is largely attributed to the strength of the expected aggregate demand, likely reflecting, in part, a rise in disposable household income resulting from the TCJA and the government spending increase from the BBA. By contrast, the TCJA's lowering of the effective business tax rate is not considered as a major factor behind the higher investment. To explain this, the authors point to policy uncertainty and, especially, the lower sensitivity of investment to tax policy changes in an environment of greater corporate market power. The demand-side interpretation of the strength in business investment since 2017 is also consistent with responses to company surveys: only a small proportion of firms directly attribute increases in planned investment to the corporate tax cut. The Congressional Research Service (CRS, 2019) also argues that the stronger investment growth was unlikely to be due to the TCJA as the growth patterns of the sub-components of non-residential fixed investment are not consistent with the direction and size of the supply-side incentives one would expect from the TCJA. Changes in the user cost of capital on account of the tax reform would imply higher growth of investment in structures, followed by equipment and lower growth in intellectual property products. To date, the observed pattern has been the other way round. The CRS also stresses that it takes time for investment to react to fiscal incentives as it must be planned in advance. Finally, some commentators (Arnon, 2018, and Smith, 2018) have suggested that the main driver behind the pick-up in US investment in 2018 was not the fiscal stimulus but the energy sector, as the increase coincided with higher oil prices and a recovery of domestic oil production.

Small, if any, effect on wage growth and inflation

In line with the economic expansion and continued improvements in the already tight labour market, wage growth accelerated in the first half of 2018. But since then, annual wage growth has tended to stabilise, ranging between 3 and 4 %.

It had been argued that the fiscal package would push up wages. For instance, the increase in corporate resources generated by the TCJA could have been used to raise wages or bonuses in the short run, or they could have been used for investment with the resultant rise in productivity[1] raising wages in the longer run. Evidence of this has so far been limited, however. Data indicate that most of these funds have been used for a record-breaking amount of stock buybacks (CRS, 2019).

In sync with the improvement in wage growth and inflation expectations (see section 4), inflation accelerated from the second half of 2017 until mid-2018, catching up with the Fed's 2 % target. Nevertheless, the gains in inflation appeared less robust than those in wage growth. In February 2019, inflation had fallen back to 1.3 % and has largely remained below 1.5 % since then. Core PCE inflation fell to 1.5 % in March 2019 but had recovered to 1.7 % by September.

Some sector-specific factors have been holding inflation down. For instance, specific policies (e.g. Obamacare) have resulted in prolonged softness in health care services inflation. Housing inflation has also moderated over the last two years, due to high-end apartment over-supply and slower growth of construction costs. More

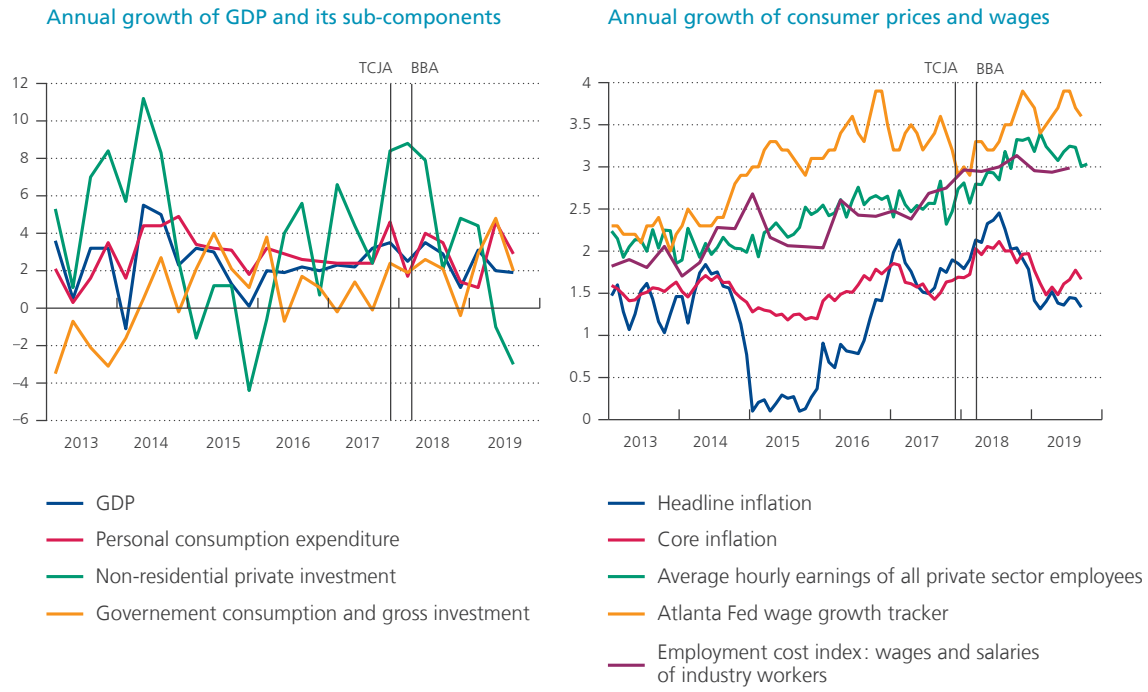
1 According to CBO (2018), over the first few years, the tax cut is not expected to affect labour productivity but, by 2027, potential labor productivity is expected to increase by 0.3 %.

recently, the US stock-market sell-off at the end of 2018 triggered falling management and performance fees for portfolio managers and investment advisers, resulting in slowing financial services inflation. With respect to the trade war, the effect of the newly-imposed tariffs on domestic inflation has been limited for now (CBO, 2019). This reflects the fact that the value of consumer goods subject to trade tariffs is small relative to the total value of US imports and that businesses tend to absorb some of those higher input costs.

Chart 5

Economic developments before and after the US fiscal stimulus

(in %)



Sources: FRED, Refinitiv.

6. Looking ahead: inflation on the horizon?

So far, US inflation seems to have barely responded to the large fiscal stimulus. This is not surprising as, in recent decades, the link between fiscal stimulus and inflation has tended to be rather weak in economies with independent central banks geared towards price stability. The specific features of the TCJA, not least the fact that it mainly benefits high-income households and corporations, may also explain why it has only had a moderate effect on the economy. In addition, any inflationary effect of the package may also have been countered by the widespread presence of disinflationary factors. On top of the sector-specific forces temporarily holding down US inflation (see previous section), some structural forces in the global economy – including globalisation and the significance of global supply chains, technological progress such as digitisation and ageing societies – have probably weighed on inflation and are expected to continue to do so for some time in the future[1].

1 See, for example, Sánchez and Sung Kim (2018) for an overview.

Leaving aside these disinflationary factors, to what extent might the fiscal stimulus still generate upward price pressures in the future? Overall, the risk of an upward drift in inflation (expectations) appears limited, given the gains in monetary policy's credibility and the rather flat Phillips curve, for instance. Nonetheless, a scenario in which higher inflation materialises on account of the fiscal stimulus cannot be fully dismissed. Especially in a situation of sustained fiscal deficits (which the CBO appears to expect, see chart 1 and 2) and accommodative monetary policy, rapid rises in inflation may well occur through the channels identified by Keynesians, as well as advocates of the FTPL.

For instance, while the slope and the level of the Phillips curve may currently be rather low, this is not set in stone and may well evolve over time, allowing for inflationary Keynesian demand effects to materialise. Indeed, some studies have found that the Phillips curve is non-linear, implying that prices and wages could suddenly and quickly accelerate when the economy is overheating[1]. In addition, the 1960s give an illustration of the instability in the Phillips curve. Bad economic outcomes resulted from monetary and fiscal policy trying to exploit the apparent non-responsiveness of inflation to economic slack (see Orphanides and Williams, 2011 and section 3).

Alternatively, the fact that US inflation expectations remain well-anchored today – possibly reflecting beliefs of Ricardian equivalence or of the budget-neutrality of the tax reform – does not necessarily imply that they may not rise suddenly. The fiscal theory of the price level in fact warns that a small event might lead people to reassess the sustainability of public debt. This means that they might suddenly expect the public debt to be no longer adequately backed by future public surpluses, which causes an increase in inflation expectations and thereby in actual inflation, in turn stabilising the real value of government debt.

The future impact of fiscal policy on inflation will therefore not only depend upon US policy-makers' future fiscal measures, but also on their communication about the path of US debt and fiscal-monetary interactions. With some important US politicians' commitment to budget orthodoxy apparently fading, the probability of fiscally-induced inflation materialising does not appear to be nil. For instance, in August 2019, President Trump signed another Bipartisan Budget Act raising spending limits for 2020 and 2021. In addition, members of both the Republican and Democratic Parties have suggested that higher US debt levels may be inflated away. Before becoming President, Mr Trump explicitly said that the United States issues nominal debt which can always be inflated away by printing more money[2]. At the same time, some Democrats have been embracing modern monetary theory (MMT)[3], which calls for monetary financing of big public spending programmes and proclaims that a country with its own currency does not need to worry about public deficits – meaning that government debt is nominal. Especially in a context of a flat Phillips curve, MMT sees little harm in bigger budget deficits as higher public debt may not have fiscal costs – it may have little impact on inflation and thus only cause a small increase in interest rates. Add to this the observation that the Fed's independence has come under some pressure[4], the possibility of inflation expectations picking up may not appear so fanciful.

A combination of uncontrolled fiscal spending and a drift away from central bank independence would result in bad macroeconomic outcomes and is thus highly undesirable. At the same time, somewhat paradoxically, a better alignment between monetary and fiscal policy actions might be needed to tackle the current low inflation and low growth environment.

1 For evidence on the US, see Kumar and Orrenius (2016) and Hooper *et al.* (2019).

2 See for instance Trump on CNN: "This is the United States government. First of all, you never have to default because you print the money, I hate to tell you, OK?", May 10, 2016.

3 For more information on MMT, see Kelton (2020).

4 The frequent opinions expressed by President Trump about the Fed's policies are testimony to this.

Conclusion: Fiscal deficits are not necessarily inflationary, but ...

At the end of 2017 and begin 2018, the US Congress enacted two significant pieces of legislation entailing a reduction in the level of taxation and an increase in public spending. Taken together, these laws were expected to induce a significant fiscal stimulus to the tune of some 1.4 % of GDP in 2018, 1.9 % in 2019 and 1.7 % in 2020. The package was highly procyclical as it arrived at a time when the US economy had been steadily expanding for more than eight years and US unemployment had fallen back to a near-historic low of 4 %.

US economic activity has temporarily been boosted by the stimulus. In 2018, the effect was broadly in line with expectations, around 0.6 % of GDP. By contrast, inflation appears to have barely responded. This is not so surprising as both theory and empirical evidence point to a mixed and rather weak link between fiscal stimulus and price developments. In addition, and more specifically for today's situation, several factors have been softening inflationary pressures.

Leaving aside the many factors currently depressing inflation and merely considering the impact of the fiscal stimulus, the risk of an upward drift in inflation in the future appears limited, given the gains in monetary policy's credibility and the rather flat Phillips curve. Nonetheless, a scenario in which fiscally-induced inflation materialises cannot be fully dismissed. That holds in particular were fiscal sustainability to suddenly be questioned, and monetary policy perceived as willing to tolerate higher inflation. For now, however, the conditions conducive to a higher-inflation regime appear absent. While there are some voices arguing for a better alignment between fiscal and monetary policy, a fundamental overhaul in the objectives and assignments of the two policy domains is not on the table. Fiscal policy is still geared towards long-run budget control and monetary policy towards stable and low inflation, preventing a sudden shift in inflation (expectations).

Bibliography

Arnon A. (2018), *The Price of Oil is Now a Key Driver of Business Investment*, Blog Post, Tax Policy, Economic Growth, Penn Wharton Budget Model.

Banco de Portugal (2019), *Can fiscal policy be used to generate inflation?*, monetary policy issue note, May.

Barro R. and J. Furman (2018), "The macroeconomic effects of the 2017 tax reform", *Brookings Papers*, BPEA Conference Drafts, March 8-9.

Blanchard O. and R. Perotti (2002), "An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output", *Quarterly Journal of Economics*, 117 (2002), 1329-1368.

Caldara D. and C. Kamps (2008), *What Are the Effects of Fiscal Shocks? A VAR-basedComparative Analysis*, ECB, Working Paper 877.

Caldara D., M. Iacoviello, P. Molligo, A. Prestipino and A. Raffo (2019), *The economic effects of trade policy uncertainty*, Board of Governors of the Federal Reserve System, International Finance Discussion Papers, 1256.

Campbell J. R., F. Ferroni, J. D. M. Fisher and L. Melosi (2019), *The macroeconomic effects of the 2018 Bipartisan Budget Act*, Economic Perspectives 2/2019, Federal Reserve Bank of Chicago. https://www.chicagofed.org/publications/economic-perspectives/2019/2

Catao L.A.V. and M.E. Terrones (2005), "Fiscal deficits and inflation", *Journal of Monetary Economics*, Elsevier, 52(3), 529-554, April.

CBO (2017), *The Budget and Economic Outlook: 2017 to 2027*, Congressional Budget Office, January.

CBO (2018), *The Budget and Economic Outlook: 2018 to 2028*, Congressional Budget Office, April. https://www.cbo.gov/system/files/2019-04/53651-outlook-2.pdf

CBO (2019a), *The Budget and Economic Outlook 2019 to 2029*, Congressional Budget Office, January. https://www.cbo.gov/system/files?file=2019-01/54918-Outlook.pdf

CBO (2019b), *Updated Budget Projections: 2019 to 2029*, Congressional Budget Office, May. https://www.cbo.gov/publication/55151

CBO (2019c), *Updated Budget Projections: 2019 to 2029*, Congressional Budget Office, August. https://www.cbo.gov/system/files/2019-08/55551-CBO-outlook-update_0.pdf

Cohen-Setton J., E. Gornostay and C. Ladreit de Lacharrière (2018), *Impact of the Trump Fiscal Stimulus on US Economic Growth*, Real time economic issues watch, Peterson Institute for International Economics, April. https://www.piie.com/blogs/realtime-economic-issues-watch/impact-trump-fiscal-stimulus-us-economic-growth

Council of Economic Advisers (2017), *The growth effects of corporate tax reform and implications for wages*, October.

CRS (2019), *The economic effects of the 2017 tax revision: preliminary observations*, June. https://fas.org/sgp/crs/misc/R45736.pdf

D'Alessandro A., G. Fella and L. Melosi (2019), "Fiscal stimulus with learning-by-doing", *International Economic Review*, 60(3).

Deroose M., A. Rannenberg and J. Wauters (2019), "Separating the trend from the cycle: The debate on euro area potential output and implications for monetary policy", NBB, *Economic Review*, September, 1-18.

Fatas A. and I. Mihov (2001), *Fiscal Policy and Business Cycles: An Empirical Investigation*, Moneda y Credito 212.

Gale W. G., H. Gelfond, A. Krupkin, M. J. Mazur and E. Toder (2018), *Effects of the tax cuts and jobs act: a preliminary analysis*, Tax Policy Center, June.
https://www.brookings.edu/wp-content/uploads/2018/06/ES_20180608_tcja_summary_paper_final.pdf

Hooper P., F.S. Mishkin and A. Sufi (2019), *Prospects for Inflation in a High Pressure Economy: Is the Phillips Curve Dead or is It Just Hibernating?*, NBER Working Paper, 25792, May.

IMF (2017), *Seeking sustainable growth: short-term recovery, long-term challenges*, World Economic Outlook, October.

IMF (2018), *Cyclical upswing, structural change*, World Economic Outlook, April.

JCT (2017), *Estimated Budget Effects of The Conference Agreement For H.R.1, The "Tax Cuts And Jobs Act." JCX-67-17*, December, Joint Committee on Taxation, Washington.
https://www.jct.gov/publications.html?func=startdown&id=5053.

Jordà O., C. Marti, F. Nechio and E. Tallmand (2019), *Inflation: Stress-testing the Phillips curve*, FRBSF Economic Letter, 2019-05.

Jorgensen P.L. and S.H. Ravn (2019), *The inflation response to government spending shocks: A fiscal price puzzle?*, JME.

Kelton S. (2020), *The deficit myth: Monetary theory and the birth of the people's economy*, PublicAffairs.

Keynes J. M. (1936), *The General Theory of Employment, Interest, and Money*, London: Macmillan.

Kopp E., D. Leigh, S. Mursula and S. Tambunlertchai (2019), *U.S. Investment Since the Tax Cuts and Jobs Act of 2017*, Working Paper 19/120, International Monetary Fund, May.
https://www.imf.org/en/Publications/WP/Issues/2019/05/31/U-S-46942

Kumar A. and P.M. Orrenius (2016), "A closer look at the Phillips curve using state-level data", *Journal of Macroeconomics*, 47, 84-102.

Macroeconomic Advisers (2018), *The Bipartisan Budget Act of 2018: Implications for the Forecast,* Macro Focus, March.

Mahedy T. and D. J. Wilson (2018), *Fiscal Policy in Good Times and Bad*, Federal Reserve Bank of San Francisco Economic Letter, July. https://www.frbsf.org/economic-research/files/el2018-18.pdf

Mertens K. (2019), *U.S. Tax cuts boost economy – but for how long?*

Mertens K. and M. O. Ravn (2013), "The Dynamic Effects of Personal and Corporate Income Tax Changes in the United States", *American Economic Review*, 103(4), 1212-1247.

Mountford A. and H. Uhlig (2009), "What Are the Effects of Fiscal Policy Shocks?", *Journal of Applied Econometrics*, 24(6), 960-992.

Orphanides A. and J. Williams (2011), *Monetary policy mistakes and the evolution of inflation expectations*, NBER, Working Paper, 17080.

Perotti R. (2004), *Estimating the effects of fiscal policy in OECD countries*, Proceedings of Federal Reserve Bank of San Francisco.

Romer C. D. and D. H. Romer (2010), "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks", *American Economic Review*, 100 (2010), 763–801.

Rother P. (2004), *Fiscal policy and inflation volatility*, Working Paper Series 317, March.

Sánchez J.M. and H. Sung Kim (2018), *Why is inflation so low?*, Federal Reserve Bank of St. Louis, Regional Economist, 2 February.

Sargent T.J. and N. Wallace (1981), "Some unpleasant monetarist arithmetic", Federal Reserve Bank of Minneapolis, *Quarterly Review*, Fall.

Smith K. W. (2018), *It's Not a Trump Boom, It's an Oil and Gas Boom*, Bloomberg Opinion, September 14, 2018.

Tax Policy Center (2018), *Analysis of the Tax Cuts and Jobs Act*, available online at: https://www.taxpolicycenter.org/feature/analysis-tax-cuts-and-jobs-act

Abstracts from the Working Papers series

376. Welfare effects of business cycles and monetary policies in a small open emerging economy, by J. Mohimont, November 2019

The paper evaluates the welfare cost of business cycles and the effects of monetary policies in a DSGE model tailored to a small open emerging economy. The model generates rich business cycle fluctuations, features labour market idiosyncratic risks and accounts for imperfect financial and capital markets inclusion. In this context, households excluded from financial and capital markets experience larger costs of business cycle fluctuations due to their inability to hedge against labour market idiosyncratic risks. Different degrees of exposure to different types of risks generate divergent preferences regarding the conduct of monetary policy. While a strong response to inflation deviation from target maximises welfare for included households, excluded households benefit the most from unemployment and wage stabilisation policies.

377. Learning about demand abroad from wholesalers: a B2B analysis, by W. Connell, E. Dhyne, H. Vandenbussche, November 2019

The paper uses Business to Business (B2B) transaction level data. It shows that manufacturing firms that initially export via a wholesaler are much more likely to become direct exporters to the same destination in subsequent periods. Theoretically, the authors rationalise this finding by demonstrating how a connection to a wholesaler reduces uncertainty about foreign demand. In the data, they isolate the channel for demand learning from productivity spillovers. Non-exporting manufacturing firms, previously serving a foreign destination through an exporting wholesaler, have a much higher probability of becoming direct exporters to the same export market in subsequent periods. A connection to an exporting wholesaler results in a probability of exporting to the same destination that is six times higher than a comparable firm without any exposure to the foreign destination.

378. Measuring trade in value added with firm-level data, by R. Bems, K. Kikkawa, November 2019

Global value chains have proliferated in economic policy debates. Yet a key concept – trade in value added – is likely mismeasured because of sectoral aggregation bias stemming from reliance on input-output tables. The paper uses comprehensive firm-level data on both domestic and international transactions to study this bias. The authors find that sectoral aggregation leads to overstated trade in value added and, correspondingly, understated import content of gross exports. The economic magnitude of the estimated bias varies from moderate to large – at 2-5 p.p. of gross exports for Belgium and 17 p.p. for China. The authors study how the interplay between within-sector heterogeneities in firm import and export intensities and firm size determine the magnitude of the sectoral aggregation bias.

379. Scrapping the entitlement to unemployment benefits for young labour market entrants: An effective way to get them to work?, by B. Cockx, K. Declercq, M. Dejemeppe, L. Inga, B. Van der Linden, December 2019

The authors examine the impact of scrapping entitlement to unemployment insurance (UI) on job-finding and employment of young labour market entrants. In Belgium, young labour market entrants with short

or no employment record are eligible for non-means-tested UI after a one-year waiting period. This zero-benefit period gives rise to an unusual inclining benefit profile. They exploit a policy change that restricted access to UI for two groups of job-seekers in 2015 : university graduates aged 25 and older at the end of their waiting period and high school dropouts younger than 21. At the time the reform was announced, many job-seekers realised that they were no longer eligible for UI by the end of their waiting period. The authors use a differences-in-differences approach to identify the causal impact of the reform. The main finding is that losing eligibility to UI does not increase the employment probability of targeted youths.

380. The impact of Brexit uncertainties on international trade : Evidence from Belgium, by E. Schmitz, December 2019

The paper investigates the short-run effects of the uncertainties brought by the Brexit referendum on bilateral trade between Belgium and its main trading partners. I find that import and export markets have specific dynamics and react differently to changes in political uncertainty and economic variables. While import flows are more rigid and do not react to the uncertainties related to the Brexit referendum, export flows are more sensitive to this event. Consequently, I find that the unstable environment created by the Brexit referendum leads to a lower intensive margin for Belgian exports to the UK in comparison to Belgium's' main neighbouring countries. The impact of uncertainty is more pronounced in larger Belgian exporting firms in the period preceding the Brexit referendum, since these firms are better able to absorb the associated costs of postponing or diverting exports. The results for Belgian manufacturing firms, which are more responsive to changes in competitiveness, also suggest more intense reaction to the Brexit uncertainties than commodities producers but are not conclusive.

Conventional signs

%	percent
e	estimate
e.g.	*exempli gratia* (for example)
etc.	*et cetera*
i.e.	*id est* (that is)
p.m.	*pro memoria*
EUR	euro
USD	US dollar

List of abbreviations

Countries or regions

BE	Belgium
DE	Germany
EE	Estonia
IE	Ireland
FR	France
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
NL	Netherlands
AT	Austria
PT	Portugal
SI	Slovenia
SK	Slovakia
FI	Finland
EA	Euro area
PL	Poland
UK	United Kingdom
EU	European Union
CN	China
IN	India
JP	Japan
RU	Russia
US	United States

Other abbreviations

BBA	Bipartisan Budget Act
BRICS	Brazil, Russia, India, China, South Africa
CBO	Congressional Budget Office
CEC	Central Economic Council
CETA	Comprehensive Economic and Trade Agreement (between the EU and Canada)
CIF	Cost insurance and freight
CNN	Cable News Network
CPB	Central Planning Bureau (the Netherlands)
CRS	Congressional Research Service
DFM	Dynamic factor model
EC	European Commission
ECB	European Central Bank
ESA	European System of Accounts
EU-SILC	EU Statistics on Income and Living Conditions
FDI	Foreign direct investment
FOB	Free on board
FPB	Federal Planning Bureau
FPS	Federal Public Service
FRED	Federal Reserve Economic Data
FTPL	Fiscal theory of the price level
GDP	Gross domestic product
GVC	Global value chain
HICP	Harmonised index of consumer prices
HS6	6-digit Harmonized System products
ICT	Information and communication technology
IFOP	Institut français d'opinion publique
ILSR	Inflation-linked swap rate
IMEC	Inter-University Microelectronics Centre
IMF	International Monetary Fund
IT	Information technology
IWEPS	Institut wallon de l'évaluation, de la prospective et de la statistique
JCT	Joint Committee on Taxation
Mercosur	Southern Common Market of Argentina, Brazil, Paraguay and Uruguay
MMT	Modern monetary theory
NAFTA	North American Free Trade Agreement
NAI	National Accounts Institute
NBB	National Bank of Belgium

NCPI	National consumer price index
NEO	National Employment Office
NPI	Non-profit institution
NUTS	Nomenclature of territorial units for statistics
OECD	Organisation for Economic Cooperation and Development
OLS	Ordinary least squares
PCE	Personal consumption expenditure
PMI	Purchasing Managers' Index
PPML	Poisson pseudo-maximum likelihood
PPP	Purchasing power parity
R&D	Research and development
SES	Structure of Earnings Survey
S&P	Standard and Poor's
SPF	Survey of Professional Forecasters
Statbel	Belgian statistical office
TCJA	Tax Cuts and Jobs Act
ULC	Unit labour cost
UNCTAD	United Nations Conference on Trade and Development
USMCA	United States Mexico Canada Agreement
VAT	Value added tax
WEG	Wage Expert Group
WTO	World Trade Organisation
YoY	Year-on-year

National Bank of Belgium
Limited liability company
RLP Brussels – Company number: 0203.201.340
Registered office: boulevard de Berlaimont 14 – BE-1000 Brussels
www.nbb.be

Publisher

Pierre Wunsch
Governor

National Bank of Belgium
Boulevard de Berlaimont 14 – BE-1000 Brussels

Contact for the publication

Pierre Crevits
Head of General Secretariat and Communication

Tel. +32 2 221 30 29
pierre.crevits@nbb.be

Cover: the dealing room of the National Bank

Cover and layout: NBB CM – Prepress & Image
Published in December 2019