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Growth and Productivity in Belgium

October 2017

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Growth and Productivity in Belgium

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Abstract - The objective of the report is to provide an overview of the main drivers of economic growth and the productivity evolution in Belgium, in comparison with its three neighbouring countries and the US over 1970 and 2015. Recent evolutions, over 2000-2015, are analysed in details in order to shed light on the impact of the great recession. The growth accounting methodology is applied to explain labour productivity growth for the total economy, manufacturing and market services.

Jel Classification - O11, O33, O40, O47
Keywords - growth accounting, growth contribution, productivity, MFP, strucutral change

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Executive summary

The objective of this report is to provide an overview of the main drivers of economic growth and productivity evolution in Belgium, and to compare the Belgian performances with the three main neighbouring countries and the US evolutions. Over the 1970-2015 period, US GDP per capita surpassed levels observed in Belgium, Germany, France and the Netherlands. The gap in GDP per capita between Belgium and the US, which decreased at the beginning of the period to reach a minimum of 5% in 1982, increased again to 23% in 2015. Since the mid-1990s, GDP per capita in Belgium and its three neighbouring countries has started to diverge, with the Netherlands recording the highest growth and Germany the lowest.

These divergences are explained by differences in labour utilisation (hours worked per capita) evolutions, which are not fully compensated by labour productivity growth differentials. The US economy was able to simultaneously increase labour utilisation and labour productivity over three decades, from the 1970s to the 2000s. This was not the case for any of the European countries under consideration. In Belgium, the decline in GDP per capita growth is mainly due to the decline in labour productivity growth, since labour utilisation has been relatively stable on average since the 1990s.

These divergences in GDP per capita growth rates are also linked to changes in the structure of activities as they move from manufacturing to services, occurring at different speeds across these economies. These changes have an impact on labour productivity growth of the whole economy because of differences in labour productivity evolutions across industries. The US have a more advanced tertiarization of their economy than the four studied European countries. As a result of these changes, the Belgian economy holds, in 2015, an intermediate position among its neighbouring countries, characterised by a greater importance of: (i) manufacturing than in France and the Netherlands, but which is smaller than in Germany, (ii) market services than in France and Germany, but which are smaller than in the Netherlands and (iii) non-market services than in Germany and in the Netherlands, but which are smaller than in France.

The detailed analysis of the four European countries over 2000-2015 shows that the recent crisis hit economic growth in Belgium, as well as in France and the Netherlands, though less severely than in Germany, but that its effects lasted for longer in the first three countries. A double-dip was even observed in Belgium and in the Netherlands. This was followed by subdued labour productivity growth over the post-crisis period, particularly in Belgium, where the slowdown in the growth of hours worked was less pronounced than in its neighbouring countries. The growth accounting decomposition suggests that the Belgian slowdown in labour productivity growth was mainly due to the decline in the capital deepening contribution, particularly non-ICT, and – to a lesser extent – to the decrease in the MFP contribution. The growth rate of net capital stock in volume decreased in Belgium, as well as in Germany and the Netherlands.

Given the very significant international openness of the Belgian economy, price- and cost-competitiveness are particularly important for growth. However, Belgium has recorded divergent evolutions: man-

ufacturing competitiveness has improved – especially since the crisis – while market services competitiveness has worsened.

As in Germany but contrary to France and the Netherlands, the overall value added growth of Belgian manufacturing was strong and has improved since the crisis. However, unlike in Germany, this improvement was not generalised but was only observed in a limited number of industries. Indeed, only 5 out of the 13 manufacturing industries recorded a higher average annual growth rate of value added over the 2009-2015 period compared to the 2000-2007 period. Moreover, and again contrary to Germany, hours worked have continued to contract since the crisis in most manufacturing industries, even though the contraction rate has slowed down in comparison to the rate over 2000-2007. Only Pharmaceuticals recorded a positive growth rate of hours worked. The acceleration of labour productivity growth since the crisis is due to the increase in the contribution of only three industries: Coke and refined petroleum, Chemicals and Basic metals.

The growth accounting decomposition reveals that the acceleration of Belgian manufacturing labour productivity growth since the crisis has been driven only by the increase in MFP growth, while the capital deepening contribution has become slightly negative. It should be noted that this MFP growth could be partly cyclical. The fluctuations in the capacity utilisation rate are indeed recorded in MFP changes, given the estimation method. The growth rate of net capital stock in volume has been clearly more negative in Belgium than in the neighbouring countries since the crisis. This rate has deteriorated in all Belgian industries except in Coke and refined petroleum. This industry and Pharmaceuticals are the only two industries that have shown a positive growth rate of net capital stock over the post-crisis period.

The growth of value added and of hours worked in Belgian market services over 2000-2015 was higher than those observed in the three neighbouring countries. However, the slowdown in value added growth over 2009-2015 was also clearly more pronounced in Belgium. Even though labour productivity growth over the whole period was globally in line with the growth observed in the three other countries, the slowdown over the post-crisis period was particularly impressive. Before the crisis, Trade contributed for more than 60% to labour productivity growth of Belgian market services but this contribution strongly decreased after the crisis, despite the accelerating decline in the hours worked in this industry. Only one industry – Finance and insurance – succeeded in increasing its labour productivity growth contribution after the crisis. In this industry, the contraction of hours worked continued even though the value added growth rate accelerated.

The slowdown in productivity growth of Belgian market services over the post-crisis period was mainly explained by the fall in the capital deepening contribution. The contribution of non-ICT capital became slightly negative, while the ICT capital deepening contribution remained low but positive. This negative contribution was the result of positive growth in capital services, though this was lower than the growth in hours worked over the post-crisis period. MFP growth in market services also recorded a slowdown after the crisis.

In comparison to the neighbouring countries, market services in Belgium are also characterised by a higher degree of concentration of value added and hours worked in the four main industries and, on average over 2000-2015, a higher profit share and investment rate.

As a conclusion, Belgium faces a polarisation of the economy. On the one hand, manufacturing is improving its performances – thanks to just a few industries – but at the expense of jobs. On the other hand, market services are showing deteriorating performances but creating jobs, partly financed by public authorities. This is leading to a loss of competitiveness in market services, where prices are increasing faster than in the neighbouring countries. Are such developments sustainable in the long term?

Synthèse

L'objectif de ce rapport est de fournir une vue d'ensemble des principaux vecteurs de la croissance économique et de l'évolution de la productivité en Belgique et de comparer les performances belges avec celles des trois principaux pays voisins et des États-Unis.

Sur près d'un demi-siècle, de 1970 à 2015, le niveau de PIB par tête américain a dominé les niveaux belge, allemand, français et néerlandais. L'écart entre le PIB par tête américain et celui de la Belgique qui, au début de la période sous revue, avait diminué pour n'être plus que de 5 % en 1982, s'est remis à croître pour atteindre 23 % en 2015. Depuis le milieu des années nonante, le PIB par tête de la Belgique et celui de ses trois principaux voisins ont évolué de façon divergente. Les Pays-Bas ont connu une croissance particulièrement forte, supérieure à celle des autres pays, contrairement à l'Allemagne qui a enregistré la croissance la plus faible.

Ces divergences de croissance des niveaux de vie s'expliquent par des différences dans l'évolution de l'utilisation de la main-d'œuvre (heures travaillées par personne) qui ne sont pas entièrement compensées par des différentiels de croissance de la productivité du travail. L'économie américaine a été capable d'augmenter à la fois l'utilisation de sa main-d'œuvre et sa productivité pendant trois décennies, des années septante aux années deux mille. Aucune des quatre économies européennes étudiées n'a été capable d'en faire autant. En Belgique, le déclin de la croissance du PIB par tête est essentiellement dû au ralentissement de la croissance de la productivité du travail, l'utilisation de la main-d'œuvre restant relativement stable en moyenne depuis les années nonante.

Ces divergences dans la croissance du PIB par tête sont aussi liées aux changements de structure des activités qui conduisent à la tertiarisation de l'économie et à la différence de vitesse à laquelle ces changements s'opèrent d'un pays à l'autre. Ces changements ont un impact sur l'évolution de la productivité de l'économie dans son ensemble étant donné que tous les secteurs d'activité ne connaissent pas une croissance similaire de la productivité. Les États-Unis connaissent une tertiarisation de leur économie plus avancée que celle des quatre pays européens étudiés. Ces changements de structure amènent la Belgique à occuper, en 2015, une position intermédiaire parmi ses voisins, avec un poids de l'industrie manufacturière plus important qu'en France ou aux Pays-Bas mais moins élevé qu'en Allemagne, un poids des services marchands supérieur à ce qui est observé en Allemagne ou en France mais inférieur au poids aux Pays-Bas et un poids des services non marchands supérieur aux poids allemand et néerlandais mais inférieur au poids français.

L'analyse détaillée des quatre pays européens sur la période 2000-2015 montre que la crise économique et financière récente a pesé moins sévèrement sur la croissance économique de la Belgique, de la France et des Pays-Bas que sur celle de l'Allemagne, mais que ses effets s'y sont fait ressentir plus longuement. Une deuxième récession a même été observée en Belgique et aux Pays-Bas. La crise a surtout été suivie d'une période de croissance faible de la productivité, en particulier en Belgique où le ralentissement de la croissance des heures travaillées a été moins prononcé que dans les pays voisins. Le modèle de la comptabilité de la croissance indique que ce ralentissement de la croissance de la productivité belge est essentiellement lié à l'effondrement de la contribution du capital par heure travaillée, particulièrement

le capital non lié aux technologies de l'information et de la communication (TIC) et, dans une moindre mesure, à l'affaiblissement de la contribution de la productivité globale des facteurs. Le taux de croissance du stock de capital net en volume a diminué en Belgique, comme en Allemagne et aux Pays-Bas.

Étant donné le degré d'ouverture internationale très élevé de l'économie belge, la compétitivité prix et coûts est particulièrement importante pour la croissance. Mais, la Belgique a enregistré des évolutions divergentes : la compétitivité de l'industrie manufacturière s'est améliorée – en particulier depuis la crise – alors que celle des services marchands s'est détériorée.

Comme l'Allemagne mais contrairement à la France et aux Pays-Bas, la Belgique bénéficie d'une industrie manufacturière dont la croissance de la valeur ajoutée est globalement soutenue et s'améliore depuis la crise. Mais contrairement à l'Allemagne, cette amélioration n'est pas un phénomène généralisé à l'ensemble des branches manufacturières mais se concentre sur un groupe restreint d'activités. Seules cinq branches d'activité sur les treize que compte l'industrie manufacturière affichent un taux de croissance annuel moyen de la valeur ajoutée sur la période 2009-2015 supérieur à celui enregistré sur la période 2000-2007. De plus, et toujours contrairement à l'Allemagne, le volume de travail a continué à se contracter après la crise, même si c'est à un rythme plus faible que celui observé entre 2000 et 2007. Seule l'industrie pharmaceutique a été en mesure d'augmenter le nombre d'heures travaillées. L'accélération de la croissance de la productivité de l'industrie manufacturière belge sur la période post-crise n'est due qu'à trois branches d'activité : le raffinage du pétrole, la chimie et la métallurgie.

Le modèle de comptabilité de la croissance identifie le progrès technique comme seule source de l'accélération de la productivité de l'industrie manufacturière belge depuis la crise, la contribution du capital par heure travaillée devenant légèrement négative. Il convient de noter que cet apport du progrès technique peut être en partie cyclique. En effet, la méthode d'estimation induit une mesure du progrès technique qui incorpore aussi les variations du degré d'utilisation des capacités de production. Le taux de croissance du stock net de capital en volume a été clairement plus négatif en Belgique que dans les pays voisins depuis la crise. Ce taux s'est détérioré dans toutes les branches d'activité manufacturières à l'exception du raffinage du pétrole. Cette branche et l'industrie pharmaceutique sont les deux seules branches manufacturières qui ont enregistré un taux de croissance positif du stock net de capital sur la période.

La croissance de la valeur ajoutée et du volume de travail dans les services marchands belges sur la période 2000-2015 a été supérieure à celle observée dans les trois pays voisins. Mais le ralentissement de la croissance de la valeur ajoutée entre 2009 et 2015 a aussi été clairement plus prononcé en Belgique. Même si la croissance de la productivité sur l'ensemble de la période 2000-2015 est restée en ligne avec la croissance observée dans les trois autres pays, le ralentissement observé depuis la crise dans les services marchands belges a été particulièrement impressionnant. Avant la crise, le commerce contribuait pour plus de 60 % à la croissance de la productivité de l'ensemble des services marchands belges mais cette contribution s'est fortement réduite depuis la crise, malgré l'accélération de la réduction du nombre d'heures travaillées dans cette branche. Au sein des services marchands belges, seule la branche Finance et assurances est parvenue à augmenter sa contribution à la croissance de la productivité depuis la crise, continuant à diminuer le volume de travail alors que la croissance de la valeur ajoutée redémarrait.

Le ralentissement de la croissance de la productivité des services marchands belges depuis la crise est principalement expliqué par la chute de la contribution du capital par heure travaillée. La contribution du capital non TIC est devenue légèrement négative alors que celle du capital TIC est restée positive mais faible. Cette contribution négative est le résultat d'une croissance positive des services du capital mais inférieure à la croissance des heures travaillées sur la période post-crise. La croissance de la productivité globale des facteurs s'est aussi ralentie depuis la crise.

En comparaison avec les pays voisins, les services marchands en Belgique sont aussi caractérisés par un degré plus élevé de concentration de la valeur ajoutée et des heures travaillées dans les quatre principales branches d'activité et, en moyenne sur la période 2000-2015, par des taux de marge et d'investissement plus élevés.

En conclusion, la Belgique fait face à une dualisation de son économie. D'un côté, l'industrie manufacturière améliore ses performances – grâce à quelques branches d'activité seulement – mais au détriment de l'emploi. D'un autre côté, les services marchands voient leurs performances se détériorer mais créent de l'emploi, en partie financé par les pouvoirs publics. Cela conduit à une perte de compétitivité des services marchands dont les prix augmentent plus rapidement que dans les pays voisins. De telles évolutions sont-elles soutenables à long terme ?

Synthese

Dit rapport beoogt een overzicht te geven van de belangrijkste drijvende krachten achter de economische groei en de productiviteitsontwikkeling in België en vergelijkt de Belgische prestaties met die van de drie voornaamste buurlanden en de Verenigde Staten.

Gedurende de afgelopen halve eeuw – van 1970 tot 2015 – lag het Amerikaanse bbp per hoofd ruimschoots hoger dan de niveaus in België, Duitsland, Frankrijk en Nederland. Het verschil tussen het Amerikaanse en het Belgische bbp per hoofd nam aan het begin van de onderzochte periode af tot slechts 5 % in 1982 en bleef vervolgens toenemen tot 23 % in 2015. Sinds het midden van de jaren 90 zijn het bbp per hoofd van België en dat van zijn drie voornaamste buurlanden uiteenlopend geëvolueerd. Nederland kende een bijzonder sterke groei die hoger lag dan die in de andere landen, in tegenstelling tot Duitsland dat de zwakste groei liet optekenen.

Die uiteenlopende groei van de levensstandaard wordt verklaard door de verschillen in de evolutie van de inzet van arbeid (gewerkte uren per persoon) die niet volledig worden gecompenseerd door de verschillen in de groei van de arbeidsproductiviteit. De Amerikaanse economie is er in drie decennia (van het begin van de jaren 70 tot de jaren 2000) in geslaagd de arbeidskrachten beter te benutten en de productiviteit te verhogen. Geen enkele van de vier bestudeerde Europese economieën heeft dat kunnen evenaren. In België is de daling van de bbp-groei per hoofd hoofdzakelijk te wijten aan de groeivertraging van de arbeidsproductiviteit, aangezien de inzet van arbeid gemiddeld genomen relatief stabiel is gebleven sinds de jaren 90.

Die uiteenlopende evoluties in de bbp-groei per hoofd houden ook verband met de veranderingen van de structuur van de activiteiten die leiden tot de tertiarisering van de economie en met de verschillen in het tempo van tertiarisering tussen de landen. In de Verenigde Staten is die tertiarisering meer geavanceerd dan in de vier bestudeerde Europese landen. Die veranderingen van de structuur van de economie plaatsen België, in 2015, in een tussenpositie met een groter aandeel van de verwerkende nijverheid dan in Frankrijk en Nederland, maar kleiner dan in Duitsland, een groter aandeel van de marktdiensten dan in Duitsland en Frankrijk, maar kleiner dan in Nederland en een aandeel van de niet-verhandelbare diensten dat groter is dan in Duitsland en Nederland, maar kleiner dan in Frankrijk.

Uit de gedetailleerde analyse van de vier Europese landen over de periode 2000-2015 blijkt dat de recente economische en financiële crisis België, Frankrijk en Nederland minder hard heeft getroffen dan Duitsland, maar de impact ervan liet zich langer voelen. In België en Nederland werd zelfs een tweede recessie waargenomen. De crisis werd gevolgd door een periode van lage productiviteitsgroei, in het bijzonder in België waar de daling van de groei van het aantal gewerkte uren minder groot was dan in de buurlanden. Uit het 'growth accounting'-model blijkt dat die groeivertraging van de Belgische productiviteit hoofdzakelijk toe te schrijven is aan de inzinking van de bijdrage van het kapitaal per gewerkt uur – in het bijzonder het kapitaal dat geen verband houdt met de informatie- en communicatietechnologieën (ICT) – en in mindere mate aan de verdere daling van de bijdrage van de totale factorproductiviteit. De groei van de netto kapitaalvoorraad in volume is in België immers gedaald, net zoals in Duitsland en Nederland.

Gelet op de zeer grote internationale openheid van de Belgische economie is de prijs- en kostencompetitiviteit bijzonder belangrijk voor de groei. België heeft op dat vlak echter uiteenlopende evoluties gekend: de competitiviteit van de verwerkende nijverheid is verbeterd – vooral sinds de crisis – terwijl die van de marktdiensten erop achteruitgegaan is.

Net zoals in Duitsland – maar in tegenstelling tot Frankrijk en Nederland – is de groei van de toegevoegde waarde van de Belgische verwerkende nijverheid over het algemeen sterk en is er een verbetering merkbaar sinds de crisis. In tegenstelling tot Duitsland is die verbetering echter geen fenomeen dat zich voordoet in alle verwerkende bedrijfstakken, maar is die beperkt tot een beperkte groep activiteiten. Slechts voor vijf van de 13 bedrijfstakken van de verwerkende nijverheid is de gemiddelde jaarlijkse groei van de toegevoegde waarde over de periode 2009-2015 hoger dan die uit de periode 2000-2007. Bovendien – en nog steeds in tegenstelling tot Duitsland – is het arbeidsvolume blijven terugvallen na de crisis, weliswaar tegen een trager tempo dan in de periode 2000-2007. Alleen in de farmaceutische industrie is het aantal gewerkte uren toegenomen. De groeiversnelling van de productiviteit van de Belgische verwerkende nijverheid tijdens de periode na de crisis is aan slechts drie bedrijfstakken te danken: de olieraffinage, de chemie en de metaalnijverheid.

Het 'growth accounting'-model duidt technologische vooruitgang aan als enige bron van de snellere productiviteitsgroei van de Belgische verwerkende nijverheid sinds de crisis, terwijl de bijdrage van het kapitaal per gewerkt uur licht negatief is geworden. Die bijdrage van de technologische vooruitgang kan echter deels cyclisch zijn. De methode om de technologische vooruitgang te meten bevat immers ook de schommelingen in de capaciteitsbezettingsgraad. De groeivoet van de netto kapitaalvoorraad in volume is sinds de crisis duidelijk negatiever in België dan in de buurlanden. Die groeivoet is verslechterd in alle verwerkende bedrijfstakken, behalve in de olieraffinage. Die laatste en de farmaceutische industrie zijn de enige twee verwerkende bedrijfstakken die een positieve groei van de netto kapitaalvoorraad lieten optekenen over de periode.

De groei van de toegevoegde waarde en van het arbeidsvolume in de Belgische marktdiensten lag over de periode 2000-2015 hoger dan in de drie buurlanden. De groeivertraging van de toegevoegde waarde was tussen 2009 en 2015 ook duidelijk meer uitgesproken in België. Hoewel de productiviteitsgroei over de volledige periode 2000-2015 gelijke tred heeft gehouden met de groei in de drie andere landen, is de vertraging die sinds de crisis in de Belgische marktdiensten wordt waargenomen bijzonder indrukwekkend. Vóór de crisis droeg de handel voor meer dan 60 % bij tot de productiviteitsgroei van de Belgische marktdiensten, maar die bijdrage is sinds de crisis sterk gedaald, ondanks de snelle vermindering van het aantal gewerkte uren in die bedrijfstak. Binnen de Belgische marktdiensten is enkel de bedrijfstak Financiën en verzekeringen erin geslaagd een grotere bijdrage te leveren tot de productiviteitsgroei sinds de crisis, door stelselmatig het arbeidsvolume af te bouwen terwijl de groei van de toegevoegde waarde opnieuw aantrok.

De vertraging van de productiviteitsgroei van de Belgische marktdiensten sinds de crisis wordt vooral verklaard door de terugval van de bijdrage van het kapitaal per gewerkt uur. De bijdrage van het niet-ICT-kapitaal is licht negatief geworden, terwijl die van het ICT-kapitaal positief, maar zwak, is gebleven. Die negatieve bijdrage is het resultaat van een positieve groei van de kapitaaldiensten, die kleiner was dan de groei van de gewerkte uren tijdens de post-crisisperiode. De groei van de totale factorproductiviteit is ook vertraagd sinds de crisis.

Ten opzichte van de buurlanden worden de Belgische marktdiensten ook gekenmerkt door een grotere concentratie van de toegevoegde waarde en het aantal gewerkte uren in de vier belangrijkste bedrijfstakken en, gemiddeld over de periode 2000-2015, door hogere winstmarges en investeringsquotes.

Tot besluit kan worden gesteld dat België geconfronteerd wordt met een dualisering van de economie. Enerzijds is er de verwerkende nijverheid, die haar prestaties verbetert dankzij slechts enkele bedrijfstakken, maar ten koste van de werkgelegenheid. Anderzijds zijn er de marktdiensten waarvan de prestaties achteruitgaan, maar die, deels door financiële steun van de overheid, werkgelegenheid creëren. Daardoor is er een verlies aan concurrentievermogen van de marktdiensten, waarvan de prijzen sneller stijgen dan in de buurlanden. Zijn dergelijke evoluties wel houdbaar op lange termijn?

Introduction

This report is an update of the two previous releases of "Growth and productivity in Belgium" in 2007 and 2008. The objective of this report is to provide an overview of the main drivers of economic growth and productivity evolution in Belgium, and to compare the Belgian performances with its three main neighbouring countries and the US evolutions. The impact of the recent major economic and financial crisis receives a particular attention.

The report begins with the long term evolution of GDP per capita in Belgium and its main determinants, labour utilisation and labour productivity over 1970-2015. The second section is devoted to the recent evolutions over 2000-2015 and compares the Belgian growth and productivity perfomances with those of Germany, France and the Netherlands. The same comparative analysis is implemented for manufacturing in section three and for market services in section four. A large set of analyses are used notably covering structural changes in the economies, contribution of labour, capital and multifactor productity to value added and labour productivity growth, industry contribution to labour productivity growth, evolution of investment rates, profit shares and return on capital.

The report is based on database of the European Commission, Ameco, the National Accounts details released by Eurostat and EUKLEMS database.

1. Total economy

Main findings

Over the last five decades, Belgium as most advanced economies, suffered from a declining trend in GDP per capita growth. The recent great depression has reinforced this slowdown. The decomposition of GDP per capita growth has also been profoundly altered between 1970 and 2015. In Belgium, the decline in GDP per capita growth is mainly due to the decline in labour productivity growth.

In the seventies until the mid-nineties, labour utilisation rapidly declined due to the decrease in the working time per worker and in the employment rate. The decrease in the employment rate itself was due to a rapid increase in working age population until the mid-eighties. Since 1995 and until the crisis, labour utilisation progressively increased before slightly declining over the post-crisis period. As a result, in 2015, the Belgian labour utilisation was the second weakest among the countries of comparison, far from the level reached by the US. The labour productivity growth compensated this evolution, allowing the increase in GDP per capita over 1970-2015, -yet at a declining pace. Over the whole period, labour productivity growth was indeed positive but showed a declining trend. However, a stabilisation of the trend was observed over the last five years. As a result, in 2015, the Belgian labour productivity level remained the highest but the gap with the US was very small.

Over 1970-2015, US GDP per capita exceeded the levels of the four European countries. The gap between the Belgian and the US GDP per capita, which decreased at the beginning of the period to reach its minimum of 5% in 1982, increased again to 23% in 2015. Moreover, since the mid-nineties, GDP per capita in Belgium and in its three neighbouring countries has started to diverge, with the Netherlands recording the highest growth and Germany the lowest. These divergences are explained by differences in labour utilisation evolutions, which are not fully compensated by labour productivity growth differentials. They are also linked to structural changes in economic activities, from manufacturing to services, occurring at different speeds across these economies. The relative importance of manufacturing remained the highest in Germany, while the relative importance of services was the highest in the Netherlands.

1.1. Evolution of GDP per capita in Belgium

Growth of GDP per capita is one of the most frequently used indicators of economic performance, providing an easily understandable picture of the evolution of standards of living. However, this indicator is far from giving the full overview of changes in the welfare of a country. Its main shortcomings are well known and include, among others, the lack of information on the degree of inequality of income distribution, on the use of non-renewable resources or on the quality of life. Despite these limitations, GDP per capita is widely used in international comparisons as it is rapidly available for most industrialised countries.

The long term series allows light to be shed on the declining trend of GDP per capita growth in Belgium over the last decades. During the seventies, the average annual growth rate of GDP per capita reached 3.1%, decreasing to 1.9% during the eighties and the nineties and to 1.0% over 2000-2010. Since 2010, GDP per capita has been growing even more slowly at an annual rate of 0.3%.

Per capita GDP growth can be decomposed into the evolution of labour utilisation (growth of hours worked per capita) and the evolution of labour productivity (growth of GDP per hour worked). As hour worked per capita cannot increase indefinitely, labour productivity growth is, on the long run, the main driver of the increase in the standards of living. Over 1970-2015, this decomposition was dramatically altered.

The decline in GDP per capita growth is to the largest extent attributed to the decline in labour productivity growth.

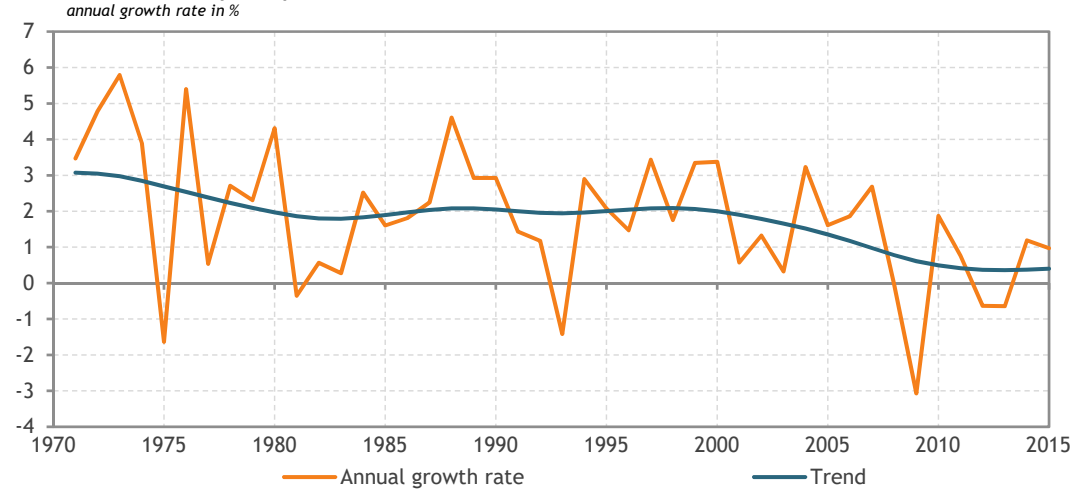
The trend in growth of labour utilisation, strongly negative during the seventies and the first half of the eighties, progessively improved until 2000, remaining positive until the crisis. In annual average rate, labour utilisation decreased by 1.1% during the seventies and by 0.2% during the eighties. Since then, growth was close to zero on average.

Over the whole period 1970-2015, labour productivity growth was positive but showed a declining trend. During the seventies, annual average growth of labour productivity reached 4.3% declining to 2.1% during the eighties, to 2.0% during the nineties, to 1.1% over 2000-2010 and to 0.4% over 2010-2015. However a stabilisation of the trend was observed over the last five years.

Data information: AMECO database except for the Belgian population: Statistics Belgium (data organised in series by FPB). Trend series estimated using Hodrick-Prescot filter (λ=100).

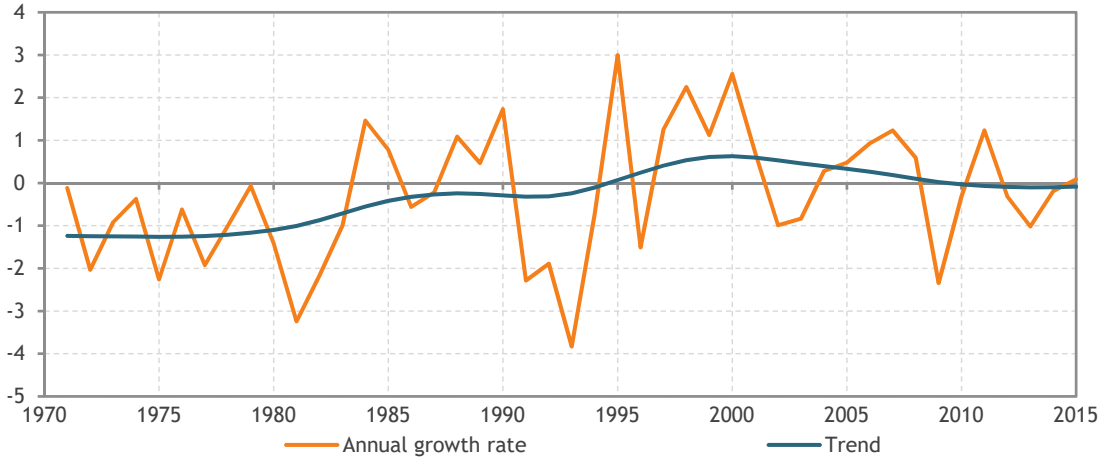
Graph 1 **Growth of GDP per capita**

annual growth rate in %



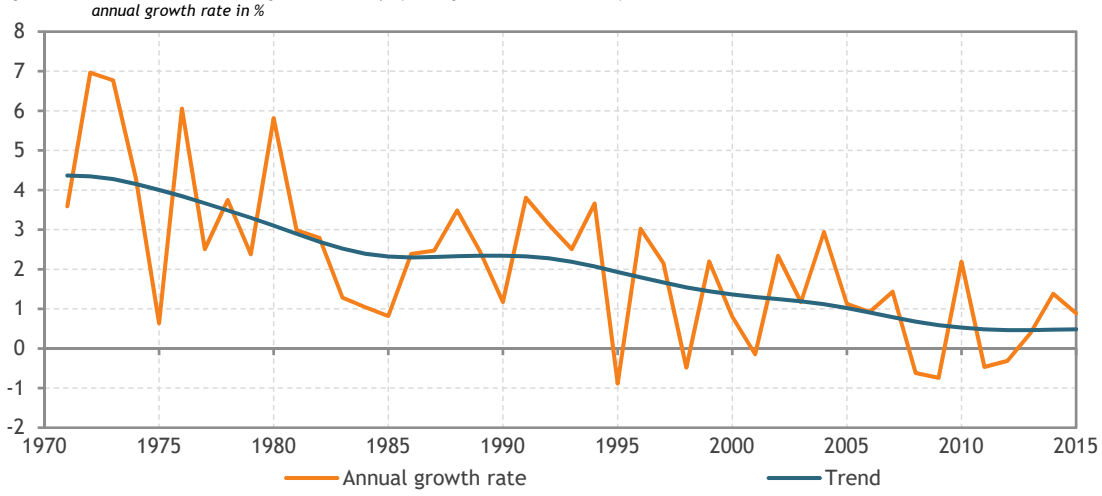
Graph 2 **Growth of labour utilisation (total hours worked per capita)**

annual growth rate in %



Graph 3 **Growth of labour productivity (GDP per hour worked)**

annual growth rate in %



1.2. Evolution of labour utilisation in Belgium

Labour utilisation, i.e. total hours worked divided by the population, was on a relatively rapid declining trend from 1970 until the mid-eighties and again over 1990-1995. Hours worked per capita increased until 2008 and slightly declined after due to the crisis impact. To better understand this evolution, it is helpful to decompose the indicator into more familiar elements. This has been done by considering the decomposition of labour utilisation into three components: firstly, annual hours worked per worker; secondly, the employment rate defined as the total number of workers divided by the working age population and, finally, the share of working age population in total population.

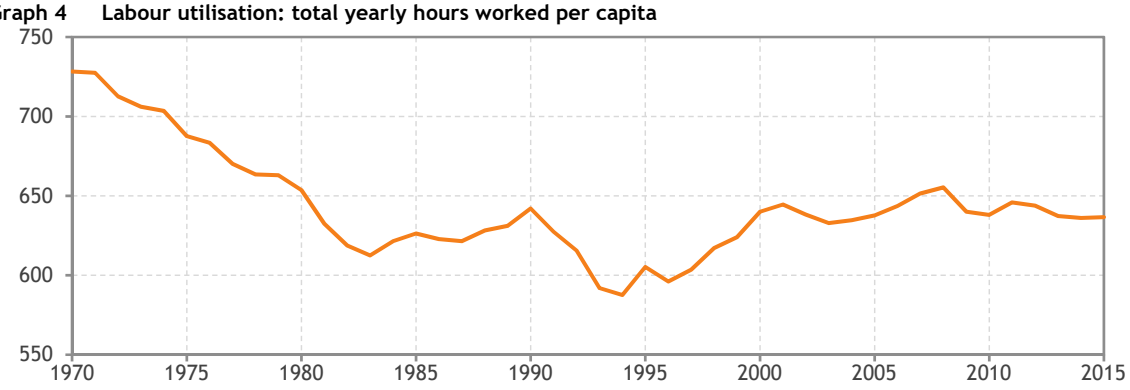
$$\frac{Hours}{Population} = \frac{Hours}{Employedworkers} \times \frac{Employedworkers}{Workingage\,population} \times \frac{Workingage\,population}{Population}$$

The decrease in labour utilisation at the beginning of the period was clearly linked to the decrease in the annual number of hours worked by worker in relation with reductions in contractually agreed working hours. From the mid-1970s to the mid-1990s, the decrease of the hours worked by workers was realised in a logic of sharing of work in a less favourable economic environment. This trend was reversed over 1994-2000 and since 2000, the annual volume of labour per worker has been again on a slightly decreasing trend.

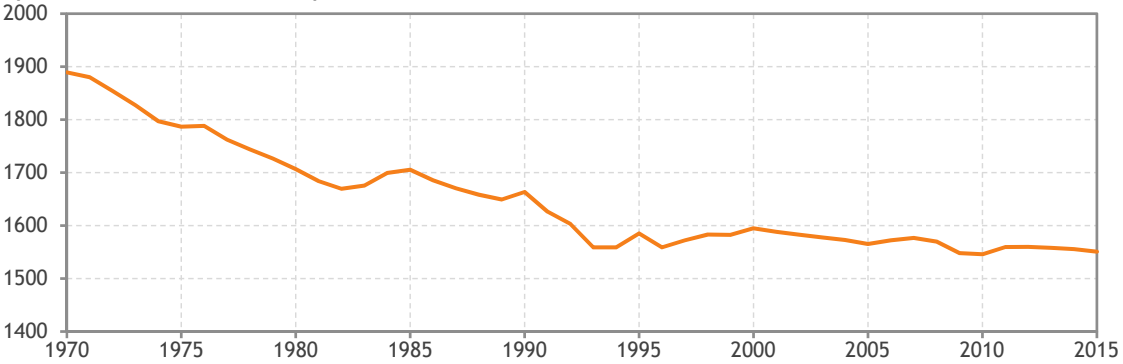
From the mid-seventies until the mid-eighties, the decline in employment rate also contributed to the decrease in labour utilisation in Belgium. This evolution was mainly due to the rapid increase in working age population which reached a peak in 1986 accounting for 67.4% of the total population, driven by the arrival on the labour market of the baby boomers. Since the mid-eighties, the employment rate has increased from 54.5% in 1985 to 63.3% in 2015. At the same time, the share of the working age population in the total population started to decrease as long as the progressive population ageing.

Data information: AMECO database except for the Belgian population: Statistics Belgium (data organised in series by FPB).

Graph 4 **Labour utilisation: total yearly hours worked per capita**

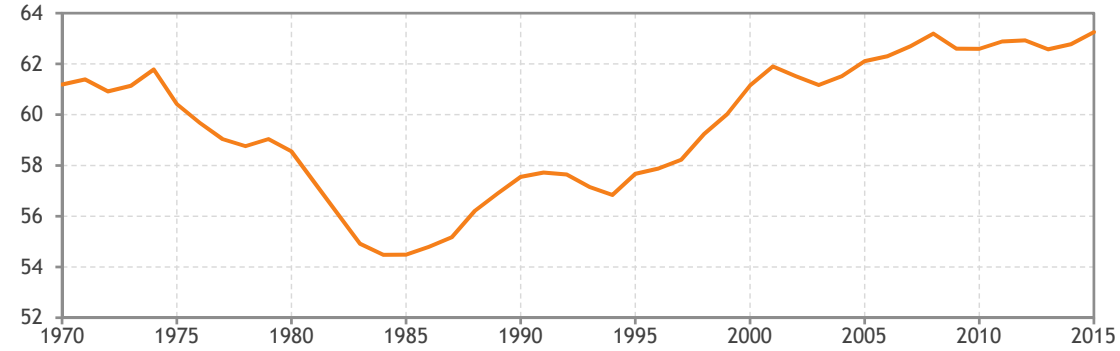


Graph 5 **Annual hours worked per worker**



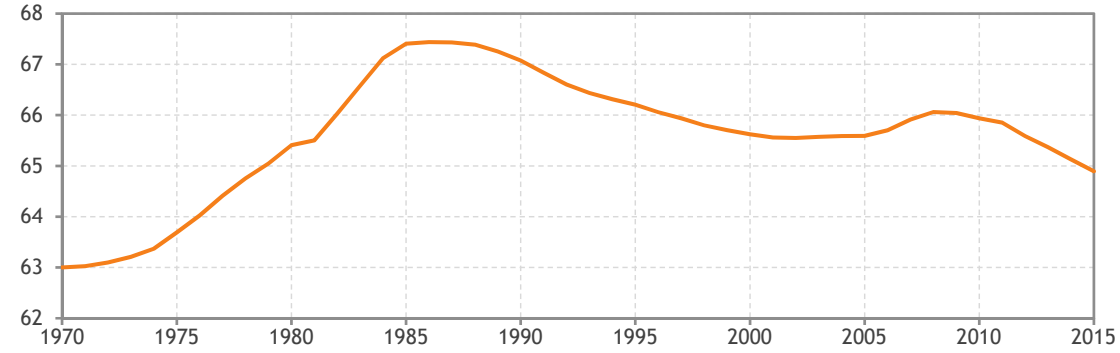
Graph 6 **Employment rate: workers on working age population**

in %



Graph 7 **Working age population (15-64) on total population**

in %



1.3. Level of GDP per capita

The comparison of the level of GDP per capita in Belgium with the levels observed in its three neighbouring countries and in the United States (US) allows to assess the degree of convergence or divergence of Belgian economic performances with respect to the ones of these countries. International comparisons of levels of GDP per capita, or of their components, require the utilisation of Purchasing Power Parities (PPPs), which enable to express data in a common virtual currency taking into account the differences in the relative prices levels across countries. The differences in levels of GDP per capita can be decomposed in differences in labour utilisation (total hours on population) and in differences in labour productivity levels (level of GDP per hour worked).

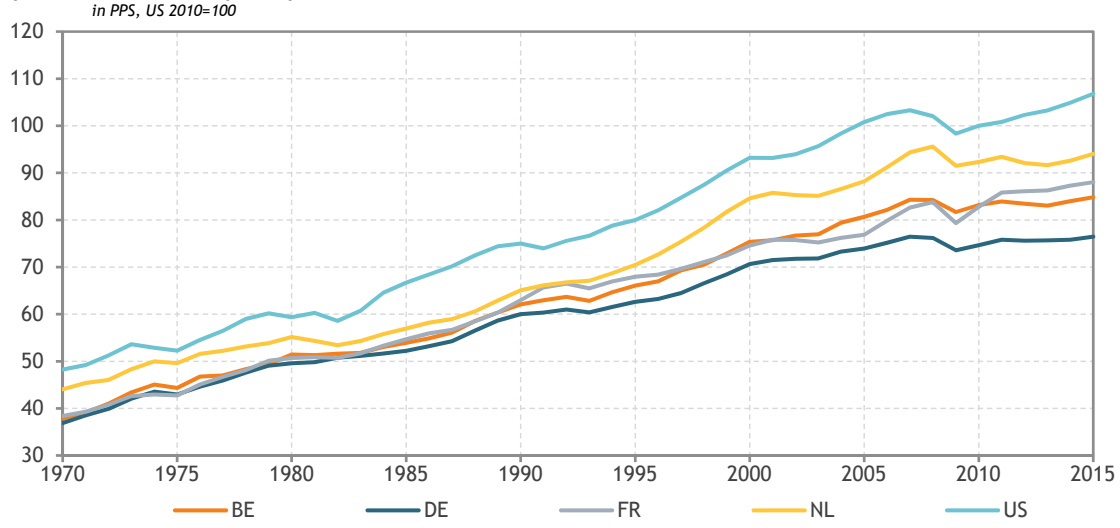
Over the whole period 1970-2015, GDP per capita level in the US dominated the European levels with a clearly stronger growth of the population in the US (56.6%) than in Belgium (16.5%), in France (28.0%), in the Netherlands (29.9%) and in Germany (4.6%). The Belgian level remained close to the levels of the three neighbouring countries until the mid-nineties, afterwhat the Dutch level increased more rapidly reducing the gap with the US. At the opposite, the German level increase slowed down during the nineties. Since the crisis, the increase in GDP per capita level has been clearly stronger in the US than in the other countries. The gap between the Belgian and the US GDP per capita levels, which decreased at the beginning of the period to reach its minimum in 1982 at 5%, renewed with an increasing trend and amounted to 23% in 2015.

The Belgian level of labour utilisation was below the level recorded in all other countries until 2002 when the Belgian level reached and then surpassed the declining German one. The growth of labour utilisation was particularly dynamic in the Netherlands from the mid-nineties until the crisis. Since 2010, the US labour utilisation has increased faster than in the European countries.

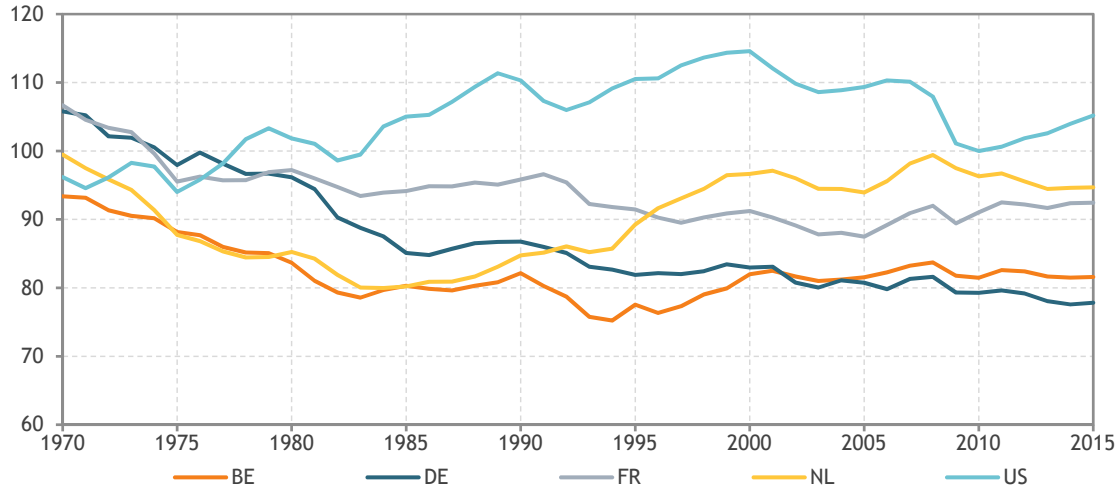
The Belgian level of labour productivity has been the higgest among the countries of comparison since 1991 when it overpassed the Dutch one. However, after an increasing gap between Belgium and the US in the mid-nineties, the US caught up the Belgian level to some extent due to a faster labour productivity growth since the end of the nineties. This strong growth in the US, combined with a slowdown in labour productivity growth in Belgium over the same period, drastically reduced the gap between these two countries.

Data information: OECD, Productivity database.

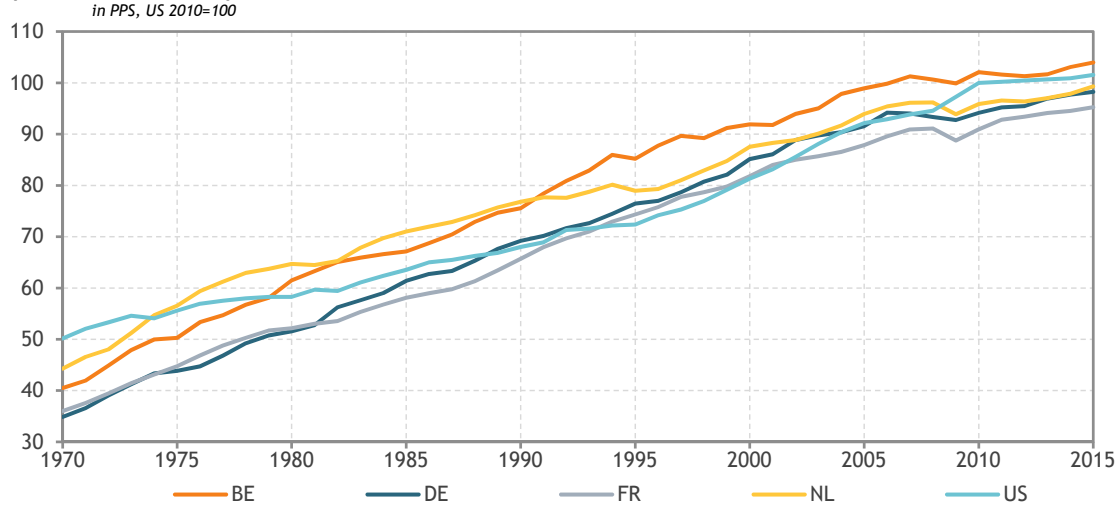
Graph 8 **Level of GDP per capita - BE, DE, FR, NL, US**
in PPS, US 2010=100



Graph 9 **Labour utilisation: total hours worked per capita - BE, DE, FR, NL, US**
US 2010=100



Graph 10 **Level of GDP per hour worked - BE, DE, FR, NL, US**
in PPS, US 2010=100



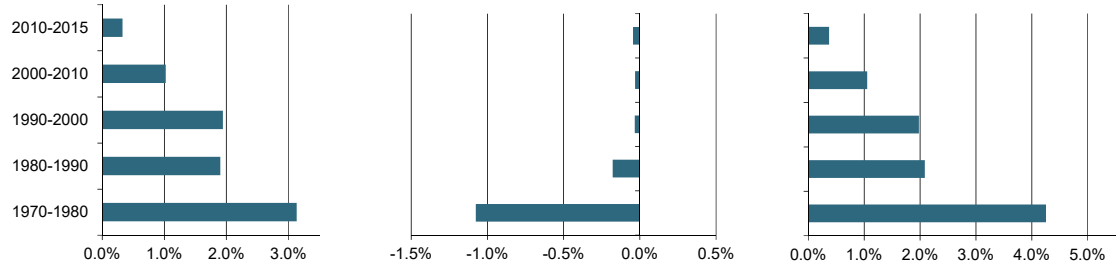
1.4. Growth of GDP per capita

The decomposition of GDP per capita growth per decade into labour utilisation and labour productivity growth sheds light on the strong performances of the US economy which was able to increase simultaneously labour utilisation and labour productivity over three decades, from the 1970s to the 2000s. This was never the case in Belgium or in France while such evolution was observable only over 1990-2000 in the Netherlands and during the most recent period (2010-2015) in Germany.

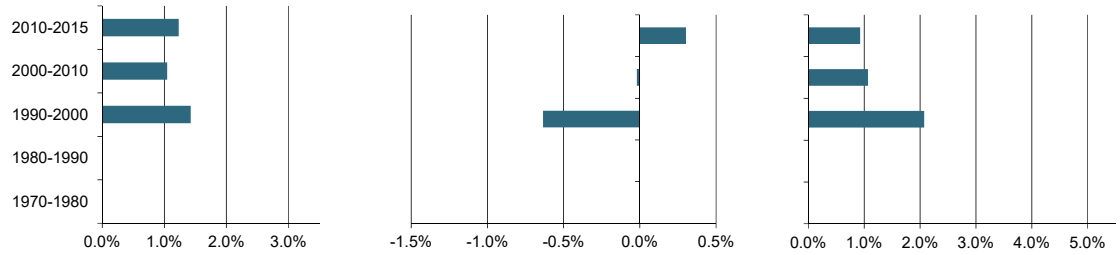
The other contrasting evolution between the US and the four European countries is the evolution of labour productivity average annual growth across the decades. Until the most recent period, 2010-2015, the US succeeded in increasing the average annual growth rate while the opposite was observable in Belgium, Germany, France and the Netherlands where the growth rate decreased from a decade to another. The contraction of the growth rate has been particularly strong since 2000. In Belgium, this evolution was particularly marked with the average annual productivity growth rate decreasing from 4.3% in the seventies, decade during which labour utilisation strongly decreased, to 0.4% over 2010-2015.

Data information: AMECO database. No information for Germany before 1991.

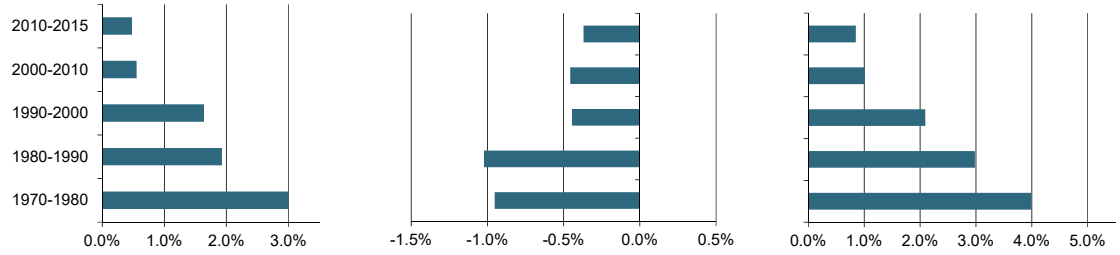
Graph 11 Growth of GDP per capita, labour utilisation and GDP per hour - BE
average annual growth rate in %



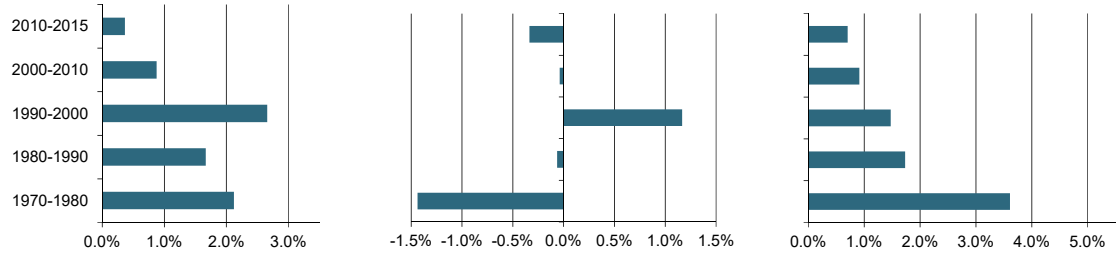
Graph 12 Growth of GDP per capita, labour utilisation and GDP per hour - DE
average annual growth rate in %



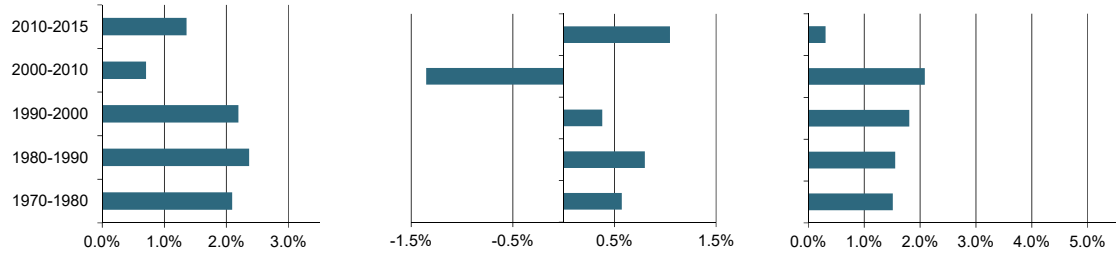
Graph 13 Growth of GDP per capita, labour utilisation and GDP per hour - FR
average annual growth rate in %



Graph 14 Growth of GDP per capita, labour utilisation and GDP per hour - NL
average annual growth rate in %



Graph 15 Growth of GDP per capita, labour utilisation and GDP per hour - US
average annual growth rate in %



1.5. Structural changes in activities

Labour utilisation and productivity evolutions depend on changes in the structure of the economy. Between 1970 and 2015, activities generating value added and employment growth changed. To identify these evolutions and given data availability, two main groups of activities are distinguished: manufacturing and services (both market and non-market) for which the relative importance are measured in terms of nominal value added and employment (in persons).

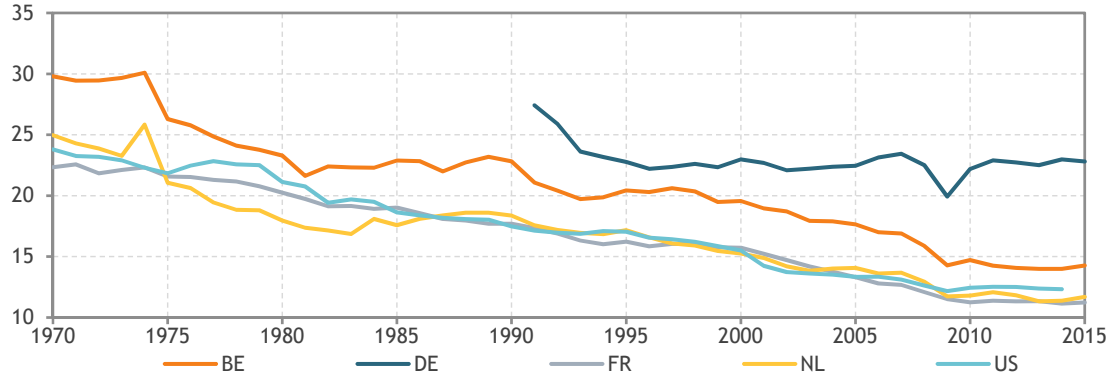
As already well-documented, the structure of the economy in developed countries has been driven by the development of services activities as long as the increase in the standards of living and the population ageing. This is clearly the case for the studied economies characterised by a decrease in the relative importance of manufacturing and an increase in the relative importance of services over 1970-2015.

In terms of nominal value added, the share of manufacturing has decreased the most in the Netherlands and in France. After a decrease, the share of German manufacturing has stabilised since the mid-nineties, this share remaining the highest among the countries of comparison. The Belgian evolution was in-between: the decline in the relative importance of manufacturing was stronger than in Germany but weaker than the one observed in the three other countries, decreasing from 30% in 1970 to 14% in 2015, with a stabilisation of the share only since 2009. The opposite picture is given by the increase in the relative importance of services which was the weakest in Germany with a share still below 70% in 2015 against a share above 75% in the four other countries. Development of services has been particularly strong in France where the relative importance catched up the American one. With a share of 77% in 2015, the relative importance of Belgian services was smaller but still close to the French one (79%).

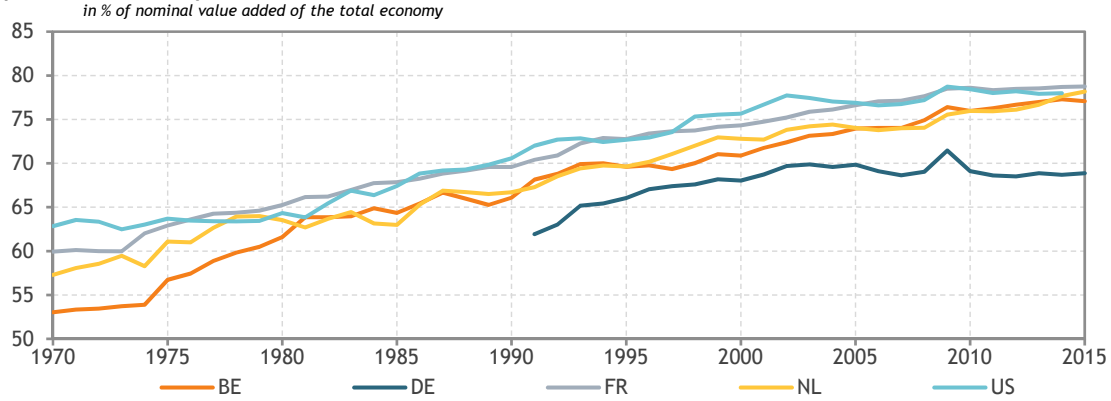
A comparable analysis can be made in terms of share in total employment measured by persons. The stabilisation of the German manufacturing share occurred later than in terms of value added and has been visible only since 2010. Over the whole period, the lowest share of manufacturing was the Dutch one. At the opposite, since 1979, the share of services has been the highest in the Netherlands. Since 2014, Belgium has occupied the second position for the relative importance of services in terms of employment.

Data information: AMECO database. No information for Germany before 1991.

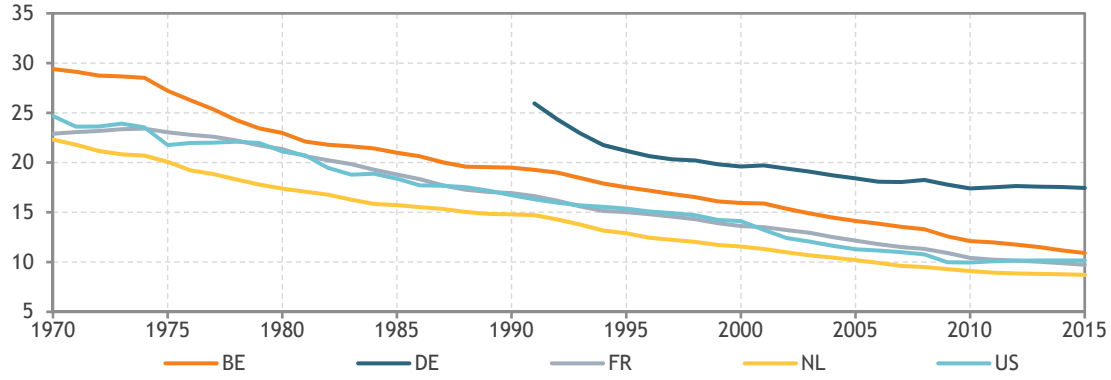
Graph 16 **Relative importance of manufacturing - BE, DE, FR, NL, US**
in % of nominal value added of the total economy



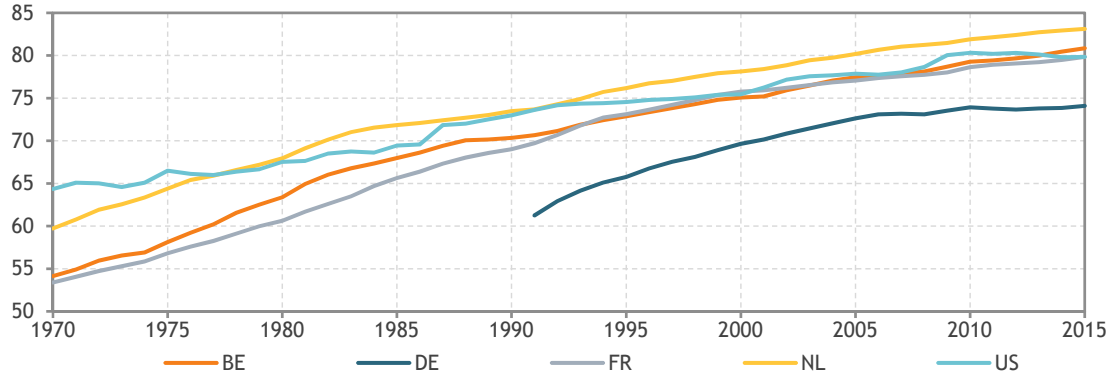
Graph 17 **Relative importance of services - BE, DE, FR, NL, US**
in % of nominal value added of the total economy



Graph 18 **Relative importance of manufacturing - BE, DE, FR, NL, US**
in % of total employment (persons)



Graph 19 **Relative importance of services - BE, DE, FR, NL, US**
in % of total employment (persons)



As the evolution of the relative importance of manufacturing and services in total value added is measured in nominal terms, it is also interesting to analyse the respective evolution of value added implicite deflators of these two groups of activities.

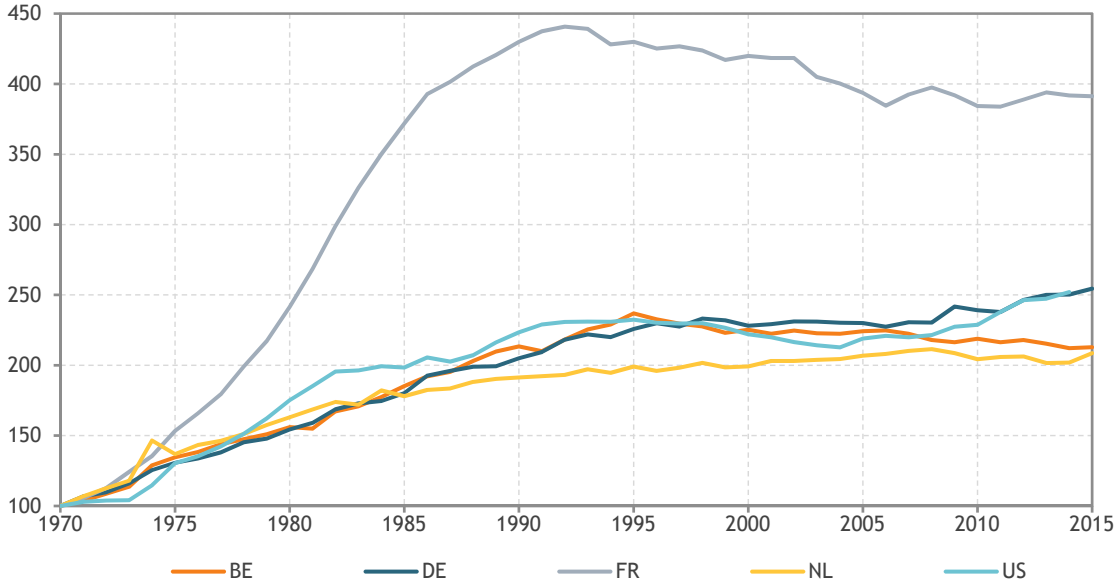
The distinction between manufacturing and services is a rough approximation of the distinction between tradable and non-tradable goods. Therefore as tradable goods (manufacturing) are under international competition pressures, the evolution of prices is expected to be slower than the evolution of prices observed in non-tradable goods (services). This is clearly the case for all countries in the comparison. Over 1970-2015, the increase in manufacturing value added deflator was much lower than the increase in services value added deflator (see the scale of both graphs).

France can be distinguished by the huge increase in manufacturing deflator over 1970-1992, increase of 340%, and the subsequent decline which brough back the deflator index, based on 1970=100, to 391 in 2015. The evolution of manufacturing deflator in the four other countries was in a much narrower band even if this band has increased since the crisis. The Belgian deflator index increased relatively faster until 1995 when it reached 237 but decreased quasi-continuously after to reach 213 in 2015. The German deflator increased at a slower rate but continuously over the whole period with an acceleration since the crisis. In 2015, the German deflator index was at 254. Since 1985, the Netherlands have been characterised by a slower increase and in 2015, the deflator index only reached 209.

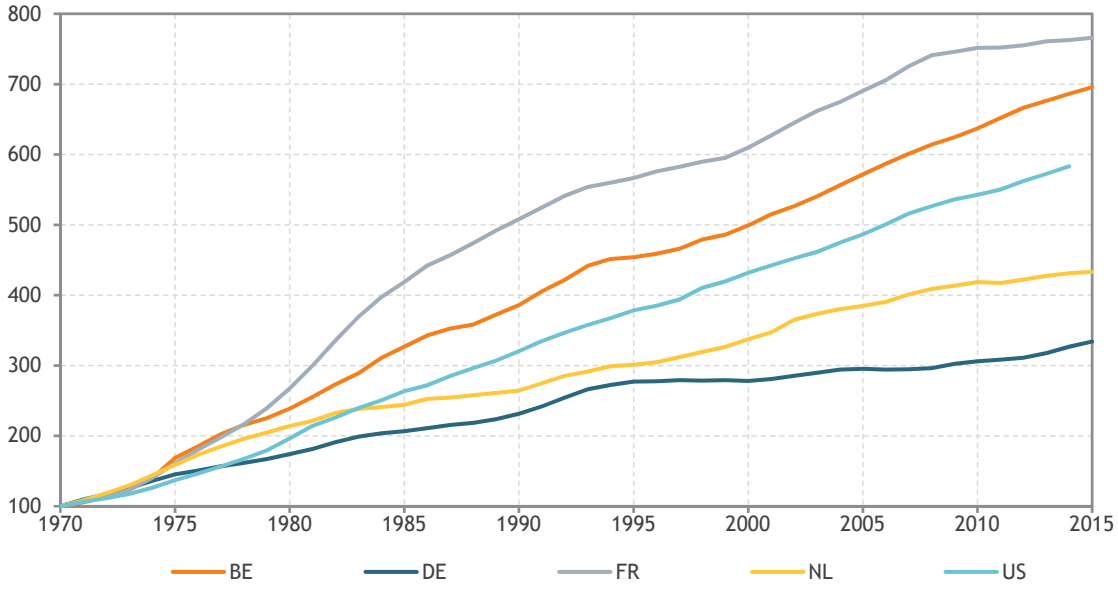
On the services side, increase in deflator was much faster in all countries of comparison and the dispersion of growth rates across countries was also much larger than what is observed on the manufacturing side. France again took the lead of the increase which was particularly strong over 1980-1993 and again from 2000 until the crisis. In 2015, the deflator index reached 766. Belgium occupied the second position with a comparatively fast increase since 1997 which led the deflator index to the value of 696 in 2015. At the opposite, Germany recorded the slowest increase, especially since mid-nineties, and the deflator index reached less than the half of the Belgian value, at 334, in 2015.

Data information: AMECO database.

Graph 20 **Prices evolution - implicite value added deflator, Manufacturing**
1970=100



Graph 21 **Prices evolution - implicite value added deflator, Services**
1970=100



2. Recent evolutions

Main findings

Regarding the structure of the economy, Belgium occupies an intermediate position between France and the Netherlands, on the one hand, and Germany, on the other hand. In terms of value added and hours worked, market services are the most important, among the countries of comparison, in the Netherlands followed by Belgium. Non-market services are the most important in France also followed by Belgium, while manufacturing remains the most important in Germany with Belgium again ranking second.

The crisis hit Belgium, as well as France and the Netherlands, though less severely than Germany but its effects lasted for longer in the first three countries. A double-dip was even observed in Belgium and in the Netherlands. A Belgian particularity was the weaker impact of the crisis on hours worked compared to the other countries, in particular due to the services, both market and non-market. Therefore, productivity growth has been weaker since the crisis, the annual average growth rate of market services over 2009-2015 being halved in comparison to 2000-2007. Labour productivity growth in manufacturing, in contrast, increased between these two periods. In terms of growth accounting, the pronounced slowdown in labour productivity growth is mainly due to the decline in the capital deepening contribution, particularly non-ICT, and, to a lesser extent, to the MFP contribution decrease.

The crisis also impacted gross fixed capital formation with a reduction in the private sector investment rate, followed by a moderate recovery. Tangible assets were especially hurt, while the investment rate in intangible assets continued to increase. Consequently, the growth rate of the net capital stock in volume was impacted by the crisis and decreased in Belgium, in Germany and in the Netherlands. In Belgium, this reduction was mainly observed in market services, with a fall by 75% in the capital stock growth rate. The capital stock in manufacturing, still slightly increasing over 2000-2007, also sharply decreased over 2009-2015.

In terms of profit share, Belgium differs from the other countries owing to the effect of net taxes on production, which became negative, corresponding to a net subsidy, since 2006 at the level of the whole economy. The positive impact of this factor on the profit share is mainly visible in manufacturing and in non-market services. The other Belgian particularity is the relatively high profit share in market services since 2003.

Given the very significant international openness of the Belgian economy, price- and cost-competitiveness are particularly important for growth. However, Belgium recorded divergent evolutions: manufacturing competitiveness has improved, especially since the crisis, while market services competitiveness has worsened.

2.1. Total economy: growth of value added, hours worked and labour productivity

The analysis of the recent evolutions (2000-2015) highlights the effects of the global financial crisis seven years after its outbreak. It also allows the use of more detailed sectoral data for European countries. With these data, services can be divided into market and non-market services. The comparison with the United States is however no longer possible.

In Belgium, France and the Netherlands, real value added growth over the post-crisis period (2009-2015) remained largely below the pre-crisis rates (2000-2007). Germany recorded a higher annual growth during the post-crisis period than during the pre-crisis period, after a sharper decline in value added during the crisis. Over the post-crisis period, after a recovery of the activity in 2010 and 2011, the four countries recorded a slowdown in value added growth in 2012 and 2013. Belgium and the Netherlands were more affected and recorded again a negative growth of value added in 2013 for Belgium and in 2012 for the Netherlands, but less pronounced than in 2009. A moderate recovery of value added growth was observed in the four countries in 2014 and 2015. During the post-crisis period, Germany clearly recorded the highest growth rate. But, over the whole period, 2000-2015, real value added growth was, on average, higher in Belgium than in its three neighbouring countries.

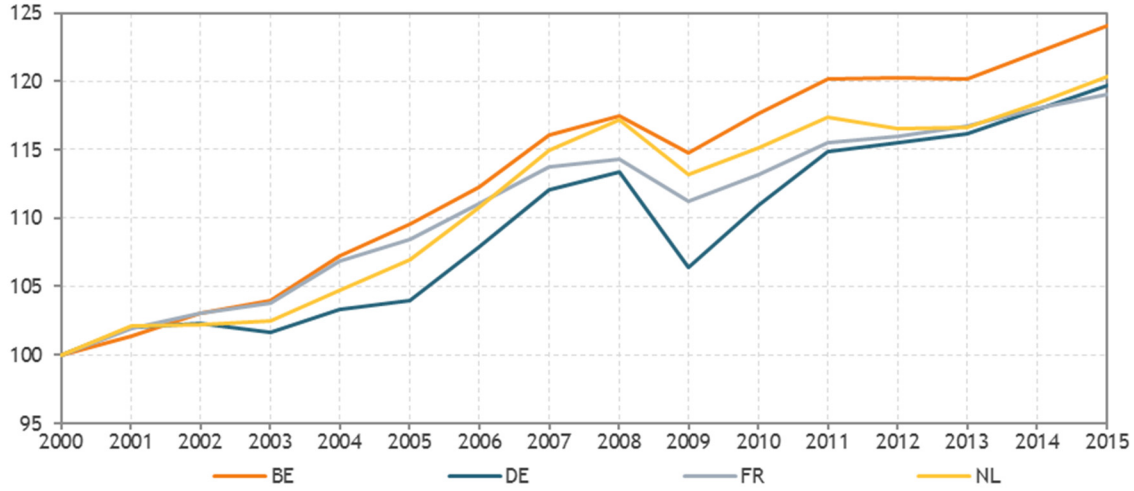
The growth of hours worked was also on average higher in Belgium than in the other countries over the whole period. After a higher growth of hours worked during the pre-crisis period, Belgium recorded a smaller decline during the crisis. The growth rate over the post-crisis period was, in Belgium, slightly below the rate before the crisis, but higher than the rates in France and in the Netherlands. Germany recorded the highest post-crisis rate, after a stronger decrease during the crisis and a decrease, on average, during the pre-crisis period.

Before the crisis, labour productivity growth in Belgium, France and the Netherlands was equivalent (1.4%), below the growth in Germany (1.8%). After a weaker impact of the crisis on productivity in Belgium and in France, Belgium recorded the most pronounced slowdown in productivity growth over the post-crisis period. Productivity growth reached 0.7% over the post-crisis period, largely below the rates in the three other countries. Germany recorded the highest post-crisis rate (1.2%). This evolution in Belgium is explained by a decrease in productivity in 2011 and 2012 and a very low growth in 2013. In 2011, the relatively high growth of value added was accompanied by a higher growth of hours worked. Over 2012-2013, the slowdown in value added growth was combined with a stabilisation of average hours worked, while a decline in hours was observed in the three other countries. Such a decrease in productivity was not observed in the other countries. Over the post-crisis period, labour productivity growth remained below the pre-crisis period in the four countries.

Data information: Eurostat national accounts. Labour productivity is defined as real value added per hour worked.

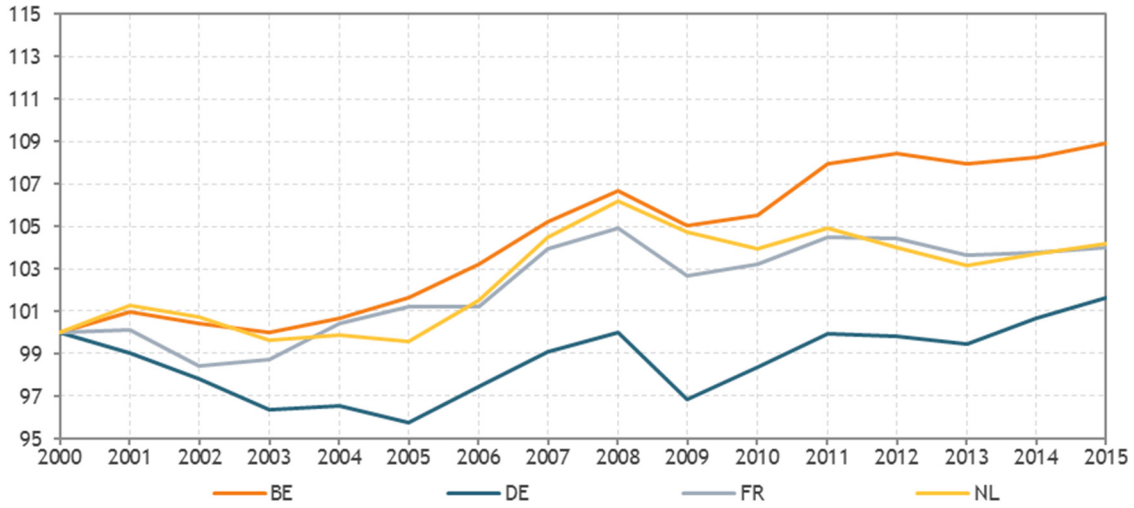
Graph 22 Value added growth - BE, DE, FR, NL

2000=100



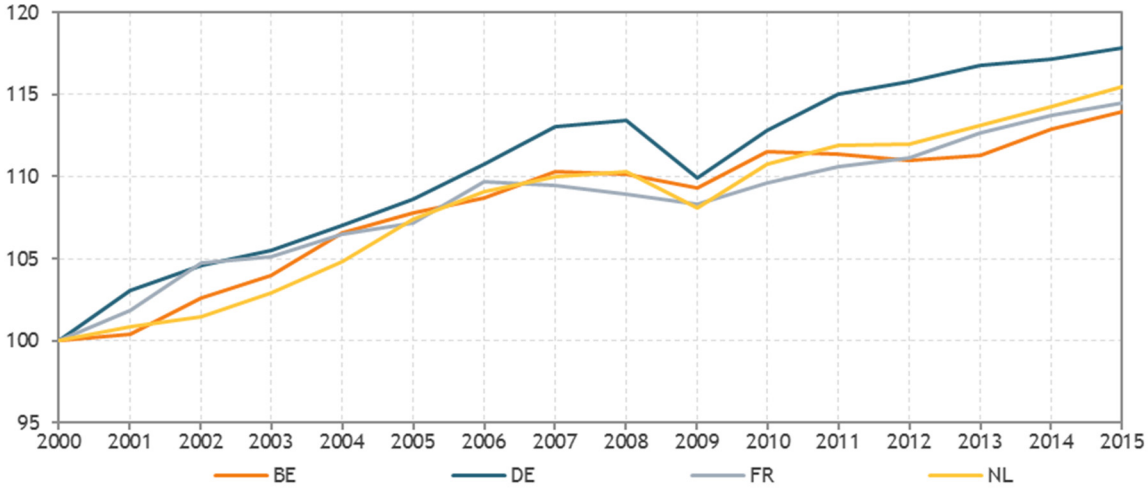
Graph 23 Hours worked growth - BE, DE, FR, NL

2000=100



Graph 24 Labour productivity growth - BE, DE, FR, NL

2000=100



2.2. Decomposition of value added growth

The growth accounting model allows value added growth to be broken down into the contributions of labour, capital and multi-factor productivity (MFP). This last component measures the evolution of the overall efficiency with which the production factors, i.e. labour and capital, are used together. MFP growth is generally considered as a measure of technological and organisational change, but due to its residual nature, it also includes measurement errors, the impact of changes in the returns to scale, the effects of the absence of perfect competition and the effect of business cycle. Indeed, the growth accounting model is based on the implicit hypothesis of an utilisation of all production capacities. The variations in capacity utilisation are therefore included in MFP growth.

The labour contribution to value added growth is decomposed into the effects of changes over time in the amount of labour input (number of hours worked) and changes over time in the characteristics (age, gender and skills) of workers (labour composition).

In Belgium, over the pre-crisis period, the main contribution to value added growth came from capital. The contribution of capital reached 1 pp, which was equivalent to the contribution in France, and higher than those in the two other countries. The contribution of capital is divided into the contributions of ICT and non-ICT capital. The contribution of non-ICT capital was particularly high in Belgium (0.7 pp) and in France (0.8 pp) in comparison with Germany and the Netherlands. ICT contribution reached 0.4 pp in Belgium and Germany, against 0.2 pp in the two other countries.

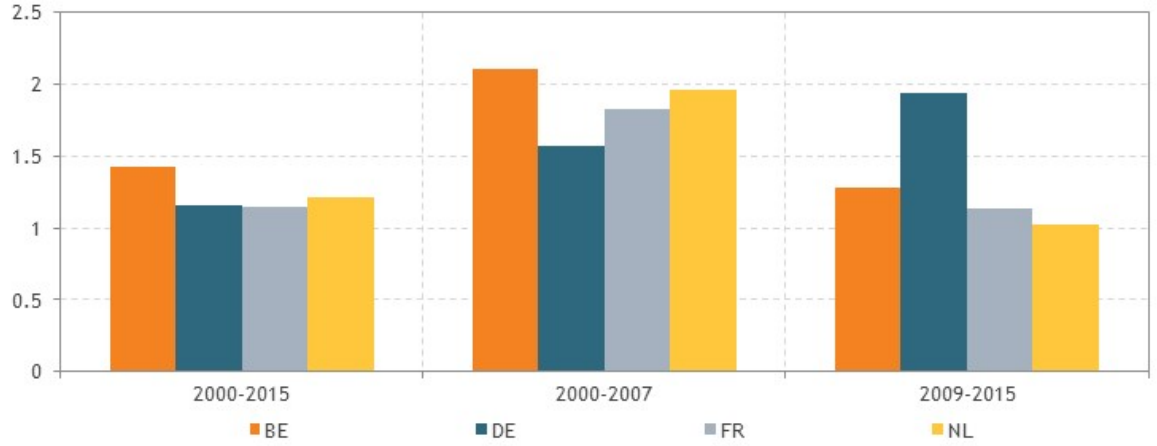
Over the pre-crisis period, the contribution of MFP in Belgium reached 0.5 pp which was largely below the contributions of Germany and of the Netherlands. The contribution of hours worked reached 0.4 pp, slightly above the one in France and largely above the negative one in Germany.

The post-crisis period was characterised by a decrease in the capital contribution in the four countries. The decrease was higher in Belgium, leading to a contribution of 0.3 pp, below the contributions in Germany and in France. As in two other countries, the slowdown in Belgium was strongest for non-ICT capital. Belgium, France and the Netherlands also recorded a decrease in the MFP contribution over the post-crisis period, while Germany recorded a stabilisation. Belgium managed to maintain the contribution of hours worked, which was not the case in France and in the Netherlands. Germany recorded the strongest growth of the contribution of hours worked over the post-crisis period, after a negative contribution over the pre-crisis period.

The contribution of the labour composition was stable in Belgium, Germany and the Netherlands over the pre- and post-crisis periods. The Belgian and the Dutch contributions were equivalent, above the German contribution.

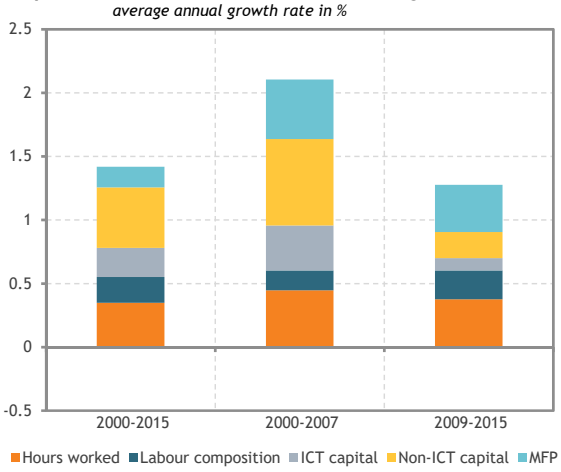
Graph 25 Value added growth - BE, DE, FR, NL

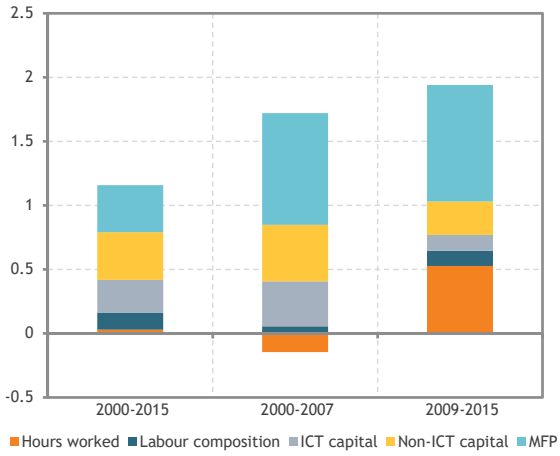
average annual growth rate in %



Graph 26 Contributions to value added growth - BE, DE

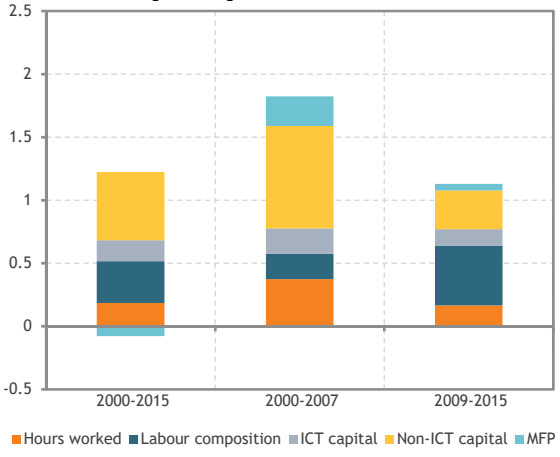
average annual growth rate in %

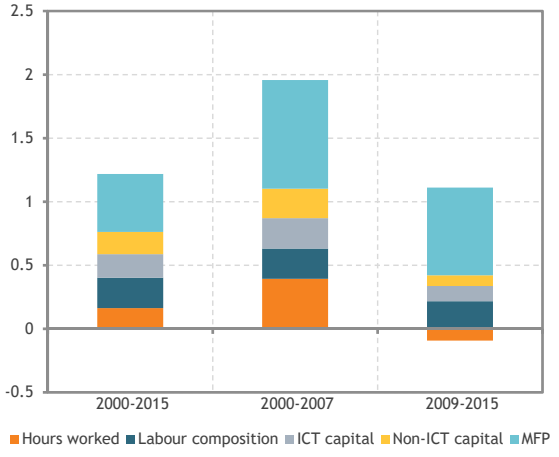




Graph 27 Contributions to value added growth - FR, NL

average annual growth rate in %





2.3. Decomposition of labour productivity growth

Using the same growth accounting model and rearranging the terms allows labour productivity growth to be broken down into three components: capital deepening, which covers the effect of an increase in labour productivity driven by increases in the quantity, and/or the quality of capital per hour worked, the labour composition effect and MFP, as already explained.

Over the pre-crisis period, the contribution of capital deepening in Belgium reached 0.8 pp, which was equivalent to the contribution in France and slightly above the contributions in Germany and the Netherlands. The contribution of non-ICT capital deepening reached 0.4 pp, which was below France, but equivalent to the contribution in Germany and above the contribution in the Netherlands. ICT capital deepening contribution reached 0.3 pp, slighlty above the contributions in France and in the Netherlands and equivalent to the contribution in Germany.

As previously observed, over the pre-crisis period, the contribution of MFP was lower in Belgium than in Germany and in the Netherlands.

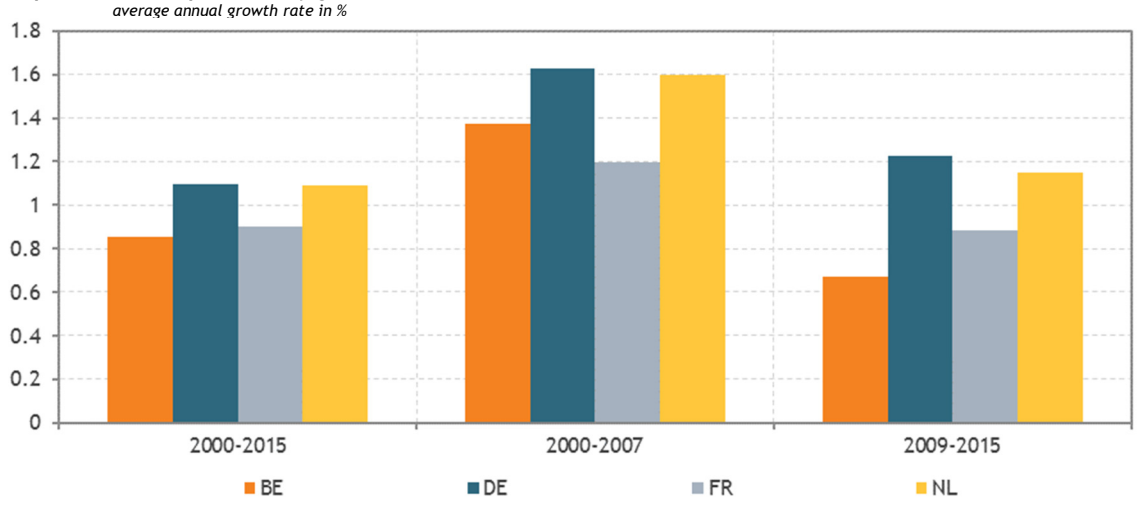
The post-crisis period was characterised by a decrease in the capital contribution in the four countries. The decrease was higher in Belgium, leading to a lower contribution than in the three other countries. A lower contribution of capital deepening (K/L) to labour productivity growth can come from a lower growth of the services delivered by the capital (K), or from a higher growth of the hours worked (L). The lower contribution of capital deepening in Belgium is explained by these two elements. As in the other coutries, the slowndown in Belgium was strongest for non-ICT capital. The contribution of non-ICT capital deepening was zero in Belgium over the post-crisis period, while it remained positive in the other countries.

Over the post-crisis period and in comparison to the pre-crisis period, Belgium, the Netherlands and France also recorded a decrease in the MFP contribution. Germany recorded a stabilisation.

Data information: EUKLEMS database. In this database, variables in volume are aggregated using a Törnqvist index (growth rate in logarithm), contrary to National accounts which use a Laspeyres index. The input measures correspond to the flow of services delivered by various categories of capital and labour, allowing to take into account the quality changes in capital and labour (labour composition). The contribution of labour composition is the difference between the increase in the volume index of labour services and the increase in the numbers of hours worked, weighted by the labour share in nominal value added. MFP is the residual component from the growth decomposition.

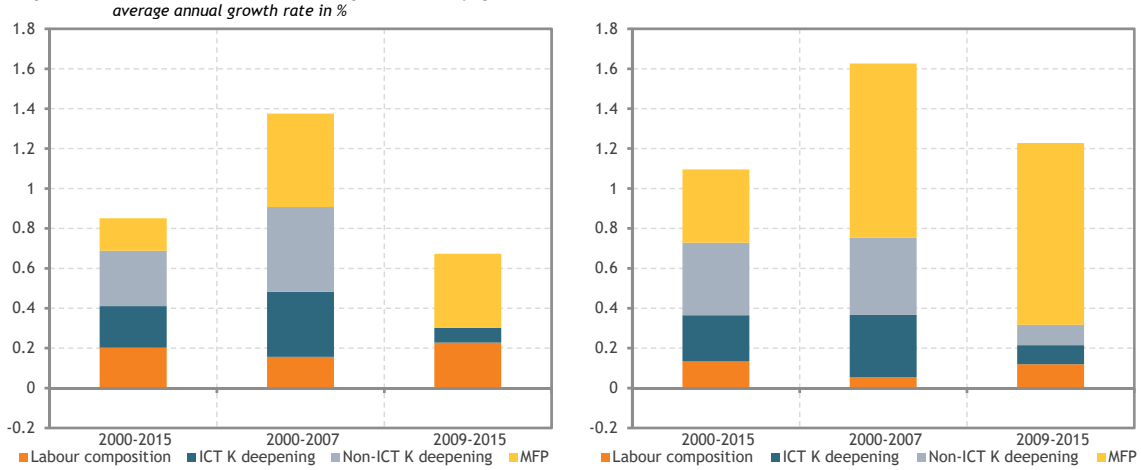
Graph 28 Labour productivity growth - BE, DE, FR, NL

average annual growth rate in %



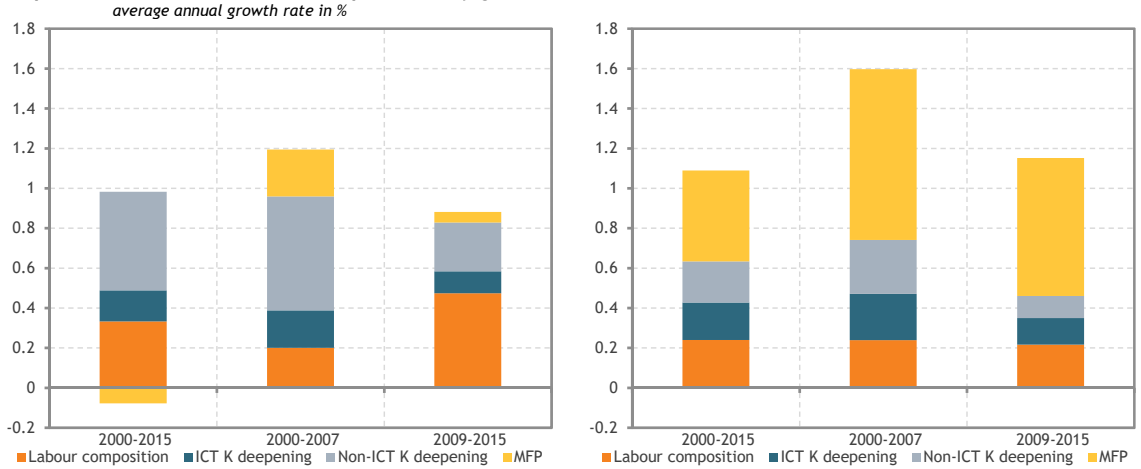
Graph 29 Contributions to labour productivity growth - BE, DE

average annual growth rate in %



Graph 30 Contributions to labour productivity growth - FR, NL

average annual growth rate in %



2.4. Structural changes

In all countries, the relative importance of manufacturing in terms of nominal value added decreased over 2000-2015 while the relative importance of services, both market and non-market, increased. In 2015, the most important activity in terms of value added was market services followed by non-market services except in Germany where manufacturing occupied this position. Other activities (Agriculture, forestry, Mining and quarrying and Real estate) occupied the fourth position in Belgium, Germany and the Netherlands but the third in France with a relative importance higher than the one of manufacturing in this country. In 2015, the relative importance of manufacturing was the highest in Germany, with Belgium at the second place and the relative importance of market services was the highest in the Netherlands, again with Belgium at the second position. The French non-market services showed the highest share of value added among the countries of comparison.

Over 2000-2015, construction recorded the highest growth rate in Belgium while it decreased in the three other countries. Market services recorded the second highest rate in Belgium, in Germany and in the Netherlands. This group of activities occupied the first position in France. In Germany, manufacturing was the most dynamic sector and network industries in the Netherlands.

Before the crisis, in Belgium, market services (2.9%) and construction (3.5%) recorded the highest growth rate of value added on annual average. They also recorded the highest growth rates among the four countries. In Germany, the contraction of the construction was particularly strong.

After the crisis, value added growth of manufacturing accelerated in Belgium while the growth in the other groups of activities decelerated. Consequently, manufacturing became the sector with the highest growth of value added in Belgium (3.0%). Germany recorded a post-crisis impressive growth rate in manufacturing (5.1%) which was also higher than the growth rate observed during the pre-crisis period (2.6%). The deceleration was particularly important in market services in Belgium (from 2.9% before the crisis to 1.3% after the crisis), which recorded the lowest post-crisis growth rate among the four countries.

France and Netherlands recorded a relatively strong contraction of construction over 2009-2015, following the housing market crisis. Belgium recorded the highest post-crisis growth rate in construction among the four countries.

Data information: Eurostat, National accounts. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 1 **Share of the main activities in value added of total economy and evolution 2000-2015**
share in 2015 and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2015	2000-2015	2015	2000-2015	2015	2000-2015
Manufacturing	14.3	-5.3	22.8	-0.2	11.5	-4.2	11.7	-3.6
Market services	43.8	4.1	35.8	0.1	39.9	0.7	47.9	2.9
Non-market services	24.7	2.8	22.2	0.9	25.8	2.1	24.4	4.2
Network industries	2.4	-0.6	3.0	0.5	2.5	-0.1	1.6	-0.2
Construction	5.4	0.3	4.6	-0.5	5.5	0.6	4.6	-0.8
Others	9.3	-1.5	11.7	-0.6	14.8	0.9	9.7	-2.6
Total economy	100		100		100		100	

Table 2 **Growth rate of real value added by main activities**
average annual growth rate, in %

	Belgium	Germany	France	Netherlands
2000-2015				
Total economy	1.4	1.2	1.2	1.2
Manufacturing	1.4	1.6	0.8	0.7
Market services	1.8	1.4	1.6	1.6
Non-market services	1.0	0.8	1.1	1.6
Network industries	0.3	1.0	0.1	1.7
Construction	2.4	-1.2	-0.5	-0.4
Others	1.0	1.2	1.1	0.6
2000-2007				
Total economy	2.1	1.6	1.9	2.0
Manufacturing	2.3	2.6	1.8	2.1
Market services	2.9	2.2	2.4	2.6
Non-market services	1.1	0.6	1.3	2.0
Network industries	-0.2	-0.2	1.4	2.9
Construction	3.5	-3.3	2.1	0.9
Others	1.1	2.2	1.4	0.3
2009-2015				
Total economy	1.3	2.0	1.1	1.0
Manufacturing	3.0	5.1	1.5	1.5
Market services	1.3	1.9	1.8	1.5
Non-market services	0.8	0.8	0.9	0.7
Network industries	-0.6	0.4	0.9	1.0
Construction	1.7	1.5	-2.4	-2.0
Others	0.6	-0.4	1.0	0.8

The contribution of each industry to aggregate value added growth is computed as the growth rate of real value added of each industry multiplied by its share in total nominal value added.

Over the whole period 2000-2015, market services recorded the highest contribution to value added growth in all comparison countries. The Belgian contribution (0.8 pp) was higher than the contributions in the other countries and explained more than the half of the Belgian aggregate value added growth. The following contributors in Belgium were manufacturing and non-market services with a contribution of 0.2 pp.

During the period before the crisis, market services made the largest contribution to aggregate value added growth in the four countries. The Belgian contribution (1.2 pp) was equivalent to the contribution in the Netherlands and higher than those observed in Germany and in France. Manufacturing was the second contributor in Belgium and in Germany. In France and in the Netherlands, it was non-market services.

After the crisis, the contribution of market services decreased in all countries, but the decrease was higher in Belgium. Over the post-crisis period, Belgian market services contribution reached 0.5 pp, below the contributions in the three other countries (0.7 pp). Despite this decrease, market services remained the main contributor in Belgium, France and the Netherlands over the post-crisis period. In Germany, manufacturing recorded a strong acceleration of its contribution after the crisis, due to an acceleration of real value added growth in this sector. In Belgium, the acceleration of real value added growth in manufacturing did not allow the contribution of this sector to increase due to the decrease of its share in total economy nominal value added.

Over the post-crisis period, non-market services and construction also recorded a decrease in their contribution in Belgium, in France and in the Netherlands. In these two last countries, the contribution of construction even became negative over 2009-2015.

Data information: Eurostat, National accounts. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 3 **Main activities contribution to value added growth**
average annual growth rate, in % and contribution in pp

	Belgium	Germany	France	Netherlands
2000-2015				
Total economy	1.4	1.2	1.2	1.2
Manufacturing	0.2	0.4	0.1	0.1
Market services	0.8	0.5	0.6	0.7
Non-market services	0.2	0.2	0.3	0.4
Network industries	0.0	0.0	0.0	0.0
Construction	0.1	-0.1	0.0	0.0
Others	0.1	0.2	0.2	0.1
2000-2007				
Total economy	2.1	1.6	1.9	2.0
Manufacturing	0.4	0.6	0.2	0.3
Market services	1.2	0.8	1.0	1.2
Non-market services	0.3	0.1	0.3	0.4
Network industries	0.0	0.0	0.0	0.1
Construction	0.2	-0.2	0.1	0.0
Others	0.1	0.3	0.2	0.0
2009-2015				
Total economy	1.3	2.0	1.1	1.0
Manufacturing	0.4	1.1	0.2	0.2
Market services	0.5	0.7	0.7	0.7
Non-market services	0.2	0.2	0.2	0.2
Network industries	0.0	0.0	0.0	0.0
Construction	0.1	0.1	-0.1	-0.1
Others	0.1	0.0	0.1	0.1

In terms of hours worked, in the four countries, the relative importance of manufacturing decreased over 2000-2015 and the relative importance of market and non-market services increased. In 2015, the most important group of activities was market services followed by non-market services, manufacturing, construction, other activities and network industries in the four countries. The relative importance of market services was the highest in the Netherlands where they accounted for almost the half of hours worked in 2015 while the relative importance of non-market services was the highest in France.

Over 2000-2015, hours worked in manufacturing decreased on average in the four countries with the most negative growth rate observed in Belgium. At the opposite, market services and non-market servicies recorded positive average annual growth rate of hours worked in the four countries.

During the pre-crisis period, the growth rate of hour worked was the highest in non-market services in Belgium and in the Netherlands while it was in construction in France and in market services in Germany. Market services recorded the second highest rate in Belgium. In Germany, all main groups of activities recorded a negative growth rate of hours worked except market and non-market services, explaining the negative rate observed at the level of total economy. In Belgium, the growth of hours worked in market and non-market services was above the growth observed in two other countries.

Over 2009-2015, in comparison to the pre-crisis period, the growth rate of hours worked decelerated in Belgium, in market and non-market services and in other activites. France and the Netherlands experienced also a deceleration in services, both market and non-market.

Over the post-crisis period, non-market services in Belgium recorded the highest growth of hours worked among the four countries. Growth in market services in Belgium and in France were equivalent, above the growth in Germany and in the Netherlands.

Germany was the only country to record a positive growth rate of hours worked in manufacturing over the post-crisis period. This evolution partly explained the strong growth of value added observed in Germany during this period.

Data information: Eurostat, National accounts. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 4 **Share of the main activities in hours worked of total economy and evolution 2000-2015**
share in 2015 and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2015	2000-2015	2015	2000-2015	2015	2000-2015
Manufacturing	11.1	-5.2	18.6	-1.5	10.1	-3.8	10.0	-2.9
Market services	47.5	2.4	41.5	2.2	43.7	3.7	49.9	1.0
Non-market services	31.6	3.2	29.0	1.9	32.7	1.0	28.7	4.5
Network industries	1.1	0.1	1.3	-0.1	1.1	0.1	0.8	0.1
Construction	6.1	-0.1	6.7	-1.5	7.4	0.8	6.7	-1.8
Others	2.6	-0.5	2.9	-1.0	5.0	-1.8	3.9	-0.9
Total economy	100		100		100		100	

Table 5 **Growth rate of hours worked by main activities**
average annual growth rate, in %

	Belgium	Germany	France	Netherlands
2000-2015				
Total economy	0.6	0.1	0.3	0.3
Manufacturing	-1.9	-0.4	-1.8	-1.4
Market services	0.9	0.5	0.9	0.4
Non-market services	1.3	0.6	0.5	1.4
Network industries	1.7	-0.1	0.9	1.1
Construction	0.5	-1.3	1.1	-1.3
Others	-0.7	-2.0	-1.8	-1.1
2000-2007				
Total economy	0.7	-0.1	0.6	0.6
Manufacturing	-1.6	-1.1	-1.8	-1.8
Market services	1.1	0.7	1.3	0.8
Non-market services	1.5	0.5	0.5	2.1
Network industries	0.5	-1.0	0.3	1.2
Construction	0.3	-2.9	2.8	-0.4
Others	0.2	-2.6	-1.7	-1.6
2009-2015				
Total economy	0.6	0.8	0.2	-0.1
Manufacturing	-1.1	1.4	-1.1	-0.7
Market services	0.8	0.7	0.8	0.4
Non-market services	1.0	0.9	0.4	0.1
Network industries	0.5	1.1	1.3	0.7
Construction	0.9	0.4	-0.9	-2.7
Others	-0.9	-1.5	-1.2	-0.9

The contribution of each industry to the growth of total hours worked is computed as the growth rate of hours worked in each industry multiplied by its share in total hours worked.

Over the whole period 2000-2015, market and non-market services recorded the highest contributions to the growth of total hours worked in all comparison countries. The Belgian contributions were equivalent in these two activities (0.4 pp), above the contributions in Germany, in France concerning non-market services and in the Netherlands concerning market services. Manufacturing recorded a negative contribution in the four countries.

During the period before the crisis, market services made the largest contribution to the growth of total hours worked in Belgium, Germany and France. Non-market services was the second contributor in the three countries (with contruction in France), and the first contributor in the Netherlands. In these two groups of activities, the Belgian contributions were higher than the ones in two other countries.

After the crisis, the contribution of market and non-market services decreased in Belgium, France and the Netherlands, but the decrease was lower in Belgium. Over the post-crisis period, the Belgian contribution was above the contributions in the three other countries concerning market services and above two countries concerning non-market services. In Germany, market services recorded a stabilisation of their contribution after the crisis, while non-market services recorded an increase in their contribution. The strong increase in hours worked observed in Germany after the crisis was also explained by the positive growth rate of hours worked in marnufacturing. In the three other countries, the contributions became less negative.

Belgium was the only country to record a positive growth rate of hours worked in construction over the post-crisis period.

Data information: Eurostat, National accounts. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 6 Main activities contribution to hours worked growth
average annual growth rate, in %

	Belgium	Germany	France	Netherlands
2000-2015				
Total economy	0.6	0.1	0.3	0.3
Manufacturing	-0.3	-0.1	-0.2	-0.2
Market services	0.4	0.2	0.4	0.2
Non-market services	0.4	0.2	0.2	0.4
Network industries	0.0	0.0	0.0	0.0
Construction	0.0	-0.1	0.1	-0.1
Others	0.0	-0.1	-0.1	0.0
2000-2007				
Total economy	0.7	-0.1	0.6	0.6
Manufacturing	-0.2	-0.2	-0.2	-0.2
Market services	0.5	0.3	0.6	0.4
Non-market services	0.4	0.1	0.2	0.5
Network industries	0.0	0.0	0.0	0.0
Construction	0.0	-0.2	0.2	0.0
Others	0.0	-0.1	-0.1	-0.1
2009-2015				
Total economy	0.6	0.8	0.2	-0.1
Manufacturing	-0.1	0.3	-0.1	-0.1
Market services	0.4	0.3	0.3	0.2
Non-market services	0.3	0.3	0.1	0.0
Network industries	0.0	0.0	0.0	0.0
Construction	0.1	0.0	-0.1	-0.2
Others	0.0	0.0	-0.1	0.0

In terms of nominal capital stock, the relative importance of manufacturing decreased in the four countries over 2000-2015 with Belgium recording the highest share and France the lowest in 2015. At the opposite, the share of other activities increased in the four countries representing the most important activities in each country. This was particularly the case in France. The share of market services decreased in Belgium, Germany and the Netherlands but increased in France, remaining, however, in 2015, below the share reached in the three other countries. The share of non-market services decreased in Belgium and in France but increased in Germany and overall in the Netherlands where it reached the highest share in 2015 among the countries of comparison. In 2015, the share of capital was higher in market services than in non-market services in Belgium although the opposite was observed in the three other countries.

Over 2000-2015, the highest average annual growth rate of net capital stock in volume was observed in Belgium, followed by the Netherlands, Germany and France. In Belgium, the growth rate was particularly high in construction and, to a lesser extent, in other activities. At the opposite, the growth rate of capital stock was negative in manufacturing in Belgium and in the Netherlands. In these two countries, manufacturing was the only group of activities to record a negative growth rate. In France, the highest growth rate was recorded in market services.

Over the pre-crisis period, the growth rate of capital stock was particularly weak in France in comparison with the three other countries despite the highest growth rate reached in market services, in network industries and in manufacturing. The growth rate in Belgium was close to the rate in the Netherlands, above the rates in Germany and in France. Germany was the only country to record a negative growth rate in manufacturing and in construction. In Belgium, the capital accumulation was particularly dynamic in construction with the highest rate among the countries of comparison and in market services.

The post-crisis period was marked by a deceleration of capital stock growth in Belgium, in Germany and in the Netherlands. In Belgium, the deceleration was observed in manufacturing with a strong negative growth rate over 2009-2015, in market services, in construction and in other activities. The same groups of activities also decelerated in the Netherlands with manufacturing, market services and construction recording negative growth rates over the post-crisis period, to which were added non-market services. Germany was the only country where manufacturing improved its growth rate of capital stock which became slightly positive over 2009-2015. The acceleration of the growth rate in France was explained by the acceleration observed in network industries and in other activities, all other activities recording a deceleration.

Data information: Eurostat, National accounts. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 7 **Share of the main activities in nominal fixed assets stock of total economy and evolution 2000-2015**
share in 2015 and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2015	2000-2015	2015	2000-2015	2015	2000-2015
Manufacturing	9.2	-4.4	7.9	-1.4	4.5	-1.6	7.8	-2.1
Market services	23.7	-2.8	14.2	-0.3	10.0	0.4	13.9	-2.7
Non-market services	11.7	-1.0	17.9	0.1	14.7	-1.5	22.5	1.8
Network industries	3.6	-0.6	4.9	-1.2	2.6	0.1	3.7	0.1
Construction	2.7	0.7	0.5	-0.3	0.7	-0.1	1.1	-0.2
Others	49.2	8.2	54.5	3.1	67.5	2.9	51.0	3.0
Total economy	100		100		100		100	

Table 8 **Growth rate of net capital stock in volume by main activities**
average annual growth rate, in %

	Belgium	Germany	France	Netherlands
2000-2015				
Total economy	1.4	0.8	0.5	1.3
Manufacturing	-0.9	0.0	0.2	-0.2
Market services	1.3	1.3	2.4	0.2
Non-market services	1.2	0.8	0.2	1.5
Network industries	0.8	-0.6	1.7	1.4
Construction	3.8	-1.7	0.3	0.5
Others	1.9	1.0	0.3	1.8
2000-2007				
Total economy	1.6	1.0	0.4	1.7
Manufacturing	0.2	-0.1	0.7	0.0
Market services	2.2	1.7	3.2	0.6
Non-market services	0.8	0.9	0.2	1.8
Network industries	-0.8	-0.4	1.0	-1.2
Construction	4.5	-4.0	1.5	0.7
Others	2.0	1.2	-0.1	2.4
2009-2015				
Total economy	1.0	0.6	0.6	0.8
Manufacturing	-1.9	0.1	-0.2	-0.5
Market services	0.5	0.8	1.7	-0.4
Non-market services	1.8	0.5	0.1	0.9
Network industries	1.7	-0.8	2.6	4.8
Construction	2.5	1.2	-1.1	-0.2
Others	1.6	0.9	0.6	1.0

Shift-share analysis is the most commonly used algebraic method for decomposing total economy labour productivity growth rate into intra-industry productivity growth effect, structural change effect and interaction effect. The intra-industry effect (or within effect) equals the sum of productivity growth in the individual industries in the absence of structural change. If this effect is larger than aggregate productivity growth then the expectation would be that industries with higher productivity growth have decreased their share in total employment. The structural effect (or between effect) is equal to the contribution to overall productivity growth of a shift of employment resources from low to high productivity industries or conversely. This effect is indicative of the restructuring process occurring in an economy. The interaction effect (or dynamic effect) captures the dynamic component of structural change. It takes into account the variation of productivity with the variation of hours worked. The interaction (dynamic) effect is positive when the first two effects are complementary (productivity growth is positive (negative) in expending (contracting) industries in terms of hours worked) and is negative when the first two effects are substitutes (productivity growth is positive (negative) in contracting (expanding) industries in terms of hours worked).

Over the whole period, in the Netherlands, Belgium and Germany, the structural effect was negative, and relatively large in the Netherlands, as the increase in hours worked occurred in industries with lower level of productivity. This was not the case in France where the structural effect was positive. However, in all four countries, the dynamic effect was negative and of the same value, except in Germany where it was much lower. This means that between and within effects were substitutes.

In Belgium and in the Netherlands, the deceleration of labour productivity growth after the crisis was only due to the within effect, or the decrease of labour productivity growth at industry level, as the structural and dynamic effects were less negative in post-crisis period than before the crisis.

In Germany, the deceleration of labour productivity growth at industry level was also accompanied by a negative structural effect during the post-crisis period which contrasted with the positive structural effect over 2000-2007. In France, the decrease of the within effect in the post-crisis period in comparison to the pre-crisis period was lesser than the decrease of the positive structural (between) effect between the two periods.

Data information: Eurostat, National accounts, 2-digit industry classification. Within effect is estimated with weights based on share in nominal value added and sum with the discrepancy due to aggregation of value added in volume with Laspeyres index. Data for Germany are limited to 2000-2014.

Table 9 **Shift share decomposition of labour productivity growth**
average annual growth rate in %

	Belgium	Germany	France	Netherlands
2000-2015				
Labour productivity	0.87	1.14	0.90	0.96
Within effect	0.97	1.21	0.90	1.18
Between effect	-0.06	-0.07	0.04	-0.17
Dynamic effect	-0.04	-0.01	-0.04	-0.04
2000-2007				
Labour productivity	1.41	1.77	1.30	1.37
Within effect	1.63	1.74	1.13	1.68
Between effect	-0.18	0.06	0.22	-0.25
Dynamic effect	-0.05	-0.02	-0.04	-0.06
2009-2015				
Labour productivity	0.69	1.29	0.92	1.11
Within effect	0.81	1.39	0.96	1.27
Between effect	-0.09	-0.09	-0.01	-0.12
Dynamic effect	-0.03	-0.02	-0.03	-0.04

2.5. Labour productivity growth by main activities

Over 2000-2015, excluding other activities, manufacturing recorded the highest growth rate of labour productivity in all countries. Construction recorded the second highest rate in Belgium. In these two groups of activities, Belgium recored the highest growth rate among the four countries. By contrast, , Belgium was the only country to record a negative rate in non-market services.

Before the crisis, in Belgium, manufacturing (3.9%) and construction (3.2%) recorded the highest growth of productivity on annual average. They also recorded the highest growth rates among the four countries (ex aequo with the Netherlands for manufacturing). At the opposite, non-market services and network industries recorded negative rates, while the rate was positive in Germany and in France for the first sector and in the three countries of comparison for the second. In market services, labour productivity growth was the same in Belgium and in the Netherlands, above the growth in Germany and in France.

After the crisis, labour productivity growth of manufacturing accelerated in Belgium, from 3.9% before the crisis to 4.2% after the crisis, while it decelerated in the other countries. Belgian manufacturing recorded over the post-crisis period, the highest growth rate of labour productivity among the four countries. This strong growth of labour productivity in manufacturing allowed the acceleration of value added growth observed in this sector in Belgium after the crisis.

In market services, the most important group of activities in terms of value added and hours worked, the impact of the crisis was stronger in Belgium than in the other countries. Labour productivity growth decreased from 1.8% before the crisis to 0.4% after the crisis, a very low rate compared with the other countries.

In non-market services and network industries, productivity growth was also negative in Belgium over the post-crisis period, while it was positive in the other countries for non-market services and positive in the Netherlands for network industries.

France recorded an acceleration of the labour productivity contraction over 2009-2015 in comparison to the pre-crisis period in construction.

Data information: Eurostat, National accounts. Labour productivity is defined as real value added per hour worked. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 10 Growth rate of labour productivity by main activities
average annual growth rate, in %

	Belgium	Germany	France	Netherlands
2000-2015				
Total economy	0.9	1.1	0.9	1.0
Manufacturing	3.4	2.0	2.7	2.1
Market services	0.9	0.9	0.7	1.2
Non-market services	-0.3	0.3	0.7	0.2
Network industries	-1.4	1.1	-0.8	0.6
Construction	1.9	0.1	-1.6	0.8
Others	1.7	3.3	3.0	1.7
2000-2007				
Total economy	1.4	1.8	1.3	1.4
Manufacturing	3.9	3.7	3.7	3.9
Market services	1.8	1.5	1.1	1.8
Non-market services	-0.4	0.1	0.8	-0.1
Network industries	-0.6	0.7	1.1	1.7
Construction	3.2	-0.4	-0.7	1.2
Others	1.0	4.9	3.1	1.9
2009-2015				
Total economy	0.7	1.2	0.9	1.1
Manufacturing	4.2	3.6	2.6	2.2
Market services	0.4	1.2	1.0	1.1
Non-market services	-0.2	0.0	0.6	0.6
Network industries	-1.1	-0.7	-0.4	0.2
Construction	0.8	1.0	-1.5	0.7
Others	1.6	1.2	2.2	1.7

2.6. Main activities contributions to labour productivity growth

The contribution of each industry to aggregate labour productivity growth is computed as the ratio of the growth rate of real value added weighted by the industry's share in total nominal value added and the growth rate of hours worked weighted by the industry's share of hours worked.

Over 2000-2015, manufacturing made the highest contribution to labour productivity growth in Belgium and in Germany (0.5 pp in the two countries), explaining more than the half of the growth in Belgium. In the Netherlands, it was market services (0.5 pp). In France, manufacturing, market services and other activities realised the same contributions (0.3 pp). The second sector in Belgium was market services, with a contribution of 0.3 pp. Non-market services realised a negative contribution in Belgium, while this contribution was zero in Germany and in the Netherlands and slighlty positive in France.

During the period before the crisis, market services made in Belgium a contribution to labour productivity growth equivalent to the contribution of manufacturing (0.7 pp). This contribution was higher than those observed in Germany and in France. While the contribution of manufacturing remained almost stable over the post-crisis period, the contribution of market services in Belgium greatly decreased to reach 0.2 pp. The three other countries recorded a lower decrease of this contribution. Over the post-crisis period, Belgian market services recorded the lowest contribution among the four countries.

Non-market services realised a negative contribution over the pre-and post-crisis periods in Belgium. The negative contribution over the post-crisis period was somewhat lower.

The Belgian construction sector also decreased its contribution to the aggregate labour productivity growth, from a contribution of 0.2 pp before the crisis to a zero contribution after the crisis. It was in Belgium that the deceleration in construction was the most important.

Data information: Eurostat, National accounts. The weights used to estimate the industry contributions are hours for hours worked and nominal value added for real value added. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 11 Main activities contribution to labour producitivity growth
average annual growth rate, in %

	Belgium	Germany	France	Netherlands
2000-2015				
Total economy	0.9	1.1	0.9	1.0
Manufacturing	0.5	0.5	0.3	0.3
Market services	0.3	0.3	0.3	0.5
Non-market services	-0.2	0.0	0.1	0.0
Network industries	0.0	0.0	0.0	0.0
Construction	0.1	0.0	-0.1	0.1
Others	0.1	0.2	0.3	0.1
2000-2007				
Total economy	1.4	1.8	1.3	1.4
Manufacturing	0.7	0.8	0.5	0.5
Market services	0.7	0.5	0.4	0.8
Non-market services	-0.2	0.0	0.2	-0.1
Network industries	0.0	0.0	0.0	0.0
Construction	0.2	0.1	-0.1	0.1
Others	0.1	0.4	0.3	0.1
2009-2015				
Total economy	0.7	1.2	0.9	1.1
Manufacturing	0.6	0.8	0.3	0.2
Market services	0.2	0.4	0.4	0.5
Non-market services	-0.1	-0.1	0.1	0.2
Network industries	0.0	0.0	0.0	0.0
Construction	0.0	0.0	-0.1	0.1
Others	0.1	0.0	0.2	0.1

The contribution of a group of activities to the evolution of labour productivity can also be analysed on the basis of the contribution of this group to the growth of the three components of labour productivity growth identified in the growth accounting model: labour composition, capital deepening and MFP.

Over the pre-crisis period, market services explained the half of the growth of capital deepening in Belgium, and a little under half in Germany and France. After the crisis, the contribution of this group of activities experienced a large reduction in each country. The contribution in Belgium fell from 0.4 pp to zero, which represents the largest decrease among the considered countries. Non-market experienced in Belgium a negative contribution to capital deepening over the pre and post-crisis periods due to a contribution to the accumulation of capital lower than the contribution to hours worked.

The contribution of manufacturing to the growth of capital deepening in Belgium, over the pre-crisis period, was equivalent to the growth in France and Netherlands, above the growth in Germany. Over the post-crisis period, the contribution of manufacturing decreased in all countries and became zero in Belgium and in the Netherlands and even negative in Germany. The zero contribution of manufacturing observed in Belgium was due to a negative contribution to the accumulation of capital and to hours worked. In Germany, the contribution of manufacturing to capital growth was positive, but lower than the positive contribution to hours worked.

Market services also contributed to MFP growth, but in Belgium, as in Germany and in France, the most contributor to MFP growth was manufacturing. The contribution of manufacturing to MFP experienced even a small acceleration in Belgium and in Germany over the post-crisis period. Over the two sub-periods, the contribution of non-market services to MFP growth in Belgium was negative. Such a negative contribution over the two sub-periods was not observed in the other countries. The decrease in MPF growth over the post-crisis period in Belgium was due to market services, network industries and construction. This is not always visible in the table due to rounding.

Data information: EUKLEMS (growth in logarithm). The weights used to estimate the industry contributions are labour compensation for labour composition, capital compensation for capital, hours worked for hours worked and value added for MFP. Capital deepening corresponds to capital services per hour worked. Manufacturing corresponds to C in NACE Rev2, Market services include G to N without L, Non-market services include O to U, Network industries include D and E, Construction corresponds to F and Others include A, B and L.

Table 12 **Main activities contribution to labour productivity growth components - BE**
average annual growth rate in %

	Labour composition			Capital deepening			MFP		
	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015
Total	0.2	0.2	0.2	0.5	0.8	0.1	0.2	0.5	0.4
Manufacturing	0.1	0.0	0.1	0.1	0.2	0.0	0.3	0.4	0.5
Market services	0.1	0.1	0.1	0.2	0.4	0.0	0.1	0.2	0.2
Non-market ser.	0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
Network industries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0
Others	0.0	0.0	0.0	0.2	0.2	0.2	-0.1	-0.1	-0.1

Table 13 **Main activities contribution to labour productivity growth components - DE**
average annual growth rate in %

	Labour composition			Capital deepening			MFP		
	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015
Total	0.1	0.1	0.1	0.6	0.7	0.2	0.4	0.9	0.9
Manufacturing	0.1	0.1	0.1	0.1	0.1	-0.1	0.3	0.6	0.7
Market services	0.0	-0.1	0.0	0.3	0.3	0.1	0.0	0.2	0.3
Non-market ser.	0.0	0.1	0.0	0.0	0.1	0.0	0.0	-0.1	0.0
Network industries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Others	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	-0.1

Table 14 **Main activities contribution to labour productivity growth components - FR**
average annual growth rate in %

	Labour composition			Capital deepening			MFP		
	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015
Total	0.3	0.2	0.5	0.6	0.8	0.4	-0.1	0.2	0.1
Manufacturing	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.2
Market services	0.2	0.1	0.3	0.3	0.3	0.1	-0.2	0.0	0.0
Non-market ser.	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0
Network industries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1
Others	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0

Table 15 **Main activities contribution to labour productivity growth components - NL**
average annual growth rate in %

	Labour composition			Capital deepening			MFP		
	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015	2000-2015	2000-2007	2009-2015
Total	0.2	0.2	0.2	0.4	0.5	0.2	0.5	0.9	0.7
Manufacturing	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.3	0.2
Market services	0.1	0.1	0.1	0.0	0.0	-0.2	0.4	0.7	0.5
Non-market ser.	0.0	0.0	0.0	-0.1	-0.2	0.0	0.0	-0.1	0.1
Network industries	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	-0.1
Construction	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Others	0.0	0.0	0.0	0.3	0.4	0.2	-0.1	-0.1	-0.1

2.7. Investment

Gross fixed capital formation (GFCF) is important for both short term growth as a component of aggregate demand and for long term growth as a component of capital accumulation. GFCF can be implemented by households (only dwellings), by general government and by private enterprises.

Since 2004, the investment rate, GFCF in percentage of GDP, has been generally higher in Belgium than in its neighbouring countries. In the four countries, the crisis reversed the positive trend of investment rate observed in preceding years, leading to a marked decline. However, the stabilisation was relatively rapid except in the Netherlands where the decline lasted until 2013. After a stabilisation phase, since 2012, the French investment rate has been again on a decreasing trend, stronger than the one observed for private sector investment rate.

In the four countries, these evolutions of the investment rate of total economy were mainly due to the investment rate of private sector defined as total economy minus general government. The investment rate of general government remained relatively stable over 2000-2015 averaging at 2.2% in Belgium, 2.7% in Germany, 4.4% in the Netherlands and 3.9% in France where a decrease has been observed since 2013.

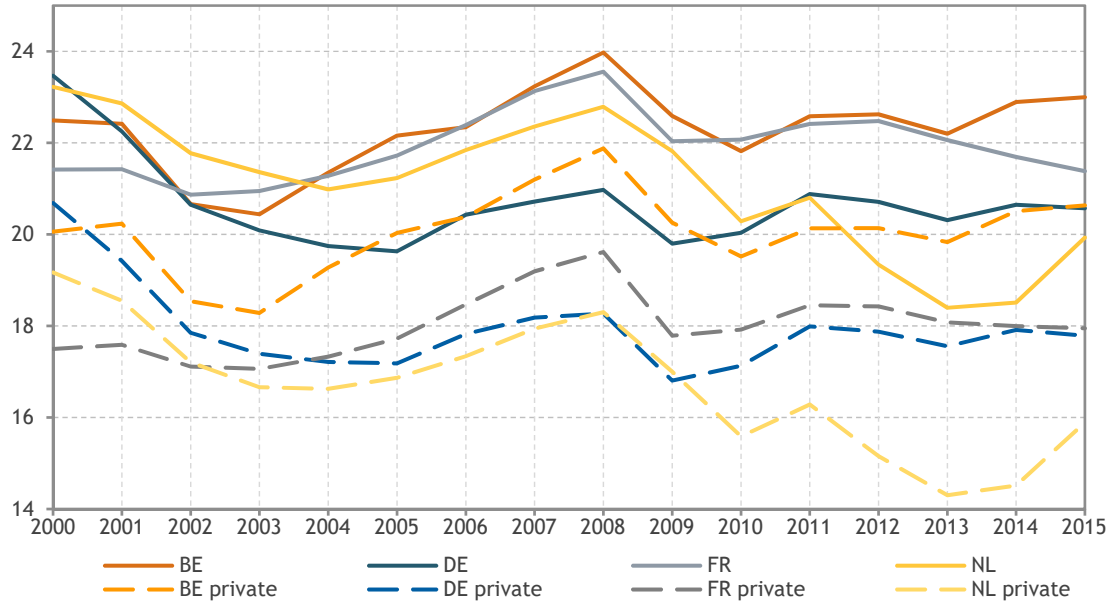
Gross fixed capital formation concerns different categories of assets which are more or less productive. Dwellings do not enter in the aggregate production function of the economy and are therefore not considered as productive investments. The productive assets can be gathered into three categories: buildings and structures, machinery and equipment and intellectual property products including cultivated biological resources.

In the four countries and in line with the development of the knowledge-based economy, the share of intellectual property products, which include R&D, in GFCF increased over 2000-2015: in Belgium, from 16% to 26%, in Germany, from 19% to 24%, in France, from 28% to 33% and in the Netherlands, from 22% to 29%. At the opposite, the share of machinery and equipment decreased, from 58% to 45% in Belgium, from 53% to 49% in Germany, from 38% to 30% in France and from 43% to 38% in the Netherlands. The share of building and structures was more stable, slightly declining in Germany (from 28% to 26%) and in the Netherlands (35% to 33%) and moderately increasing in Belgium (26% to 30%) and in France (34% to 37%). France is the only country where the share of buildings and structures was higher than the share of machinery and equipment.

Data information: Eurostat, National accounts.

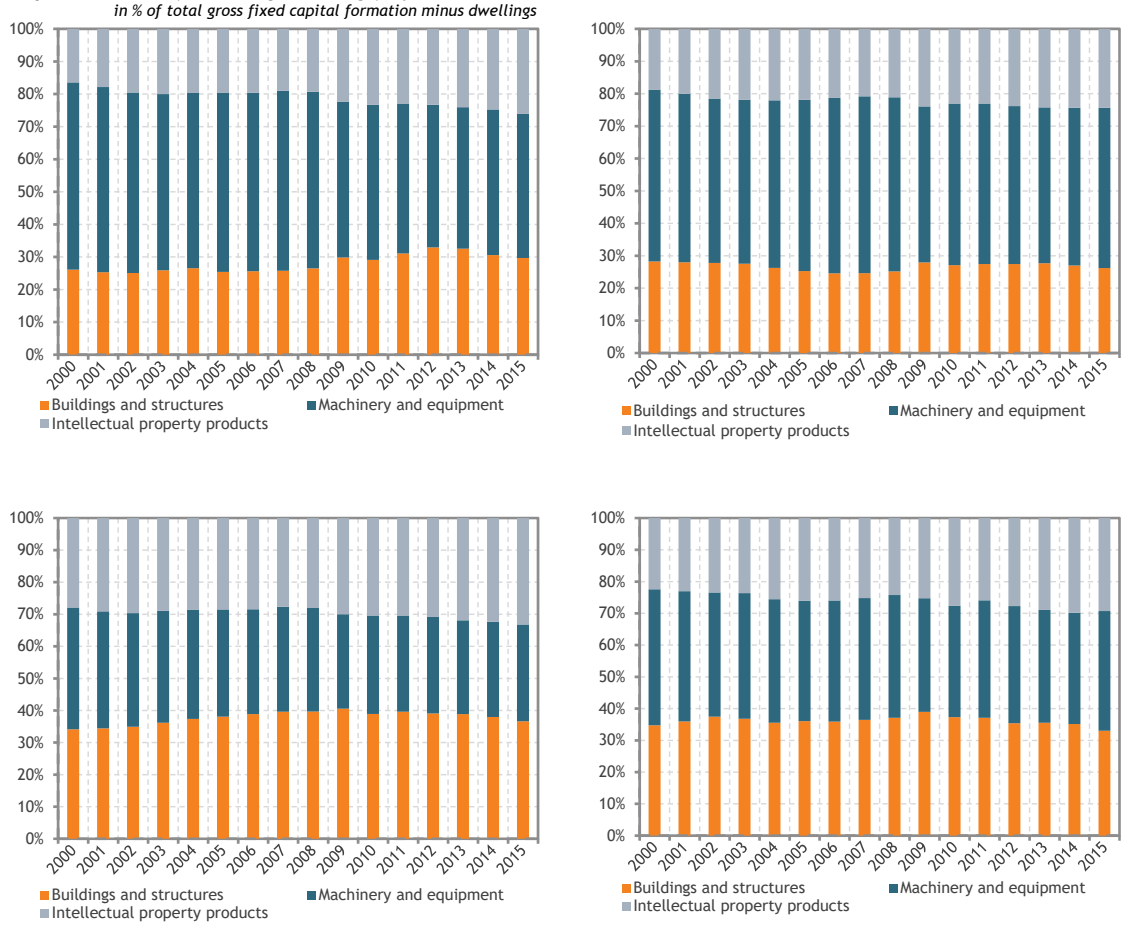
Graph 31 Gross fixed capital formation Total economy and Private sector - BE, DE, FR, NL

GDP



Graph 32 GFCF (excluding dwellings) by main assets - BE, DE, FR, NL

in % of total gross fixed capital formation minus dwellings



It is also possible to identify GFCF in ICT assets defined as computer hardware plus telecommunications equipment plus computer software and databases, except for Germany, for which GFCF by asset is not available in sufficient details. ICT are usually considered as technologies facilitating innovation absorption and MFP gains. Investment rate in ICT is an indicator of the digitalisation of the economy.

At the beginning of the period, as a consequence of the dot.com crisis, ICT investment rate decreased in the three countries, until 2002 for the Netherlands and 2004 for France and Belgium. This decrease was particularly pronounced in Belgium. Since then, ICT investment rate has been on an increasing trend in the three countries, but in Belgium the growth rate was lower. ICT investment in Belgium has remained below France and the Netherlands since 2003.

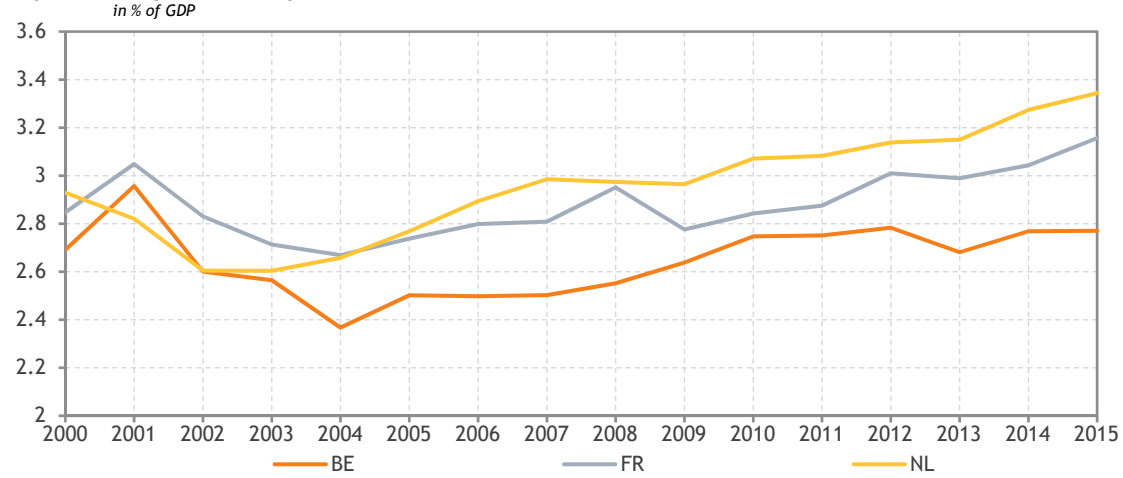
Another pertinent distinction between assets in respect with the knowledge-based economy is between tangible and intangible assets. Indeed, the economic literature more and more often recognises a specific role for intangible capital as a long-term growth-enhancing factor. These assets are viewed as complementary to other investments to generate productivity gains. However, according to SEC2010, only some of the intangible assets usually considered by the economic literature are included in national accounts. This is the case for software, database, R&D, mineral exploration and copyright and creative assets.

In the four countries, investment rates in intangibles appear to have better resisted to the crisis than investment rates in tangibles. Since 2006, the increase in intangibles investment rate has been particularly strong in Belgium even if the Belgian rate in 2015 (4.4%) remained below the Dutch one (4.6%) and the French one (5.1%). Since the crisis, the German investment rate in intangibles has been quasi constant, close to 3.5%, clearly below the rates in the three other countries.

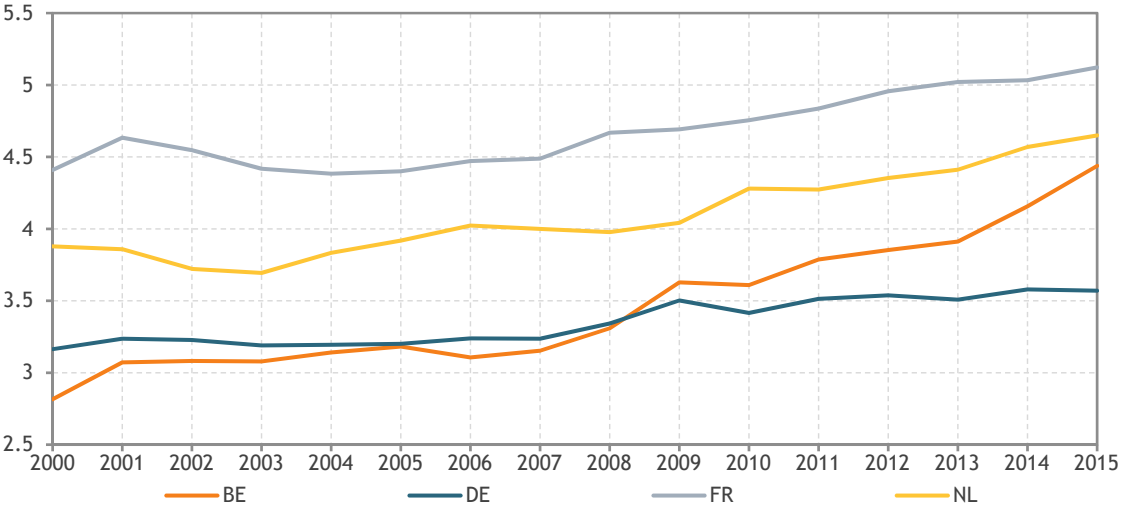
At the opposite, the effect of the crisis was visible on investment rates in tangibles which clearly decreased after 2008 and never regained their pre-crisis levels. Since 2011, tangibles investment rate has been stable in Belgium at a higher level than in the three other countries. The French investment rate, after a stabilisation over 2009-2012, has been on a decreasing trend and was in 2015 the lowest rate among the countries of comparison.

Data information: Eurostat, National accounts.

Graph 33 ICT gross fixed capital formation - BE, DE, FR, NL
in % of GDP



Graph 34 Gross fixed capital formation in intangible assets - BE, DE, FR, NL
in % of GDP



Graph 35 Gross fixed capital formation in tangible assets (excluding dwellings) - BE, DE, FR, NL
in % of GDP

Over the whole period, investment rate in manufacturing, defined as GFCF in percentage of value added, was higher in Belgium and in France (24% on average over 2000-2015) than in Germany (19%) and in the Netherlands (18%). In the four countries, the crisis reversed the positive trend of investment rate observed in preceding years, leading to a marked decline. However, the return to the level observed before the crisis was relatively rapid, except in Germany where investment rate remained subdued. After a slight decrease in 2013 and 2014, the Belgian investment rate in manufacturing strongly increased in 2015, exceeding investment rate in France. Investment rate in the Belgian manufacturing rose from 24% in 2014 to 29% in 2015.

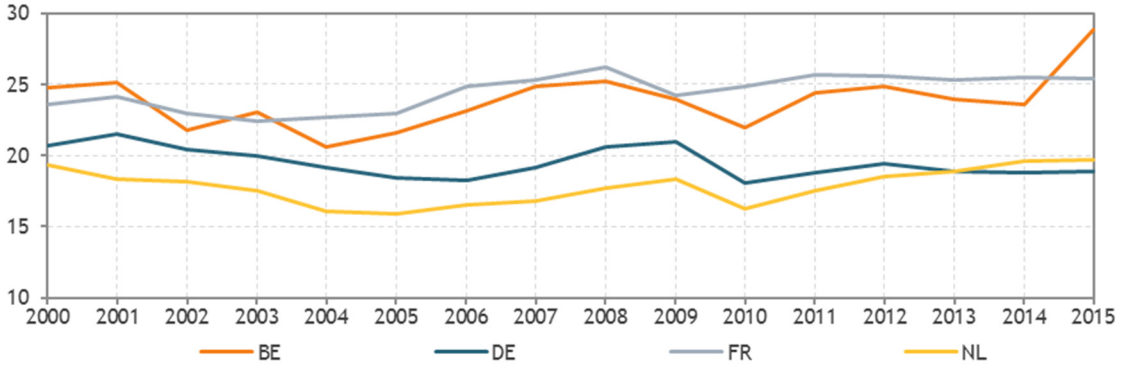
Since the beginning of the period, investment rate in market services in Belgium has been the highest among the comparison countries, with an average of 21%. Investment rate in Belgium and in the Netherlands were, however, on a declining trend, while a stabilisation was observed in the two other countries. Consequently, in 2015, investment rates in Belgium, Germany and France were very close. As in manufacturing, investment rate in market services was generally the lowest in the Netherlands.

Since the beginning of the period, investment rate in non-market services has been very stable in Belgium (average of 14% over 2000-2015) and in Germany. In France and in the Netherlands, a decreasing trend was observed after the crisis. Over the whole period, investment rate in non-market services in Belgium was lower than in the three other countries, expect in 2015, where the rates of France and Belgium were equivalent.

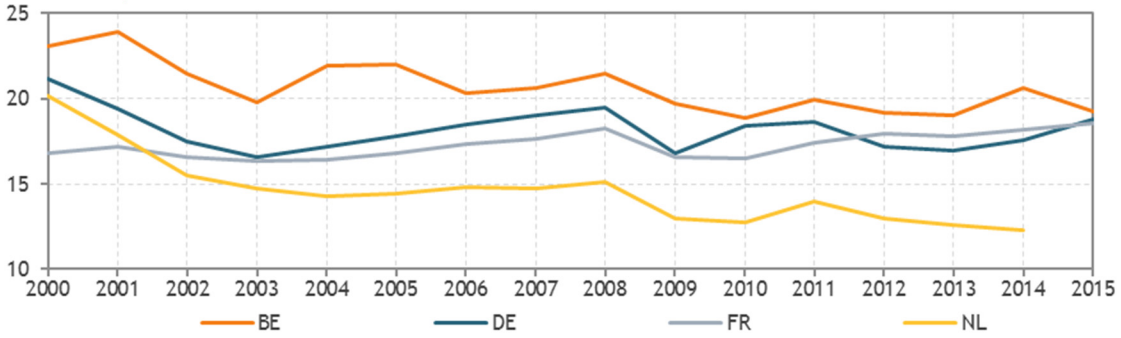
Investment rate in network industries reached, on average, in Belgium 37%, against 32% in Germany, 42% in France and 46% in the Netherlands. Belgium, the Netherlands and France were very close on an increasing trend until 2009-2010. After these years, investment rates in Belgium and France declined, while investment rate strongly increased in the Netherlands due to investment in electricity supply, generating an important gap between the Netherlands and the other countries at the end of the considered period. Investment rate in Germany was on a declining trend over the whole period.

Data information: Eurostat, National accounts.

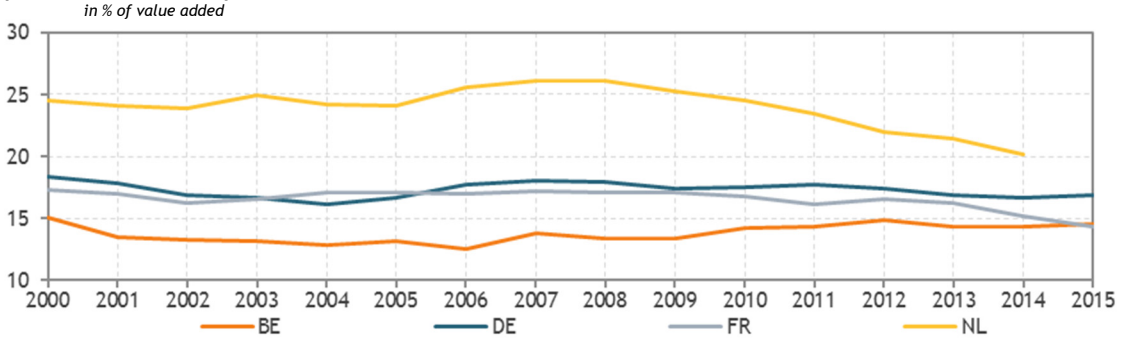
Graph 36 Gross fixed capital formation in manufacturing - BE, DE, FR, NL
in % value added



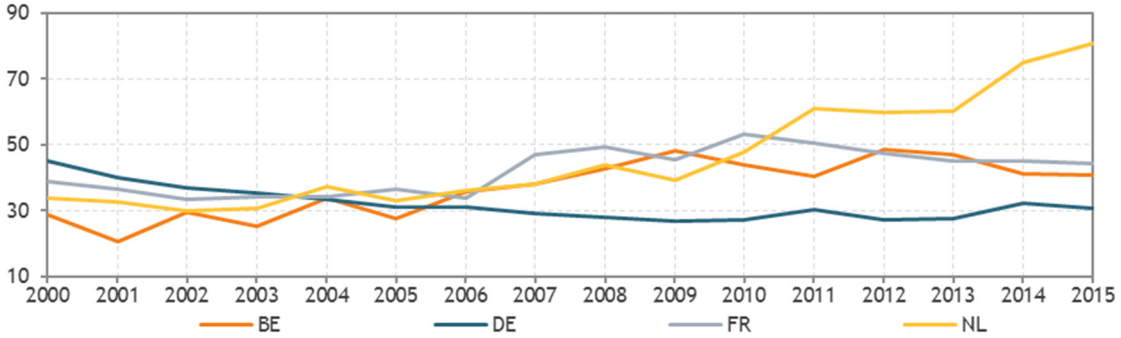
Graph 37 Gross fixed capital formation in market services - BE, DE, FR, NL
in % of value added



Graph 38 Gross fixed capital formation in non-market services - BE, DE, FR, NL
in % of value added



Graph 39 Gross fixed capital formation in network industries - BE, DE, FR, NL
in % of value added



2.8. Profit shares and return on capital

According to the income approach of GDP, gross value added can be broken down into three components: compensation of employees, gross operating surplus and mixed income and other taxes less other subsidies on production. This last item consists in taxes paid or subsidies received by producers not linked to the value or the volume of goods produced or exchanged. The relative importance of this component differs across countries and, inside the same country, over time. In Belgium, other taxes less other subsidies on production were positive until 2005 and the introduction of measures designed to reduce labour costs of some categories of workers such as researchers or low-skilled workers. In 2015, these net taxes were negative for the whole economy meaning that producers received a subsidy. Belgium was the only country of comparison where this component was negative at the level of total economy. This component was particularly high in non-market services and in manufacturing in 2015 in Belgium.

In order to compare profit shares across countries, gross operating surplus (and mixed income) is divided by gross value added minus other taxes less other subsidies on production.

For the economy as a whole, profit share remained relatively constant over 2000-2015 in the four countries, moderately decreasing during the crisis. In Belgium and in Germany, this decrease occurred over 2007-2009, in the Netherlands over 2006-2009 and only over 2008-2009 in France. The level and the evolution of profit shares were very close in Belgium, Germany and the Netherlands. Profit share was clearly smaller in France.

The dispersion of levels and the scale of variations of profit shares in manufacturing across countries were much larger than in total economy. The Netherlands recorded the highest rate over 2000-2015 despite the strongest decline during the crisis, from 51% in 2007 to 40% in 2009 and the fact that profit share never regained its pre-crisis level. The decline was also marked in Germany with profit share decreasing from 40% in 2007 to 30% in 2009. However, profit share rapidly recovered after the crisis. The decrease in profit share was much moderate in Belgium (from 42% to 36%) and in France (37% to 33%). Since 2009, the French profit share has continuously increased joining the German share in 2015. In Belgium, since 2013, profit share in manufacturing has increased faster and reached 43% in 2015.

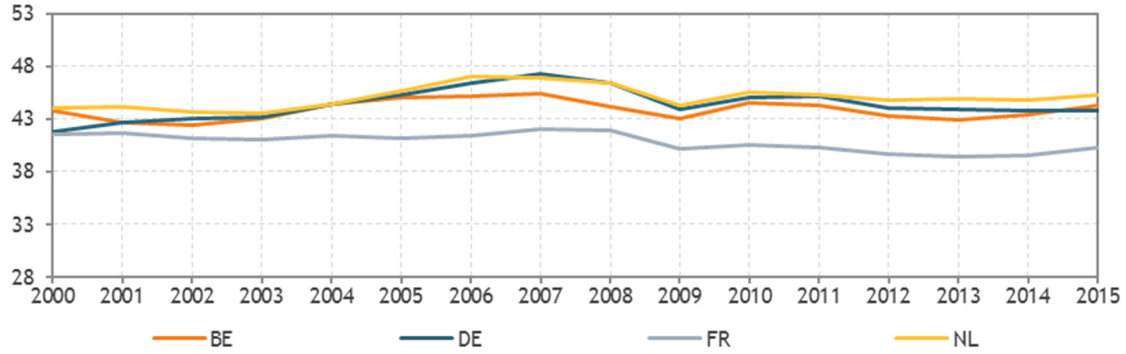
Since 2003, profit share of market services in Belgium has been the highest among the countries of comparison, showing a great stability. The German rate remained close to the Belgian one until 2007 but continuously decreased after, before stabilising since 2012. The Dutch market services had the particularity to increase their profit share during the crisis while the French market services were characterised by a relatively low and declining profit share.

Data information: Eurostat, National accounts.

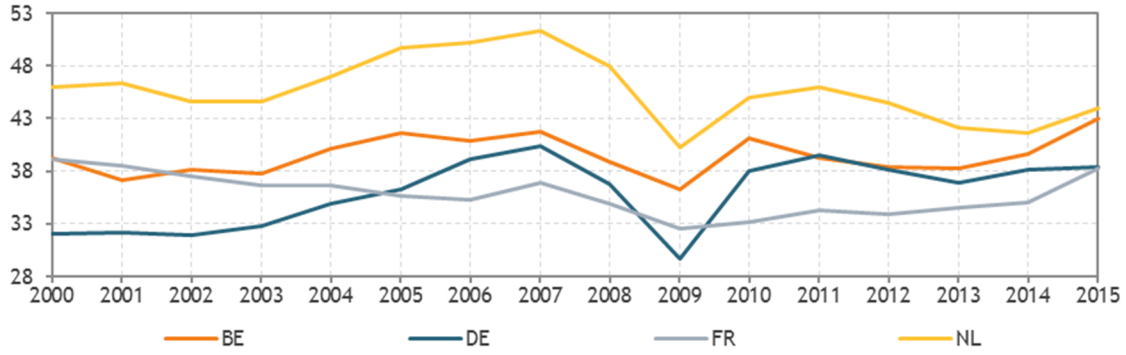
Table 16 **Other taxes less other subsidies on production**
in % of gross value added

	Belgium		Germany		France		Netherlands	
	2000	2015	2000	2015	2000	2015	2000	2015
Manufacturing	1.1	-3.1	-0.3	0.2	4.8	3.4	-0.2	0.2
Market services	0.1	-1.0	-0.5	-1.0	3.3	2.6	-1.2	-0.3
Non-market services	-1.8	-3.5	-1.7	0.0	1.1	1.0	-0.1	-0.6
Network industries	1.7	1.5	-1.6	0.0	5.1	4.4	0.1	1.5
Construction	0.7	-0.7	-0.4	0.0	2.7	1.7	-0.4	0.2
Others	7.7	8.5	-1.6	-0.1	6.6	5.8	2.4	4.9
Total economy	0.8	-1.0	-0.8	0.2	3.5	2.8	-0.3	0.2

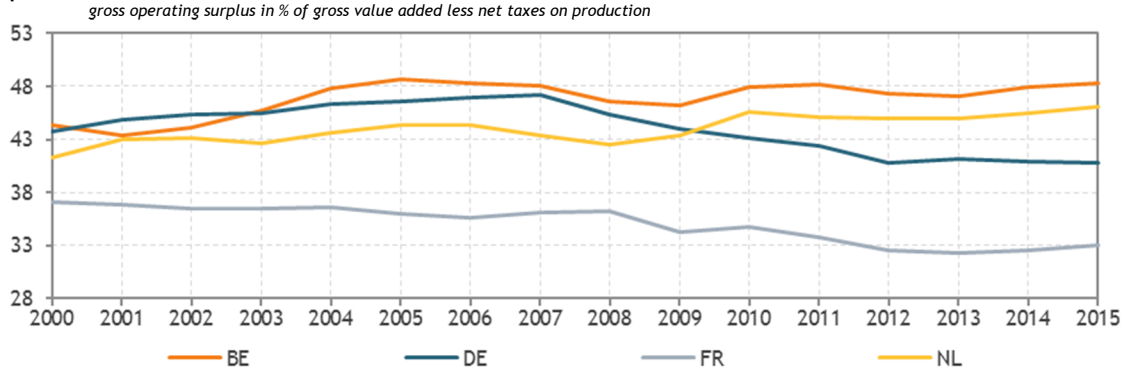
Graph 40 **Profit shares - Total economy**
gross operating surplus in % of gross value added less net taxes on production



Graph 41 **Profit shares - Manufacturing**
gross operating surplus in % of gross value added less net taxes on production



Graph 42 **Profit shares - Market services**
gross operating surplus in % of gross value added less net taxes on production



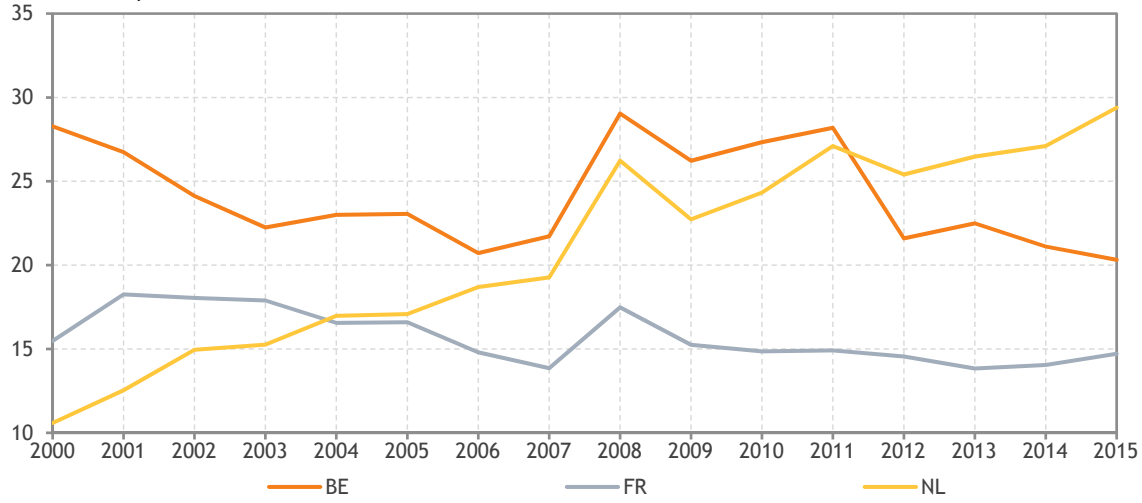
Based on balance sheets data, two additional indicators give information on the financial return of non-financial corporations (sector S.11): gross return on capital employed, before taxes (ROCE), defined as gross operating surplus divided by all capital employed (equity + debt) and net return on equity, after taxes (ROE) defined as net entrepreneurial income less current taxes on income and wealth divided by the equity. The first indicator is not available for Germany.

In Belgium and in France, a decrease in gross return on capital employed was observed over the pre-crisis period. After a strong increase in 2008, gross return on capital employed has been significantly eroded in Belgium, from 29% in 2008 to 20% in 2015, and, to a lesser extent, in France. However, over the two last years, gross return in France recorded a slight recovery. The Netherlands experienced a continuous increase in their gross return on capital employed over the whole period. Belgian ratio was above the Dutch and French ratios, until 2011, but since 2012, the Dutch ratio has exceeded the Belgian ratio.

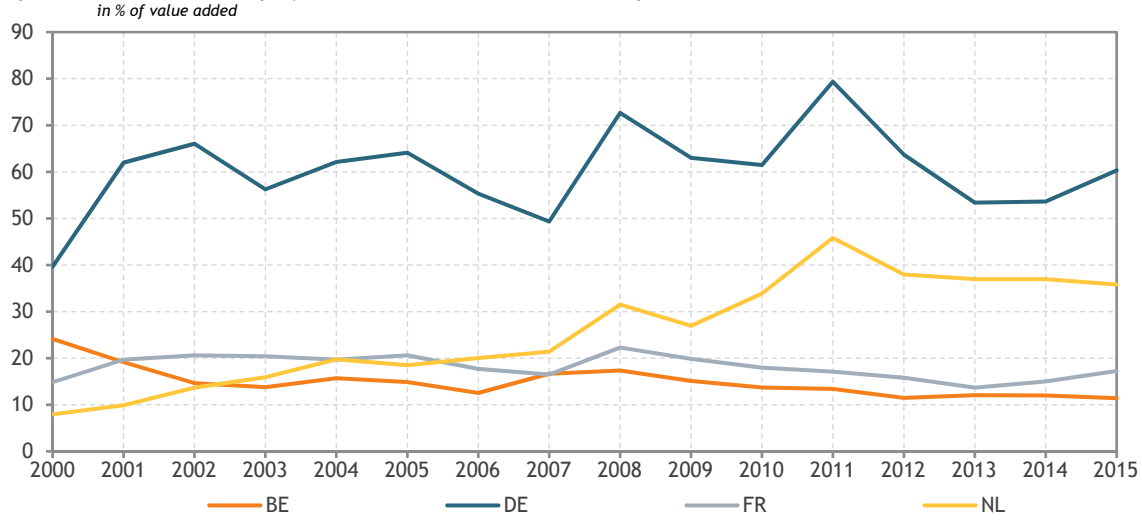
Concerning net return on equity, Belgium recorded the lowest average return rate with an average of 15% over the whole period, against 60% in Germany, 18% in France and 26% in the Netherlands. Over the pre-crisis period, Belgium experienced a decrease in the return. After an increase in 2007 and 2008, the return was eroded, from 17% in 2008 to 11% in 2015. France also recorded a decline in its return after 2008, but, since 2013, an increase has been observed. It was not the case in Belgium. The Netherlands and Germany recorded an increasing trend over the whole period.

Data information: Eurostat. Gross return on capital employed, before taxes, (ROCE) of non-financial corporations (Sector S.11 in the ESA 2010) is defined as gross operating surplus (ESA 2010 code: B2G_B3G) divided by main financial liabilities. Latter include currency and deposits (AF2), debt securities (AF3) loans (AF4) and equity and investment fund shares/units (AF5). Net return on equity, after taxes, (ROE) of non-financial corporations is defined as net entrepreneurial income (ESA 2010 code: B4N) less current taxes on income and wealth (D5PAY) divided by equity and investment fund shares/units (AF5), liabilities. Data for ROCE are not available for Germany.

Graph 43 **Gross return on capital employed, before taxes, of non-financial corporations - BE, FR, NL**
in % of value added



Graph 44 **Net return on equity, after taxes, of non-financial corporations - BE, DE, FR, NL**
in % of value added



2.9. International trade penetration and export market shares evolution

The globalisation of the economy has increased the importance of international trade as an engine of growth. This is also the case for the four studied countries, as illustrated by the growing importance of exports and imports in the GDP. The size of the country is negatively correlated with the degree of openness. Belgium, the smallest country of the comparison, has the highest ratios of imports and exports to GDP, followed by the Netherlands, Germany and France. Over 2000-2015, the two ratios strongly increased in Belgium, with the export ratio remaining above the import ratio. In the Netherlands and in Germany, the export ratio increased faster than the import ratio while in France, the import ratio was more dynamic than the export ratio.

An increase in the relative importance of exports does not mean that external trade performances of the country are improving. The evolution of export market shares provides a better indication of external competitiveness of the country. Following the Macroeconomic Imbalances Procedure (MIP), export market shares are defined as exports of goods and services of a country on the world goods and services exports in nominal terms. This indicator is completed by export market shares in the OECD countries as an indicator of external performances on advanced economies' markets.

In percentage of world exports, from 2003/2004 until 2012, export market shares of the four countries decreased as new players such as China gained shares in the international trade. Since then, the French export market shares have stabilised at 27% below the 2000 level, the Belgian ones at 20% and the Dutch ones at 13% below the 2000 level. Only the German market shares improved, ending the period 2% above the 2000 level.

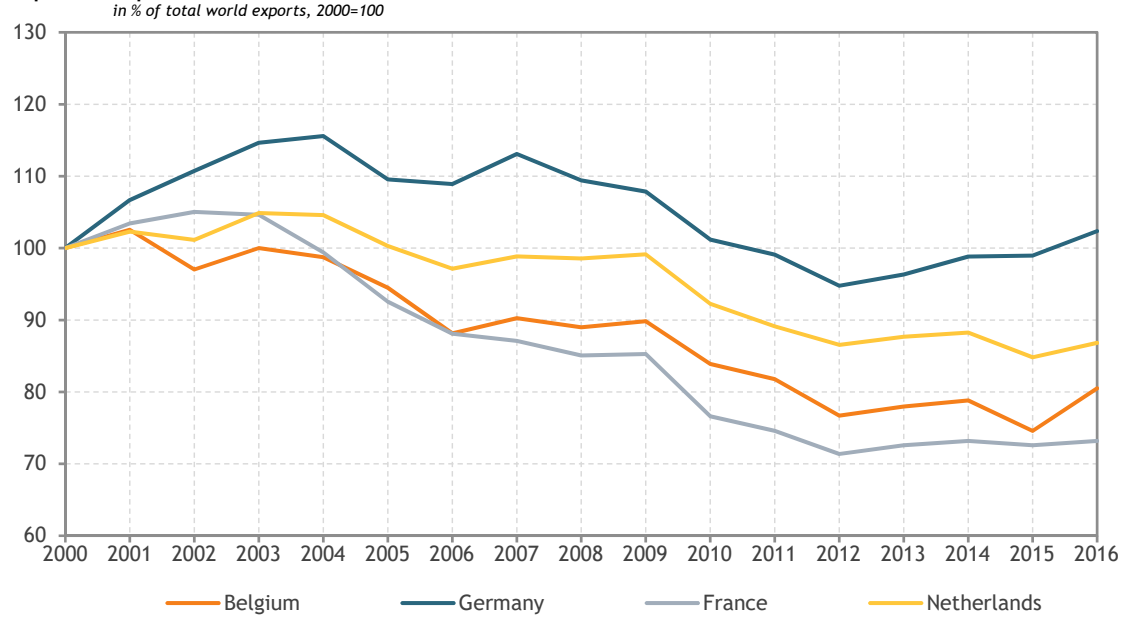
The picture is quite different when export market shares are calculated on advanced economies markets (OECD countries). Germany succeeded in increasing its export market shares until 2007 and, after a limited decrease, to stabilise them at 20% above their 2000 level. The Netherlands slowly increased their market shares until the crisis and then recorded a decrease. In 2016, their export market share was only 2% above the 2000 level. Belgium maintained its export market shares relatively constant until the crisis and then recorded a decrease until 2015. In 2016, the level was 6% below the 2000 level. The French export market shares has deteriorated since 2003, well before the crisis and, in 2016, they reached 86% of the level at the beginning of the period.

Data information: Eurostat, National accounts and Macroeconomic Imbalances Procedure (MIP).

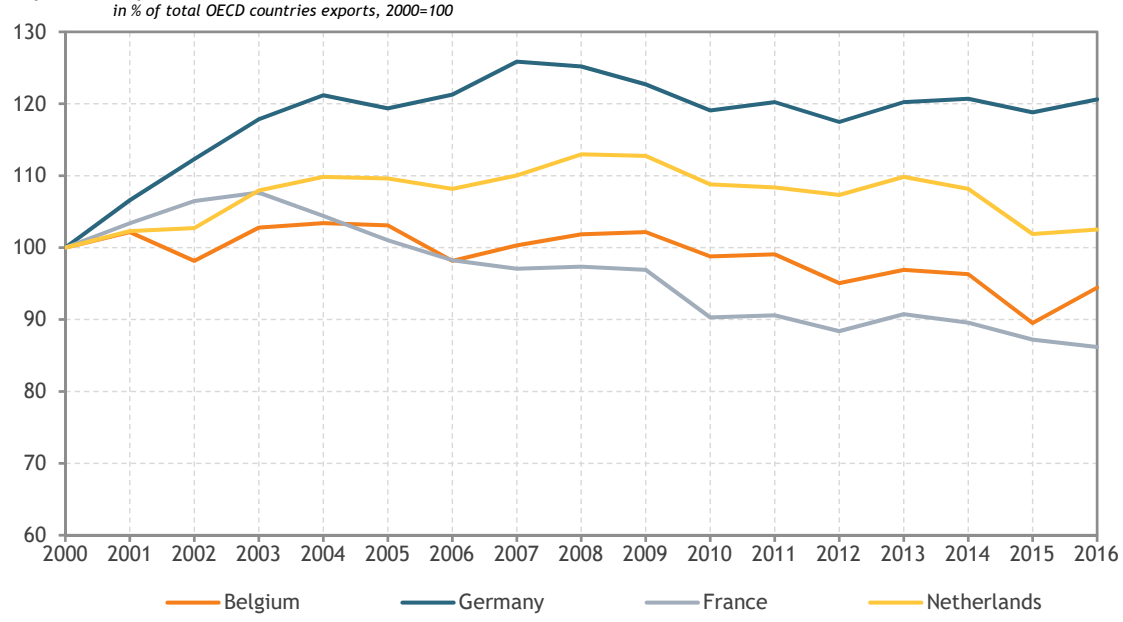
Table 17 **Imports and exports penetration**
in % of nominal GDP

	2000		2016	
	Share of Imports	Share of Exports	Share of Imports	Share of Exports
Belgium	69.2	71.9	82.1	84.5
Germany	30.6	30.8	38.4	46.0
France	27.1	28.2	31.2	29.3
Netherlands	60.0	66.5	69.7	80.6

Graph 45 **Export market shares evolution in the world trade**
in % of total world exports, 2000=100



Graph 46 **Export market shares evolution in the OECD countries**
in % of total OECD countries exports, 2000=100



These evolutions of external performances are partly explained by evolutions of price competitiveness of the countries. The labour productivity gains can be used by an industry to improve its relative prices by increasing prices more slowly than its main commercial partners in order to maintain or to increase its export market share, and/or to increase labour compensation by increasing wages faster than the other countries. If these wages increases are higher than the productivity gains, unit labour costs (ULC) increase, leading to a cost competitiveness deterioration.

In Belgium, value added deflator for the total economy increased at the same pace than the French one until the crisis, followed by a slowdown in the French and the Dutch deflator progression but not the Belgian one, supported by the strong increase in ULC from 2010 to 2013. Over 2000-2015, the growth of deflator and ULC was the highest in Belgium. The particularity of the German situation is clearly visible in the graphs, with a slow increase in value added deflator particularly until the crisis explained by the decrease of ULC. Since the crisis, both value added deflator and ULC have augmented at a faster rate.

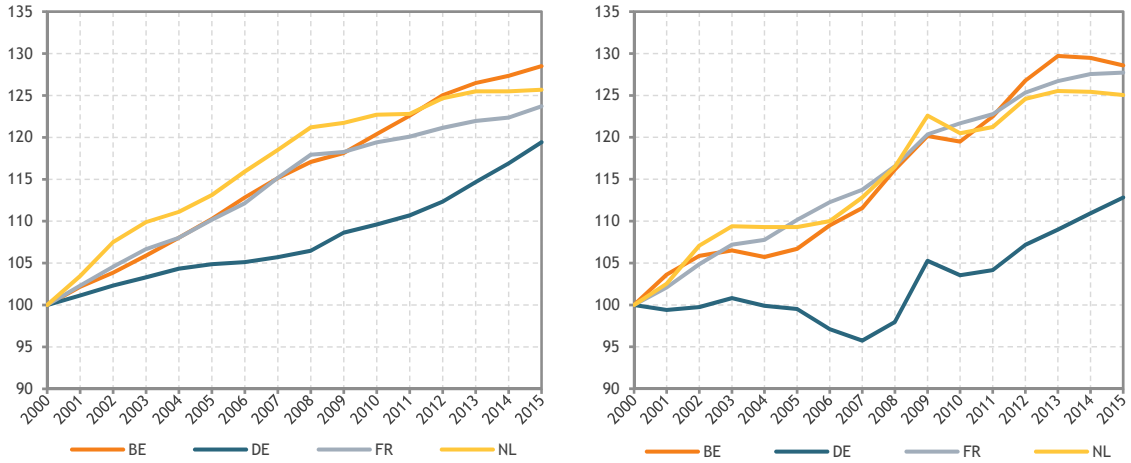
By contrast, in manufacturing, the deflator decreased in Belgium and in France, while it increased in the Netherlands and in Germany. If the evolutions of ULC in these four countries were close until 2005, they diverged afterwards, with France and Belgium recorded relatively limited variations in comparison to the German and Dutch ones. Since 2013, Belgian ULC have been on a clearly declining trend.

In market services, Belgium recorded the highest increase in value added deflator while Germany recorded the lowest. From 2005 until 2013, Belgian ULC were on an increasing trend and in 2015, they were 24% above the 2000 level, against 28% in France but only 17% in Germany and in the Netherlands. As for the whole economy, in market services, Germany was characterised by low increase in deflator and by a decrease in ULC from the beginning of the period until the crisis.

Data information: Eurostat, National accounts. The unit labour cost (ULC) is defined as the ratio of labour costs to labour productivity: (D1/H_EMP)/(B1G/H_TOT) with D1 Compensation of employees, H_EMP Hours worked by employees, B1G Gross value added Chain linked volumes, H_TOT Total hours worked (employees and self-employed).

Graph 47 Evolution of value added deflator and ULC - Total economy

2000=100



Graph 48 Evolution of value added deflator and ULC - Manufacturing

2000=100

Graph 49 Evolution of value added deflator and ULC - Market services

2000=100

3. Manufacturing

Main findings

The activities of the Belgian manufacturing are relatively less concentrated than those in its three neighbouring countries. The most important industries are Chemicals, Food, Basic metals and Pharmaceuticals. They are also the most important industries in terms of employment with Rubber and plastics replacing Pharmaceuticals in the top-four of manufacturing industries in terms of hours worked.

As in Germany but contrary to France and the Netherlands, the overall performances of Belgian manufacturing are strong and have improved since the crisis. However, unlike Germany, this improvement is not generalised to all industries but is only observed in a limited number of industries. Indeed, only 5 out of the 13 manufacturing industries recorded a higher average annual growth rate of value added over 2009-2015, compared to 2000-2007. These five industries are Coke and refined petroleum, Chemicals, Basic metals, Motor vehicles and Other manufacturing. Moreover, and again contrary to Germany, hours worked have continued to contract since the crisis, even if the contraction rate has slowed in comparison with the rate over 2000-2007, in most manufacturing industries. Only Pharmaceuticals has recorded a positive growth rate of hours worked. The acceleration of labour productivity growth since the crisis has been due to the increase in the contribution of only three industries: Coke and refined petroleum, Chemicals and Basic metals.

In terms of growth accounting, the acceleration of manufacturing labour productivity growth since the crisis has been based solely on the increase in MFP growth, the capital deepening contribution being negative. It should be noted that this MFP growth could be partly cyclical given that the fluctuations in the capacity utilisation rate are recorded in MFP changes.

Even if the Belgian manufacturing gross fixed capital formation rate is still high in comparison to the neighbouring countries, the growth rate of net capital stock in volume, once capital depreciation taken into account, has been clearly more negative since the crisis compared to the neighbours. This rate has deteriorated in all industries except in Coke and refined petroleum. This industry with Pharmaceuticals are the only two industries to show a positive rate. The contraction of capital stock in volume has been particularly strong in Computer and electronic equipment.

3.1. Decomposition of value added growth in manufacturing

In all countries, over the pre- and post-crisis periods, the main contribution to value added growth in manufacturing came from MFP growth. MFP growth in manufacturing was largely higher than in total economy. In Belgium, over the pre-crisis period, MPF growth in manufacturing (2.4 pp) was equivalent to the growth in the Netherlands, above the growth in France but below the German one. The contributions of ICT capital were also equivalent in Belgium, in Germany and in the Netherlands at a level of 0.1 pp, largely below the level in total economy. The contributions of non-ICT capital in Belgium and in Germany were also equivalent (0.3 pp), between the contributions of France and of the Netherlands. The contributions of hours worked were negative in the four countries. The contribution of labour composition in Belgium (0.3 pp) was lower than the contributions in France and in the Netherlands.

The post-crisis period was characterised by a decrease in the capital contribution in the four countries. The decrease was the strongest in Belgium, leading to a negative contribution of capital of -0.5 pp. This negative contribution was due to non-ICT capital, the ICT capital contribution being quasi zero. The Netherlands also recorded, during the post-crisis period, a negative contribution of non-ICT capital, but this negative contribution was very limited while Germany and France recorded a weak positive contribution.

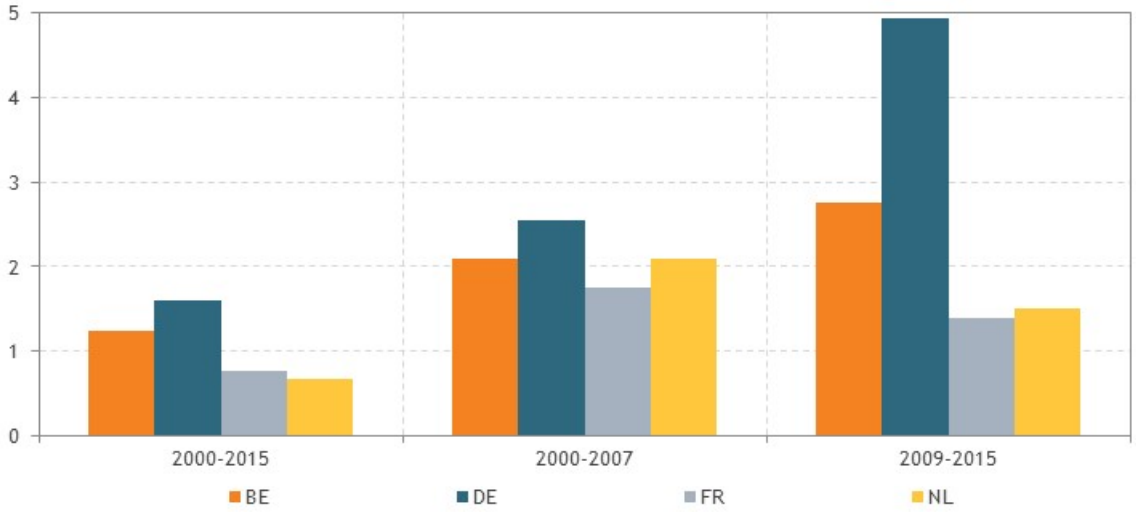
The contribution of MFP largely increased in Belgium in comparison with the pre-crisis period. It was also the case in Germany, but to a lesser extent. This MFP increase could be partly cyclical in line with the recovery of capacity utilisation rates. Belgian manufacturing industry recorded the highest growth of MFP over 2009-2015.

Over the post-crisis period, the contributions of hours worked remained negative in all countries, except in Germany where the contribution became largely positive, reaching 1.0 pp. In the three other countries but particularly in the Netherlands, the negative contributions were smaller over 2009-2015 than over 2000-2007.

Over 2009-2015, the labour composition contribution increased by 0.1 pp in Belgium in comparison with the contribution over 2000-2007. This contribution was higher than the ones observed in Germany and in the Netherlands but lower than the French contribution. This contribution captures the reorientation of hours worked towards more productive workers.

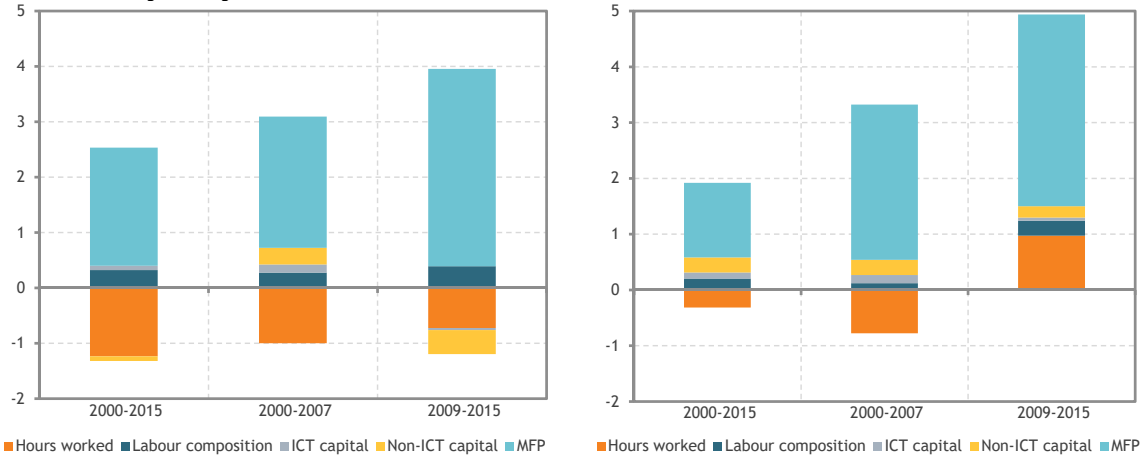
Graph 50 Value added growth in manufacturing - BE, DE, FR, NL

average annual growth rate in %



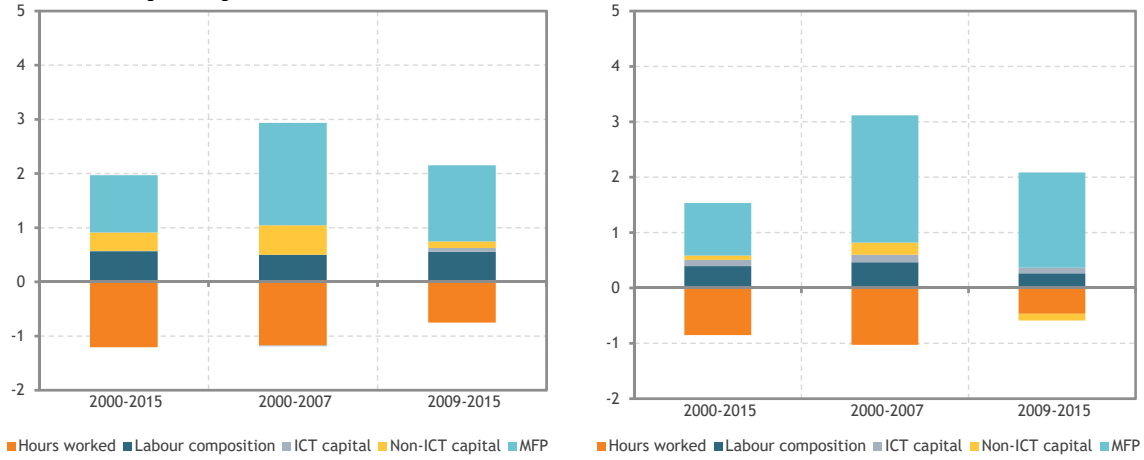
Graph 51 Contributions to value added growth in manufacturing - BE, DE

average annual growth rate in %



Graph 52 Contributions to value added growth in manufacturing - FR, NL

average annual growth rate in %



3.2. Decomposition of labour productivity growth in manufacturing

Using the same growth accounting model and rearranging the terms allows labour productivity growth to be broken down into three components: capital deepening (K/L), labour composition effect and MFP. The evolution of labour composition and MFP have already been described.

As already mentioned, manufacturing labour productivity growth accelerated in Belgium during the post-crisis period in comparison to the pre-crisis period, while it decelerated in the neighbouring countries. Over 2009-2015, labour productivity growth rate in Belgium became the highest among the countries of comparison.

The acceleration of productivity growth in Belgium over the post-crisis period was explained by the acceleration of MPF growth. Germany also experienced an increase in MFP growth over the post-crisis period. MFP growth was the main contributor to productivity growth in manufacturing in the four countries.

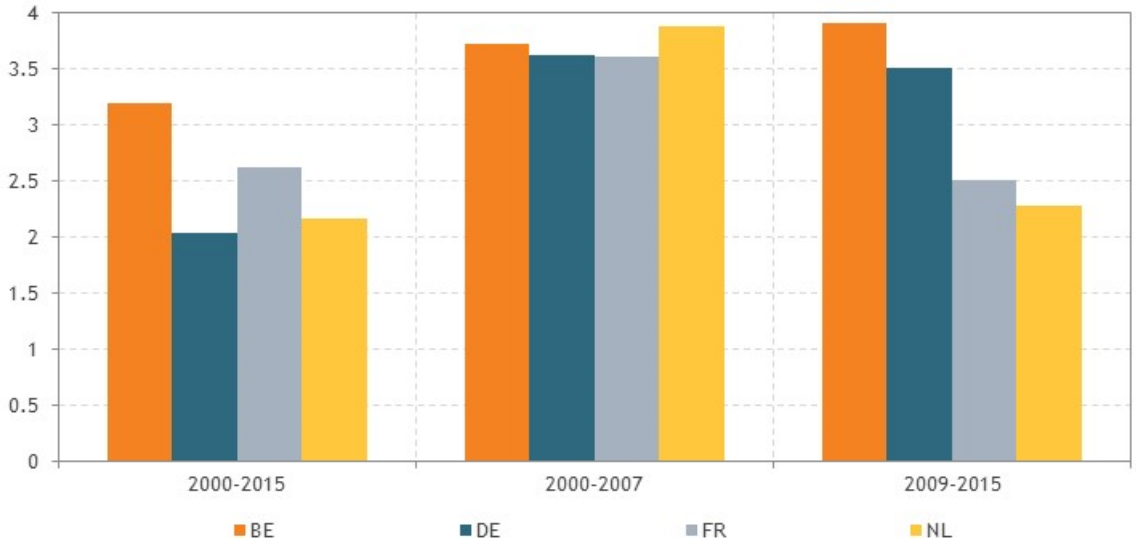
The post-crisis period was characterised by a decrease in the capital deepening contribution in all countries. Over the pre-crisis period, the contributions of ICT capital deepening were equivalent in Belgium, in Germany and in the Netherlands, at a level of 0.2 pp, slightly above the level in France. The contributions of non-ICT capital deepening in Belgium and in the Netherlands were also equivalent (0.9 pp), between the contributions of Germany and of France.

The decrease in the capital deepening contribution over the post-crisis period was relatively larger in Belgium, leading to a slightly negative contribution of -0.1 pp. This negative contribution was due to non-ICT capital deepening, the ICT capital deepening contribution being almost zero. Germany also recorded a negative contribution of non-ICT capital deepening, even larger than the Belgian one, and a zero contribution of ICT capital deepening.

Data information: the growth accounting exercise is realised with EUKLEMS database. In this database, variables in volume are aggregated using a Törnqvist index (growth rate are in logarithm), contrary to National accounts which use a Laspeyres index. The input measures correspond to the flow of services delivered by various categories of capital and labour, allowing to take into account the quality changes in capital and labour (labour composition). The contribution of labour composition is the difference between the increase in the volume index of labour services and the increase in the numbers of hours worked, weighted by the labour share in nominal value added. MFP is the residual component from the growth decomposition.

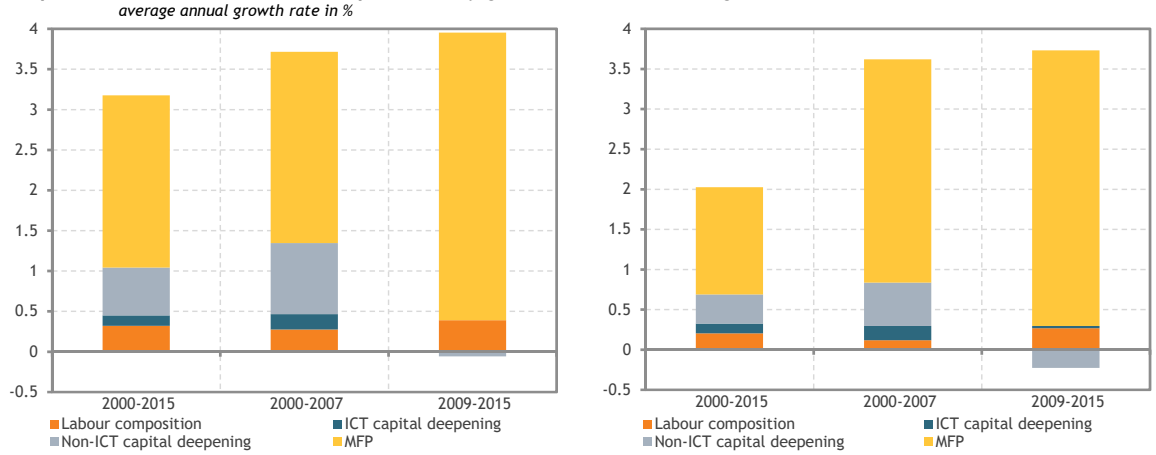
Graph 53 Labour productivity growth in manufacturing - BE, DE, FR, NL

average annual growth rate in %



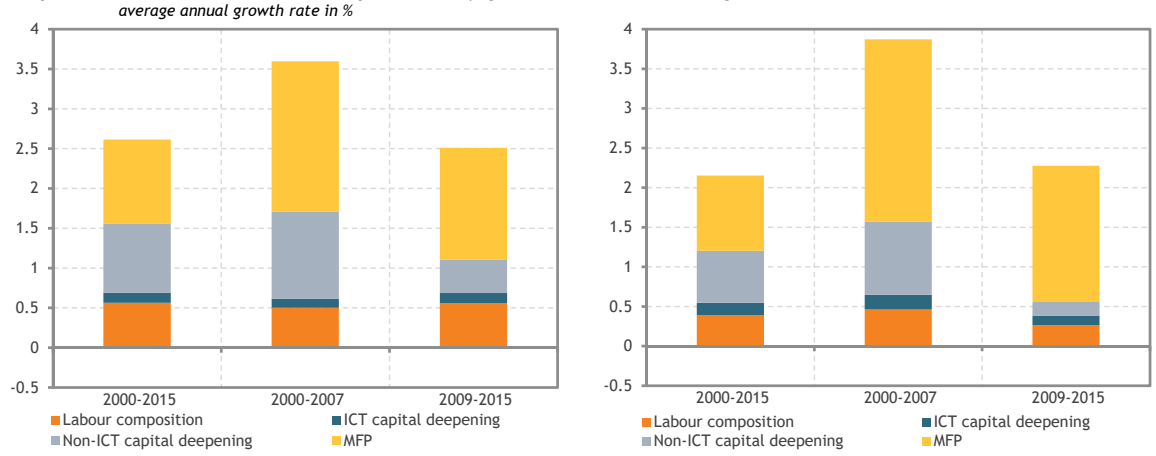
Graph 54 Contributions to labour productivity growth in manufacturing - BE, DE

average annual growth rate in %



Graph 55 Contributions to labour productivity growth in manufacturing - FR, NL

average annual growth rate in %



3.3. Structural changes in manufacturing

In 2015, in terms of nominal value added, the most important manufacturing industries in Belgium were Chemicals, Food, Basic metals and Pharmaceuticals while this hierarchy was Motor vehicles, Machinery, Basic metals and Rubber and plastics in Germany. In France, Food, Other manufacturing, Motor vehicles and Basic metals were the most important manufaturing industries and in the Netherlands, Food, Chemicals, Other manufacturing and Machinery occupied this position. The four most important industries represented 58% of manufacturing value added in France, 57% in the Netherlands and in Germany, and 55% in Belgium, the least concentrated country.

Over 2000-2015, the relative importance of Textiles, Wood and paper, Computers and Electrical equipment decreased in the four countries while Other manufacturing increased its importance. In Belgium, the relative importance increased the most for Pharmaceuticals, Food and Other manufacturing while Computers, Basic metals and Textile recorded the strongest decrease in terms of share in manufacturing nominal value added.

The average annual growth rate of real value added by industry over 2000-2015 sheds light on the industries at the origin of the relative dynamism of the Belgian manufacturing: Coke and refined petroleum, Pharmaceutcials, Food and Basic metals. At the opposite, the negative growth in Textiles and Electrical equipment was particularly large in Belgium but also visible in the three other countries for Textiles, and, in France and in the Netherlands, for Electrical equipment. Computer and Chemicals were two industries recording a negative growth rate only in Belgium but this is mainly due to problems in the estimation of the Belgian value added deflator in these two industries.

In comparison to the pre-crisis period, only Belgium and Germany succeeded in accelerating value added growth in manufacturing over 2009-2015. However, in Belgium, this acceleration was not widespread across industries but limited to five of them: Coke and refined petroleum, Chemicals, Basic metals, Motor vehicles and other manufacturing. At the opposite, the decelaration of growth was particularly marked in Pharmaceuticals, Electrical equipment, Textiles and Wood, paper and printing.

In the three neighbouring countries, Computer was particularly dynamic over the post-crisis period. The growth rate of German Motor vehicles was also particularly strong and the only growth rate above 10%.

Data information: Eurostat, National accounts Data for Germany are limited to 2014.

Table 18 Nominal value added of manufacturing by industry in 2015 and evolution 2000-2015
share in 2015 manufacturing nominal value added and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2014	2000-2014	2015	2000-2015	2015	2000-2015
Food, beverages and tobacco	15.3	3.2	6.9	-1.4	20.7	3.4	18.7	1.5
Textiles, leather and footwear	2.8	-2.4	1.3	-0.8	2.1	-1.4	1.5	-0.5
Wood, paper and printing	5.4	-1.8	4.1	-2.4	5.1	-1.6	5.2	-3.1
Coke, refined petroleum	4.1	1.7	0.6	-0.6	0.6	-0.3	0.3	-1.0
Chemicals	17.0	1.2	7.1	-0.8	8.0	1.2	13.6	2.9
Pharmaceuticals	10.9	4.7	4.0	1.1	5.2	0.4	2.3	-1.8
Rubber and plastic products	8.1	-0.5	7.3	-1.1	8.1	-1.2	6.7	0.1
Basic metals, metal products	12.0	-2.6	12.3	-0.5	11.7	-0.4	12.2	0.6
Computer and electronics	2.3	-3.1	5.7	-1.3	5.0	-2.3	5.5	-3.0
Electrical equipment	2.6	-1.3	7.3	-0.7	2.6	-1.2	3.2	-2.0
Machinery and equipment	7.0	1.0	15.5	1.5	5.5	-0.3	12.3	4.5
Motor vehicles	7.2	-1.9	21.4	6.7	11.8	1.9	5.7	0.6
Other manufacturing	5.4	1.7	6.4	0.2	13.5	1.9	12.9	1.1
Total Manufacturing	100		100		100		100	

Table 19 Growth rate of real value added of manufacturing by industry
average annual growth rate, 2000-2015, in %

	2000-2014/2015			
	BE	DE	FR	NL
Total Manufacturing	1.4	1.6	0.8	0.7
Food, beverages and tobacco	3.4	-1.1	0.9	-0.2
Textiles, leather and footwear	-3.3	-1.6	-2.9	-1.7
Wood, paper and printing	0.5	-0.3	0.9	-1.4
Coke, refined petroleum	17.2	-7.7	-0.4	2.2
Chemicals	-0.7	0.8	1.3	1.9
Pharmaceuticals	5.9	4.3	3.7	1.7
Rubber and plastic products	0.7	1.3	0.4	0.2
Basic metals, metal products	2.3	0.8	0.2	0.6
Computer and electronics	-4.5	7.9	5.5	4.5
Electrical equipment	-4.2	0.0	-3.3	-3.7
Machinery and equipment	-0.6	0.4	0.3	2.7
Motor vehicles	-0.5	4.2	-0.6	1.5
Other manufacturing	1.1	0.9	0.2	-0.5

	2000-2007				2009-2014/2015			
	BE	DE	FR	NL	BE	DE	FR	NL
Total Manufacturing	2.3	2.6	1.8	2.1	3.0	5.8	1.5	1.5
Food, beverages and tobacco	4.0	-1.1	1.3	-0.8	2.8	1.4	1.9	1.3
Textiles, leather and footwear	1.0	-1.9	-2.2	-1.7	-3.7	2.9	-0.6	0.9
Wood, paper and printing	3.6	-0.3	0.3	-0.1	-1.2	1.7	1.4	-2.0
Coke, refined petroleum	14.6	-6.9	4.7	-0.2	43.5	-4.4	8.4	6.3
Chemicals	-3.6	1.7	0.2	7.3	1.4	4.1	3.6	-1.0
Pharmaceuticals	10.4	7.3	6.8	4.5	3.8	2.2	1.8	1.0
Rubber and plastic products	3.1	1.9	3.1	2.2	-0.1	5.2	-0.3	0.6
Basic metals, metal products	1.7	1.2	0.2	1.7	9.3	6.2	1.1	2.2
Computer and electronics	0.4	11.9	5.9	6.4	-0.1	9.5	7.5	5.6
Electrical equipment	-2.4	-0.7	-2.2	-3.8	-8.0	3.7	-2.5	-0.9
Machinery and equipment	2.9	2.1	3.6	4.8	0.0	4.9	1.1	5.4
Motor vehicles	1.7	5.2	0.5	4.0	2.9	12.6	1.0	4.6
Other manufacturing	-2.4	2.6	1.4	0.6	0.4	2.4	-0.6	-0.5

In 2015, the hierarchy of manufacturing industries in terms of hours worked was slightly different than the hierarchy in terms of value added. In Belgium, the most important industries were Food, Basic metal, Rubber and plastics and Chemicals while in Germany, the order was: Machinery, Basic metals, Motor vehicles and Food. In France, it was Food, Other manufacturing, Basic metals and Rubber and plastics and in the Netherlands, Other manufacturing, Food, Basic metals and Machinery. The concentration of activities in terms of hours worked was also the lowest in Belgium where the top-four industries accounted for 54% of total manufacturing hours worked, 56% in Germany, 63% in France and 64% in the Netherlands.

Over 2000-2015, in the four countries, the relative importance in terms of hours worked decreased for Textiles, Wood and paper and Electrical equipment and increased for Food and Other manufacturing. In Belgium, the relative importance increased the most for Food, Other manufacturing and Pharmaceuticals while the relative importance decreased the most for Textiles, Motor vehicles and Computer.

Over 2000-2015, the annual growth rate of hours worked of total manufacturing was negative in the four countries and the lowest in Belgium. In Belgium, Textiles, Computer and Motor vehicles recorded the most negative growth rate while only two industries succeeded in increasing hours worked: Pharmaceuticals and Other Manufacturing. In Germany, Pharmaceuticals and Machinery also recorded a positive growth rate as Food in France while all industries decreased the hours worked in the Netherlands.

Growth rate remained negative over the post-crisis period in Belgium, France and the Netherlands but turned out to be positive in Germany where 10 out of the 13 manufacturing industries recorded a positive growth rate of hours worked. In the Netherlands, 5 industries were able to increase the hours worked while only Pharmaceuticals succeeded in Belgium and Food in France.

Data information: Eurostat, National accounts. Data for Germany are limited to 2014.

Table 20 Hours worked in manufacturing by industry
share in manufacturing hours worked in 2015 and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2014	2000-2014	2015	2000-2015	2015	2000-2015
Food, beverages and tobacco	18.3	3.3	12.0	0.4	24.2	5.9	15.9	1.1
Textiles, leather and footwear	4.4	-3.5	2.0	-1.3	4.0	-3.2	2.2	-0.9
Wood, paper and printing	8.4	-0.1	6.0	-1.6	7.2	-1.1	6.8	-3.6
Coke, refined petroleum	0.9	0.2	0.2	-0.1	0.3	0.0	0.8	0.1
Chemicals	9.1	0.4	4.9	-0.1	4.1	-0.1	5.8	0.2
Pharmaceuticals	4.9	2.0	1.7	0.3	1.6	0.4	1.7	-0.1
Rubber and plastic products	10.0	0.9	9.4	-0.2	9.3	-0.7	7.0	-0.5
Basic metals, metal products	16.2	-1.1	15.4	0.5	14.6	0.2	14.8	0.6
Computer and electronics	2.1	-1.4	4.5	0.1	3.1	-1.1	3.5	-0.3
Electrical equipment	3.1	-0.8	6.7	-0.1	3.1	-0.5	2.7	-0.4
Machinery and equipment	6.3	0.4	15.4	1.8	6.0	-0.5	11.2	2.1
Motor vehicles	7.5	-3.0	12.9	0.1	7.2	-0.1	5.2	0.0
Other manufacturing	8.7	2.7	8.8	0.2	15.2	0.8	22.4	1.8
Total Manufacturing	100		100		100		100	

Table 21 Growth rate of hours worked in manufacturing by industry
average annual growth rate, 2000-2015, in %

	2000-2014/2015			
	BE	DE	FR	NL
Total Manufacturing	-1.9	-0.5	-1.8	-1.4
Food, beverages and tobacco	-0.6	-0.3	0.0	-1.0
Textiles, leather and footwear	-5.7	-3.9	-5.7	-3.6
Wood, paper and printing	-2.0	-2.2	-2.8	-4.2
Coke, refined petroleum	-0.3	-2.0	-2.3	-0.1
Chemicals	-1.6	-0.7	-2.0	-1.2
Pharmaceuticals	1.6	0.7	0.0	-1.9
Rubber and plastic products	-1.3	-0.7	-2.3	-1.9
Basic metals, metal products	-2.4	-0.3	-1.7	-1.1
Computer and electronics	-5.2	-0.3	-3.9	-1.9
Electrical equipment	-3.3	-0.6	-2.7	-2.4
Machinery and equipment	-1.5	0.4	-2.3	-0.1
Motor vehicles	-4.1	-0.5	-1.9	-1.4
Other manufacturing	0.5	-0.3	-1.5	-0.9

	2000-2007				2009-2014/2015			
	BE	DE	FR	NL	BE	DE	FR	NL
Total Manufacturing	-1.6	-1.1	-1.8	-1.8	-1.1	1.6	-1.1	-0.7
Food, beverages and tobacco	-0.6	-0.5	-0.5	-2.3	-0.6	0.2	1.0	0.1
Textiles, leather and footwear	-5.3	-5.7	-7.4	-5.5	-3.5	-0.3	-2.1	-0.6
Wood, paper and printing	-1.6	-2.6	-2.3	-3.2	-1.4	-0.9	-2.6	-4.6
Coke, refined petroleum	-0.1	-2.8	-2.2	0.3	0.0	-0.8	-1.4	-1.0
Chemicals	-2.0	-1.7	-2.7	-1.6	-0.8	2.2	-0.5	0.2
Pharmaceuticals	2.6	0.6	2.4	-0.3	1.8	2.3	-1.6	-3.9
Rubber and plastic products	-1.0	-1.7	-1.4	-1.7	-1.5	2.1	-1.9	-2.0
Basic metals, metal products	-0.6	-0.4	-1.5	-1.2	-1.9	1.8	-1.3	0.5
Computer and electronics	-4.9	-0.7	-3.8	-2.7	-0.4	1.9	-2.4	-0.9
Electrical equipment	-4.2	-1.2	-3.9	-2.5	-4.2	1.6	-1.3	-0.9
Machinery and equipment	-0.2	-0.3	-1.5	-0.9	-0.9	2.5	-1.8	1.0
Motor vehicles	-3.0	-0.7	-0.7	-2.8	-0.9	2.9	-1.6	0.5
Other manufacturing	-1.4	-1.4	-1.5	-0.8	0.0	0.9	-1.7	-1.1

In 2015, the hierarchy of manufacturing industries in terms of nominal capital stock, the other factor of production, was Pharmaceuticals, Food, Chemicals and Basic metals in Belgium while Motor vehicles replaced Pharmaceuticals in France. In the Netherlands, the four most important manufacturing industries were Chemicals, Food, Basic metals and Machinery and equipment and no detailed information was available for Germany. These four industries accounted for 59% of total fixed assets stock of manufacturing in Belgium against 57% in the Netherlands and 55% in France. At the opposite to what is observed with the hours worked, the Belgian manufacturing appeared to be the most concentrated in terms of capital among the countries of comparison.

Over 2000-2015, in the three countries, the relative importance in terms of capital, decreased for Textiles, Wood and paper, Basic metals and Computer and electronics while it increased for Coke and refined petroleum, Chemicals and Machinery and equipment. In Belgium, the largest increase in the relative importance in terms of capital was recorded by Pharmaceuticals and the largest decrease by Computer and electronics.

Over 2000-2015, the net capital stock in volume of manufacturing decreased in Belgium and, to a lesser extent, in the Netherlands while it was stable in Germany and sligthly increased in France. In Belgium, only two industries recorded an increase in their net capital stock in volume: Pharmaceuticals and Coke and refined petroleum. Two industries recorded a stabilisation: Chemicals and Machinery and equipment. All other industries recorded a decrease in their stock. The most negative growth rates were observed in Computer and electronics, Textiles and Electrical equipment. At the opposite, in France, 9 out of the 13 manufacturing industries succeeded in increasing their capital stock in volume.

Over the pre-crisis period, the growth rate of net capital stock in volume was positive in Belgium, in France and in the Netherlands and became negative over the post-crisis period while it became positive in Germany. In Belgium, the growth rate passed from a positive sign to a negative sign in Wood and paper, Chemicals and Machinery and equipment while it became more negative in Textiles, Rubber and plastics, Basic metals, Computer and electronic, Electrical equipment, Motor vehicles and Other manufacturing. Between the two periods, the growth rate of capital stock only improved in Coke and refined petroleum in Belgium. In the Netherlands, three industries showed an improvement of their growth rate between the two periods and five industries in France.

Data information: Eurostat, National accounts. No detailed information available for Germany.

Table 22 Nominal fixed assets stock of manufacturing by industry
share in manufacturing capital stock in 2015 and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2014	2000-2014	2015	2000-2015	2015	2000-2015
Food, beverages and tobacco	15.5	2.5	:	:	12.4	-0.9	17.1	1.3
Textiles, leather and footwear	2.5	-2.8	:	:	1.4	-0.6	1.3	-0.7
Wood, paper and printing	7.5	-0.9	:	:	5.1	-1.2	7.4	-2.6
Coke, refined petroleum	3.2	1.1	:	:	1.5	0.4	5.0	0.3
Chemicals	14.1	1.2	:	:	9.6	2.0	22.8	2.5
Pharmaceuticals	18.7	11.0	:	:	7.4	2.5	5.2	-0.4
Rubber and plastic products	8.4	-2.0	:	:	6.8	0.2	6.5	0.2
Basic metals, metal products	11.2	-1.9	:	:	11.9	-0.3	8.8	-0.5
Computer and electronics	2.9	-4.8	:	:	10.6	-5.9	4.0	-1.1
Electrical equipment	2.1	-0.9	:	:	2.6	0.6	3.5	0.0
Machinery and equipment	4.0	0.5	:	:	4.2	0.2	8.2	2.9
Motor vehicles	6.9	-2.1	:	:	20.0	2.3	3.9	-0.7
Other manufacturing	2.9	-0.8	:	:	6.5	0.9	6.4	-1.3
Total Manufacturing	100				100		100	

Table 23 Growth rate of net fixed assets stock in volume of manufacturing by industry
average annual growth rate in %

	2000-2015			
	BE	DE	FR	NL
Total Manufacturing	-0.9	0.0	0.2	-0.2
Food, beverages and tobacco	-0.1	:	-0.6	0.4
Textiles, leather and footwear	-6.2	:	-2.5	-3.1
Wood, paper and printing	-1.3	:	-1.1	-1.9
Coke, refined petroleum	1.7	:	1.9	-0.5
Chemicals	0.0	:	1.9	0.8
Pharmaceuticals	4.8	:	2.5	-0.9
Rubber and plastic products	-2.1	:	0.4	0.2
Basic metals, metal products	-1.6	:	0.4	-0.5
Computer and electronics	-7.1	:	-2.6	-2.2
Electrical equipment	-3.1	:	1.8	-0.3
Machinery and equipment	0.0	:	0.5	2.7
Motor vehicles	-2.3	:	1.2	-1.4
Other manufacturing	-2.2	:	0.8	-1.5

	2000-2007				2009-2015			
	BE	DE	FR	NL	BE	DE	FR	NL
Total Manufacturing	0.2	-0.1	0.7	0.0	-1.9	0.1	-0.2	-0.5
Food, beverages and tobacco	0.1	:	-0.4	0.5	0.0	:	-0.8	0.5
Textiles, leather and footwear	-4.7	:	-2.7	-2.7	-7.5	:	-1.6	-3.6
Wood, paper and printing	0.5	:	0.1	-0.6	-3.3	:	-2.3	-3.2
Coke, refined petroleum	0.8	:	1.3	-2.2	2.0	:	2.7	1.3
Chemicals	1.7	:	1.1	1.1	-1.5	:	3.2	0.1
Pharmaceuticals	7.2	:	4.0	0.1	2.4	:	0.2	-2.4
Rubber and plastic products	-0.5	:	1.2	0.9	-3.9	:	-0.1	-0.7
Basic metals, metal products	-0.4	:	1.3	-0.3	-3.1	:	-0.4	-1.1
Computer and electronics	-5.6	:	-3.2	-0.6	-8.6	:	-1.4	-3.3
Electrical equipment	-1.6	:	2.0	-1.1	-5.1	:	1.4	0.7
Machinery and equipment	1.0	:	1.1	1.7	-1.1	:	0.0	4.1
Motor vehicles	-0.1	:	2.9	-1.2	-4.1	:	-0.6	-1.2
Other manufacturing	-2.1	:	0.4	-1.2	-2.6	:	1.1	-2.4

The shift share analysis allows the decomposition of labour productivity growth rate into the contribution of labour productivity growth at industry level, the within effect, the contribution of reallocation of labour input in favour of industries with higher level of productivity, the between or structural effect, and the dynamic effect which takes into account the reallocation of hours worked in favour of industries with the highest labour productivity growth rates.

Over the whole period in the four countries, the labour productivity growth rate of manufacturing was mainly explained by the increase in labour productivity at industry level reinforced by a positive between effect, the hours worked increasing, or decreasing the least, in industries with higher level of labour productivity. Both effects were therefore complementary rather than substitute.

In Belgium and in Germany, the acceleration of labour productivity growth in manufacturing over the post-crisis period in comparison with the pre-crisis period was explained by an increase in both effects: between and within. Not only labour productivity growth increased at industry level but also the structural effect became more positive accelerating the reallocation of resources in favour of the more productive industries.

In France and in the Netherlands, the comparison of the pre-crisis years with the post-crisis period allows light to be shed on the deceleration of labour productivity growth of manufacturing. In France, this deceleration was due to a slowdown in labour productivity growth at industry level coupled with a decrease in the positive between effect. In the Netherlands, the within effect was also less important in the post-crisis period while the between effect played a positive role. However, the dynamic effect was slightly negative, between and within effects being more substitute than complementary.

Data information: Eurostat, National accounts at 2-digit industry level. Data for Germany are limited to 2014. Within effect is estimated with weights based on share in nominal value added and sum with the discrepancy due to aggregation of value added in volume with Laspeyres index. Data for Germany are limited to 2000-2014.

Table 24 Shift share decomposition of manufacturing labour productivity growth
average annual growth rate in %

	Belgium	Germany	France	Netherlands
2000-2015				
Labour productivity	3.4	2.2	2.7	2.1
Within effect	3.1	2.1	2.6	2.1
Between effect	0.2	0.1	0.1	0.1
Dynamic effect	0.0	0.0	0.0	0.0
2000-2007				
Labour productivity	3.9	3.7	3.7	3.9
Within effect	3.7	3.6	3.4	4.0
Between effect	0.2	0.1	0.3	0.0
Dynamic effect	0.0	0.0	0.0	0.0
2009-2015				
Labour productivity	4.2	4.2	2.6	2.2
Within effect	3.9	3.9	2.7	2.1
Between effect	0.3	0.3	0.0	0.2
Dynamic effect	0.0	0.0	0.0	-0.1

3.4. Labour productivity growth in manufacturing by industry

Over the whole period, 2000-2015, labour productivity growth rates of manufacturing industries were much more dispersed in Belgium than in its neighbouring countries. These rates ranged from 18% in Coke and refined petroleum to -1% in Electrical equipment. Besides Coke and refined petroleum, three Belgian industries recorded an average annual growth rate higher than 4%: Basic metals, Pharmaceuticals and Food and beverages. These rates were also the highest among the same industries in the countries of comparison. At the opposite, Belgian performances were relatively poor in Electrical equipment as in France and in the Netherlands and in Other manufacturing as in the Netherlands. Computer and electronics and, to a lesser extent, Chemicals, recorded a labour productivity growth much weaker than in the three other countries but this is due to a statistical problem in the computation of value added in volume rather than to true economic developments.

Over the pre-crisis period, most of manufacturing industries had relatively high labour productivity growth rates in Belgium with eight industries showing rates above 4% and six industries showing the highest rates among the same industries in the countries of comparison. At the opposite, Chemicals and Computer and electronics, for the reason already explained, and Other manufacturing performed worse than the same industries in the three neighbours.

Belgium and Germany, over 2009-2014, were the countries where manufacturing succeeded in accelerating labour productivity growth over the post-crisis period in comparison with the pre-crisis period. However, in Belgium, this acceleration was not a widespread evolution across industries. Only four industries showed such acceleration: Coke and refined petroleum, Chemicals, Basic metals and Other manufacturing, while the other manufacturing industries recorded a deceleration of labour productivity growth. The deceleration was particularly strong in Textiles and Electrical equipment where growth rate became negative after the crisis, but also in Wood, paper and printing, Pharmaceuticals and Machinery and equipment. In comparison with the three neighbouring countries, labour productivity growth rate over 2009-2015 was the lowest in Belgium in seven industries: Textiles, Wood, paper and printing, Rubber and plastics, Computer and electronics, Electrical equipment, Machinery and equipment and Other manufacturing. Labour productivity growth was the highest in Belgium among the four countries in three industries: Food, Coke and refined petroleum and Basic metals.

Data information: Eurostat, National accounts. Data for Germany are limited to 2014.

Table 25 Labour productivity growth in manufacturing by industry - BE, DE, FR, NL
average annual growth rate in %

	BE	DE	FR	NL
2000-2014/2015				
Total Manufacturing	3.4	2.2	2.7	2.1
Food, beverages and tobacco	4.1	-0.9	0.9	0.8
Textiles, leather and footwear	2.6	2.4	2.9	2.0
Wood, paper and printing	2.5	1.9	3.8	2.9
Coke, refined petroleum	17.6	-5.8	1.9	2.4
Chemicals	0.9	1.4	3.4	3.2
Pharmaceuticals	4.3	3.5	3.7	3.7
Rubber and plastic products	2.1	2.0	2.7	2.1
Basic metals, metal products	4.8	1.1	2.0	1.8
Computer and electronics	0.7	8.3	9.7	6.5
Electrical equipment	-0.9	0.7	-0.6	-1.3
Machinery and equipment	1.0	0.1	2.7	2.7
Motor vehicles	3.8	4.7	1.4	3.0
Other manufacturing	0.6	1.2	1.7	0.4
2000-2007				
Total Manufacturing	3.9	3.7	3.7	3.9
Food, beverages and tobacco	4.6	-0.6	1.8	1.5
Textiles, leather and footwear	6.7	4.0	5.6	3.9
Wood, paper and printing	5.3	2.4	2.7	3.2
Coke, refined petroleum	14.8	-4.1	7.1	-0.5
Chemicals	-1.6	3.4	2.9	9.0
Pharmaceuticals	7.6	6.7	4.3	4.8
Rubber and plastic products	4.2	3.7	4.6	3.9
Basic metals, metal products	2.4	1.7	1.7	2.9
Computer and electronics	5.7	12.6	10.1	9.3
Electrical equipment	1.8	0.5	1.7	-1.3
Machinery and equipment	3.0	2.4	5.2	5.8
Motor vehicles	4.8	5.9	1.3	7.0
Other manufacturing	-1.0	4.0	2.9	1.5
2009-2014/2015				
Total Manufacturing	4.2	4.2	2.6	2.2
Food, beverages and tobacco	3.4	1.2	0.9	1.2
Textiles, leather and footwear	-0.2	3.2	1.5	1.6
Wood, paper and printing	0.3	2.6	4.1	2.8
Coke, refined petroleum	43.5	-3.7	9.9	7.3
Chemicals	2.2	1.8	4.1	-1.2
Pharmaceuticals	1.9	-0.1	3.4	5.0
Rubber and plastic products	1.4	3.1	1.7	2.6
Basic metals, metal products	11.4	4.3	2.4	1.7
Computer and electronics	0.3	7.5	10.2	6.5
Electrical equipment	-3.9	2.0	-1.2	0.0
Machinery and equipment	0.9	2.4	3.0	4.4
Motor vehicles	3.9	9.4	2.7	4.0
Other manufacturing	0.4	1.5	1.1	0.6

3.5. Industry contributions to manufacturing labour productivity growth

Over the whole period, 2000-2015, the five most important industries in terms of contribution to manufacturing labour productivity growth are, by decreasing order: Basic metals (contribution of 0.7 pp), Food (0.6 pp), Coke and refined petroleum (0.5 pp), Pharmaceuticals and Motor vehicles (same contribution of 0.4 pp). These five industries in Belgium recorded the highest contribution among the four countries, with the exception of Motor vehicles for which Germany recorded the highest contribution (0.9 pp).

Over the post-crisis period, only three industries increased their contribution to manufacturing labour productivity growth: Basic metals (+1.1 pp), Chemicals (+0.7 pp) and Coke and refined petroleum (+0.4 pp). The other industries decreased their contribution after the crisis. Some industries, with a relatively high contribution over the pre-crisis period, strongly reduced their contribution after the crisis. In Belgium, this was the case of Textiles (-0.4 pp), of Wood, paper and printing (-0.3 pp) and of Pharmaceuticals (-0.3 pp). The contributions of Textiles and Wood, paper and printing were among the highest across the considered countries over the pre-crisis period. It was not more the case over the post-crisis period.

Over the post-crisis period, only one industry in Belgium and one industry in the Netherlands recorded a negative contribution to labour productivity growth. It was Electrical equipment in Belgium and Chemicals in the Netherlands.

Data information: Eurostat, National accounts. Data for Germany are limited to 2014.

Table 26 Industry contributions to manufacturing labour productivity growth – BE, DE, FR, NL
average annual growth rate in % and contribution in pp

	BE	DE	FR	NL
2000-2014/2015				
Total Manufacturing	3.4	2.2	2.7	2.1
Food, beverages and tobacco	0.6	0.0	0.2	0.1
Textiles, leather and footwear	0.2	0.1	0.2	0.1
Wood, paper and printing	0.2	0.1	0.3	0.3
Coke, refined petroleum	0.5	0.0	0.1	0.0
Chemicals	0.0	0.1	0.2	0.3
Pharmaceuticals	0.4	0.1	0.2	0.1
Rubber and plastic products	0.2	0.2	0.3	0.2
Basic metals, metal products	0.7	0.2	0.3	0.3
Computer and electronics	0.0	0.5	0.5	0.3
Electrical equipment	0.0	0.1	0.0	-0.1
Machinery and equipment	0.0	0.0	0.2	0.3
Motor vehicles	0.4	0.9	0.1	0.2
Other manufacturing	0.0	0.1	0.2	0.1
2000-2007				
Total Manufacturing	3.9	3.7	3.7	3.9
Food, beverages and tobacco	0.6	0.0	0.3	0.2
Textiles, leather and footwear	0.4	0.1	0.4	0.1
Wood, paper and printing	0.4	0.2	0.2	0.3
Coke, refined petroleum	0.5	0.0	0.1	0.0
Chemicals	-0.4	0.2	0.1	1.0
Pharmaceuticals	0.7	0.2	0.3	0.2
Rubber and plastic products	0.4	0.3	0.5	0.3
Basic metals, metal products	0.4	0.2	0.2	0.4
Computer and electronics	0.1	0.8	0.5	0.5
Electrical equipment	0.1	0.0	0.0	-0.1
Machinery and equipment	0.2	0.4	0.3	0.5
Motor vehicles	0.5	1.0	0.1	0.4
Other manufacturing	0.0	0.3	0.4	0.2
2009-2014/2015				
Total Manufacturing	4.2	4.2	2.6	2.2
Food, beverages and tobacco	0.5	0.1	0.2	0.2
Textiles, leather and footwear	0.0	0.0	0.1	0.0
Wood, paper and printing	0.1	0.1	0.3	0.2
Coke, refined petroleum	0.9	0.0	0.2	0.1
Chemicals	0.3	0.2	0.3	-0.1
Pharmaceuticals	0.4	0.1	0.1	0.1
Rubber and plastic products	0.1	0.2	0.2	0.2
Basic metals, metal products	1.5	0.5	0.3	0.2
Computer and electronics	0.0	0.5	0.5	0.4
Electrical equipment	-0.1	0.2	0.0	0.0
Machinery and equipment	0.0	0.4	0.2	0.5
Motor vehicles	0.3	1.9	0.2	0.2
Other manufacturing	0.0	0.1	0.2	0.2

3.6. Investment in manufacturing by industry

As already mentioned, over the whole period, investment rate in manufacturing, defined as gross fixed capital formation in percentage of value added, was higher on average in Belgium and in France (24% on average over 2000-2015) than in Germany (19%) and in the Netherlands (18%).

The dispersion of investment rates within manufacturing (grey area) was broader in France and in Belgium than in Germany and in the Netherlands. The strong increase in the dispersion in Belgium in 2015 was due to a single industry, responsible for the increase in investment rate observed in 2015 in the manufacturing as a whole: Pharmaceuticals which more than doubled their investment in 2015. Based on the evolution of the capital stock of Pharmaceuticals by asset[1], the strong increase in investment concerned the asset R&D[2].

In the four countries, the same industries realised the highest (upper bound) and the lowest (lower bound) investment rates. In Belgium, the highest investment rate has been realised by Pharmaceuticals since 2002. Before 2002, it was Computer and electronics. In the three other countries, Pharmaceuticals, Computer and electronics, Electrical equipment and Motor vehicles alternately realised the highest investment rate. In Belgium, the lowest investment rate was alternately realised by several industries: Other manufacturing, Machinery and equipment and Textiles, leather and footwear. With Food, beverages and tobacco, the same industries realised the lowest investment rate in the other countries.

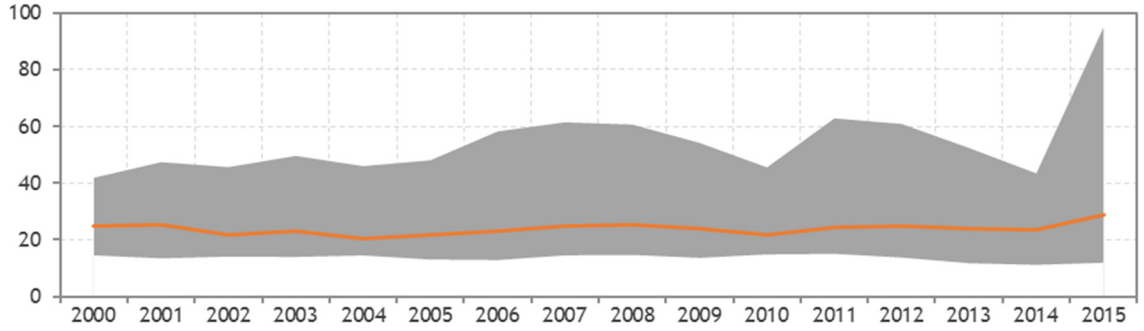
Over the whole period, 2000-2015, Belgium recorded, on average, the highest investment rate among the same industries in the countries of comparison in: Food, beverages and tobacco, Textiles, leather and footwear, Wood, paper and printing, Pharmaceuticals, Rubber and plastic products and in Other manufacturing. Belgium recorded, on average, the lowest investment rate in Chemicals.

Despite high investment rate, two industries in Belgium recorded a decreasing trend in investment rate: Wood, paper and printing and Other manufacturing. By contrast, two industries recorded an increasing trend in investment rate: Food, beverages and tobacco (since 2009) and Pharmaceuticals.

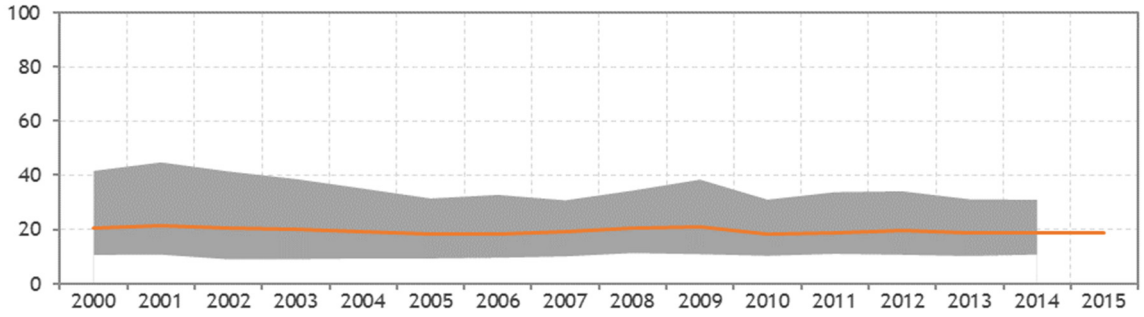
Data information: Eurostat, National accounts. Data by industry for Germany and the Netherlands are limited to 2014. The grey area represents the dispersion of investment rate within manufacturing. The industry Coke, refined petroleum was excluded. Investment rate of an industry is defined as gross fixed capital formation of the industry divided by value added ot the industry.

1 The crossing of data by industry and by asset is only available for stocks, not for GFCF.
2 A major pharmaceutical firm centralised in Belgium all its patents related with vaccines in 2015.

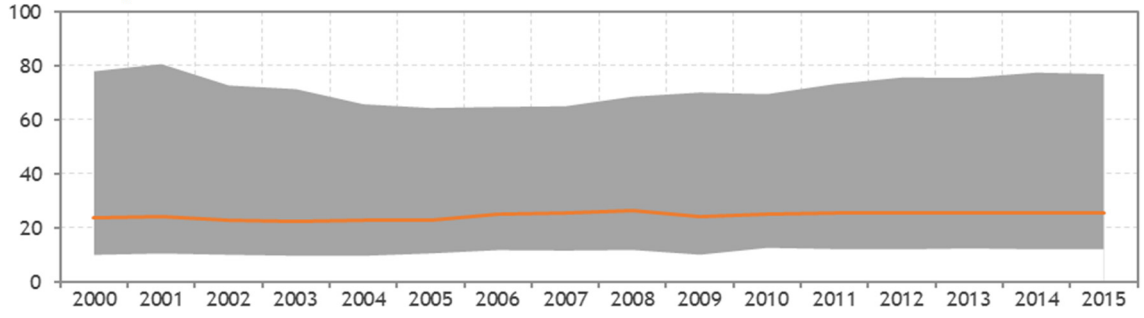
Graph 56 Gross fixed capital formation in manufacturing - BE
% of value added



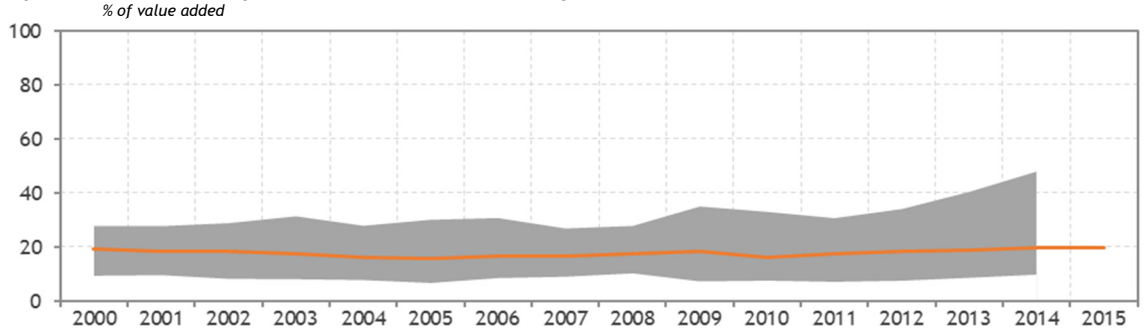
Graph 57 Gross fixed capital formation in manufacturing - DE
% of value added



Graph 58 Gross fixed capital formation in manufacturing - FR
% of value added



Graph 59 Gross fixed capital formation in manufacturing - NL
% of value added



3.7. Profit shares in manufacturing by industry

Over the whole period, the average profit share, calculated as gross operating surplus and mixed income on value added corrected for Other taxes less subsidies on production, in manufacturing reached 40% in Belgium, 36% in Germany and in France and 46% in the Netherlands. In the four countries, the dispersion of profit shares across manufacturing industries was relatively high but France was the country where this dispersion was the most extended.

In Belgium, Germany and France, the same industry, Pharmaceuticals, recorded the highest profit share each year over 2000-2015. The average profit share of Pharmaceuticals was the highest in France, at 67% against 64% in Belgium and Germany. In the Netherlands, the top industry in terms of profit share changed over time from Computer and electronic equipment to Pharmaceuticals and to Chemicals. The average maximum profit share over 2000-2015 reached 66% in the Netherlands.

The industry with the lowest profit share changed over time in Belgium, Germany and France but was always the same in the Netherlands, Other manufacturing which recorded on average a profit share of 24%.

In Belgium, Other manufacturing, Motor vehicles, especially between 2004 and 2008, and Basic metals, especially between 2009 and 2013, were the three industries which occupied the lowest position in terms of profit share. The average lowest profit share over 2000-2015 reached 22% in Belgium as well as in Germany. In this country, Other manufacturing recorded the lowest profit share except in 2011 and 2012 when Food occupied this position. In France, Textiles, Other manufacturing, Chemicals and Electrical equipment successively recorded the lowest profit share. On average over 2000-2015, this lowest share reached 20%.

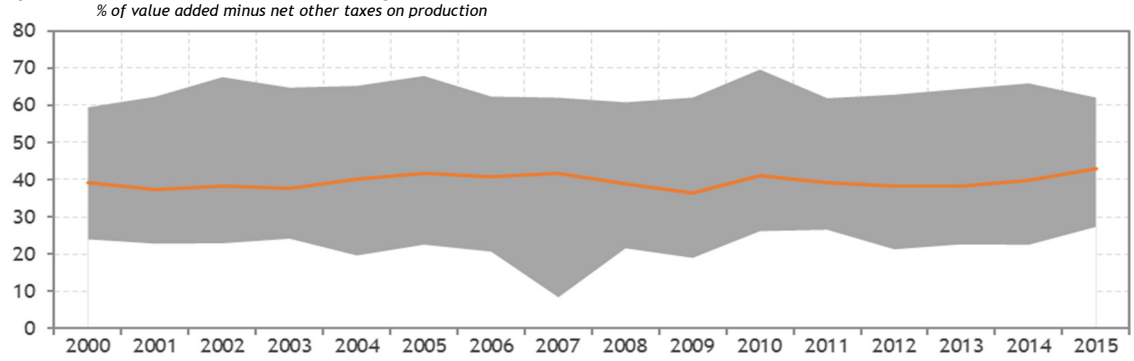
Over the whole period, the average profit shares of Wood and paper and Other manufacturing were the highest in Belgium among the four countries. At the opposite, the lowest average profit shares of Computer and Motor vehicles were in Belgium.

Since the crisis, in Belgium, profit share has strongly declined in Rubber and plastics, in Basic metals and in Wood, paper and printing. Despite a recovery phase observed over 2014-2015, profit share in these three industries remained below the pre-crisis level. At the opposite, two industries recorded an increasing trend of profit share over the whole period: Machinery and equipment and Motor vehicles.

Data information: Eurostat, National accounts.

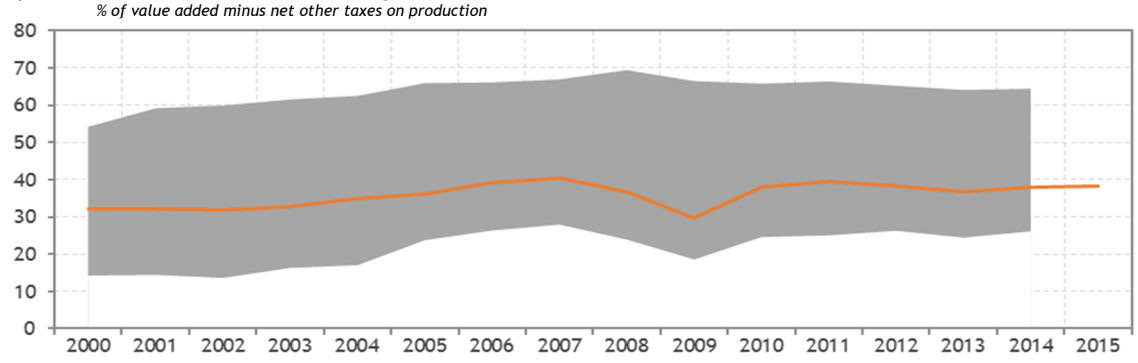
Graph 60 Profit share in manufacturing - BE

% of value added minus net other taxes on production



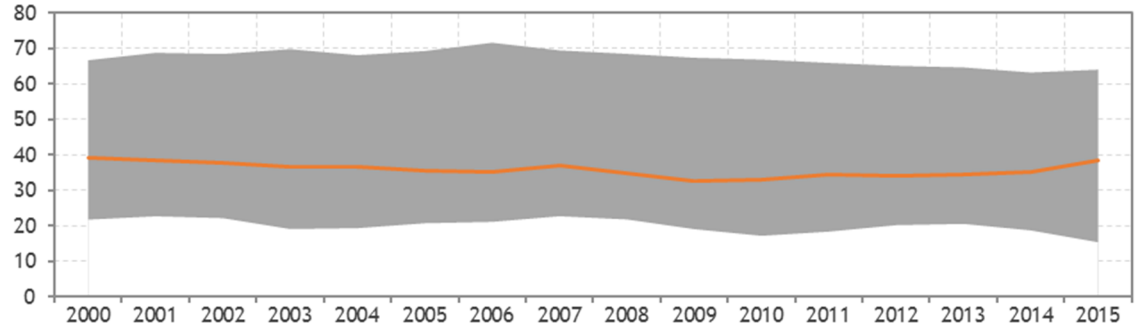
Graph 61 Profit share in manufacturing - DE

% of value added minus net other taxes on production



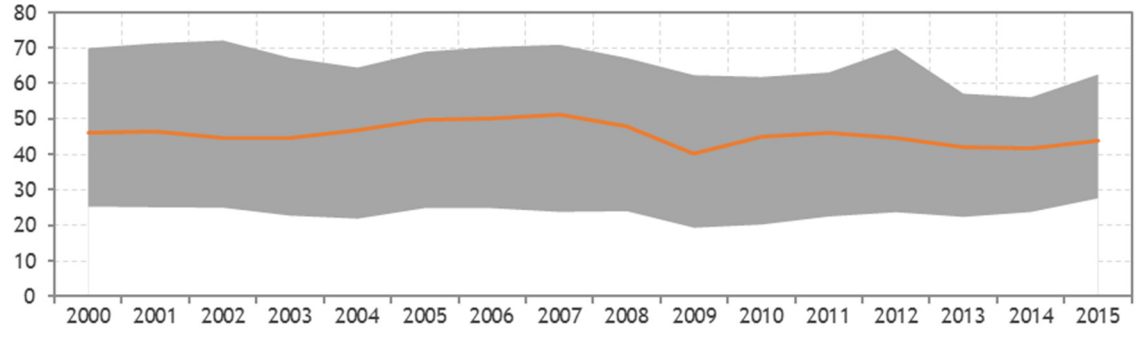
Graph 62 Profit share in manufacturing - FR

% of value added minus net other taxes on production



Graph 63 Profit share in manufacturing - NL

% of value added minus net other taxes on production



4. Market services

Main findings

In comparison with its three neighbouring countries, activities in market services are in Belgium more concentrated. These services have also, on average, a higher profit share and investment rate.

Growth of value added and of hours worked in the Belgian market services over 2000-2015 was higher than the ones observed in the neighbours. However, the slowdown in value added growth over 2009-2015 was also clearly more pronounced in Belgium. Even if labour productivity growth over the whole period was overall in line with the one of the three other countries, the slowdown over the post-crisis period was particularly impressive. The growth accounting decomposition shows that the fall in capital deepening contribution mainly explained this impressive slowdown. The contribution of non-ICT capital became slightly negative while ICT capital deepening contribution remained low but positive. This negative contribution was the result of a positive growth of capital services but lower than the growth of hours worked over the post-crisis period. MFP growth in market services also recorded a slowdown after the crisis.

The four most important market services, in value added terms, are Trade, Legal, accounting and technical services, Finance and insurance and Transportation. These industries have recorded a marked slowdown in their activities since the crisis, except Finance and insurance that has experienced renewed dynamism. The only two other services that have recorded an acceleration of value added growth since the crisis were one industry relevant for the development of the knowledge-based economy, i.e. Scientific R&D, and Administrative and support activities.

Before the crisis, Trade contributed for more than 60% to the labour productivity growth but this contribution strongly decreased after the crisis despite the acceleration of the decline in hours worked in this industry. Only one industry succeeded in increasing its labour productivity growth contribution after the crisis, Finance and insurance: the contraction of hours worked continued in spite of an acceleration in the value added growth rate.

In terms of hours worked, the top-four ranking of services is rather similar, with Finance and insurance replaced by Administrative and support activities. The services voucher mechanism sustained the growth of Administrative and support activities. This industry is characterised by a decrease in labour productivity and has therefore negatively contributed to the labour productivity growth of the overall market services.

Over 2009-2015, only one market service, Informatics, succeeded in positively contributing to labour productivity growth and to increase hours worked. However, Informatics weights less in the Belgian market services than in the three neighbouring countries.

Although the gross fixed capital formation rate remains high in Belgium, the growth rate of net capital stock in volume, once capital depreciation taken into account, has been strongly reduced since the crisis.

4.1. Decomposition of value added growth in market services

As already mentioned, market services in Belgium recorded a decrease in value added growth after the crisis.

In Belgium, Germany and France, capital was the main contributor to value added growth in market services over the pre-crisis period. Belgian market services recorded the highest contribution of capital to value added growth over this period (1.5 pp). The contribution of hours worked in Belgium (0.7 pp) was also higher than the contributions in Germany and the Netherlands. The contribution of MFP (0.6 pp) was equivalent to the contribution in Germany, but largely below the very high contribution in the Netherlands (1.5 pp).

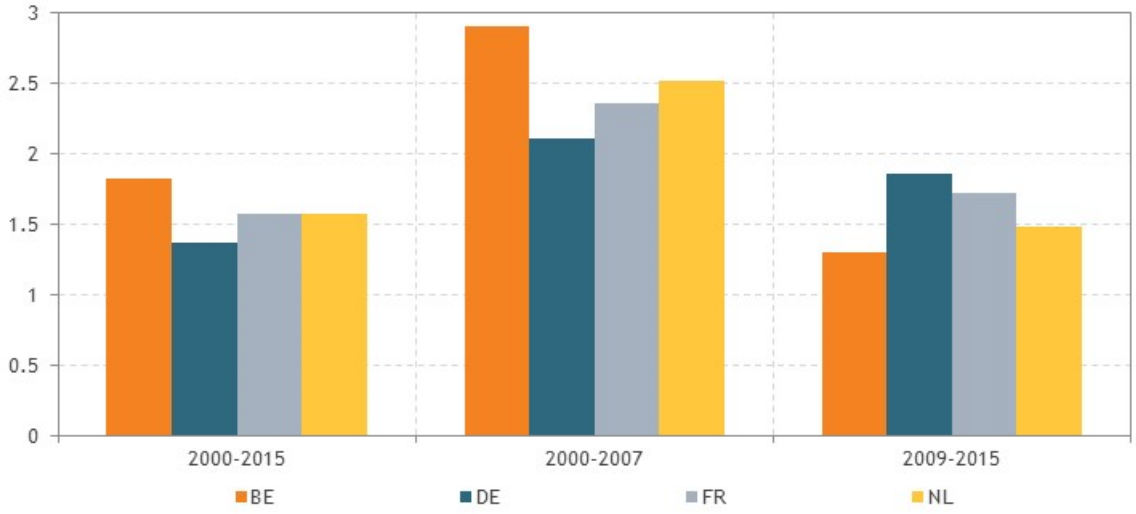
The post-crisis period was characterised by a fall in capital contribution in the four countries. The fall was the strongest in Belgium, with a decrease from 1.5 pp before the crisis to 0.2 pp over the post-crisis period and affected more non-ICT capital. The distinction between ICT and non-ICT capital is not available for the other countries.

Despite a decrease in their contribution, hours worked became the main contributor in Belgium over the post-crisis period (0.5 pp), followed by MFP (0.4 pp). Over this period, the contributions of hours worked were equivalent in Belgium and Germany, between the two other countries.

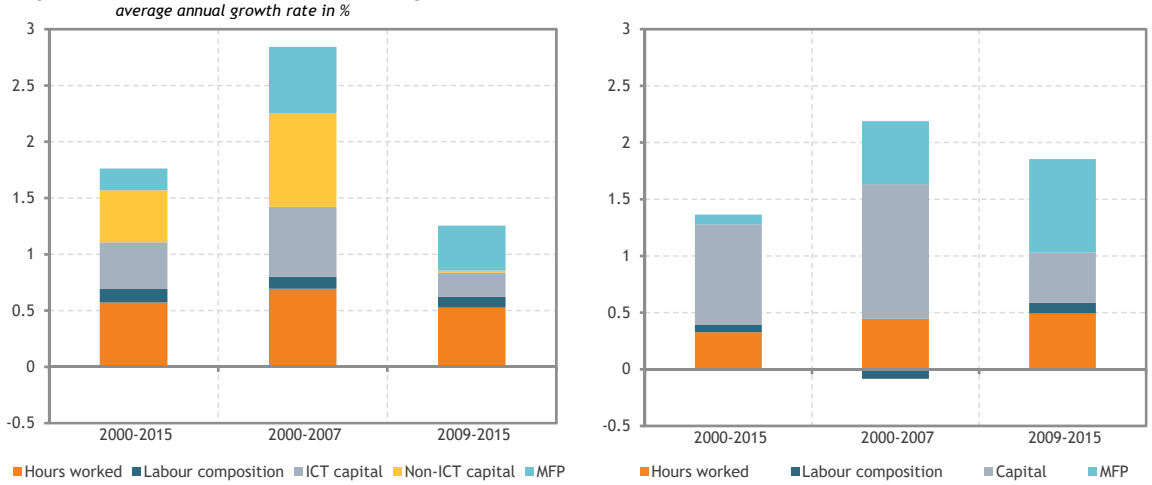
The growth of MFP in Belgium remained below the high growth in the Netherlands and became below the growth in Germany, which managed to increase its MFP growth after the crisis.

Over the two sub-periods, the contribution of labour composition was low and stable in Belgium.

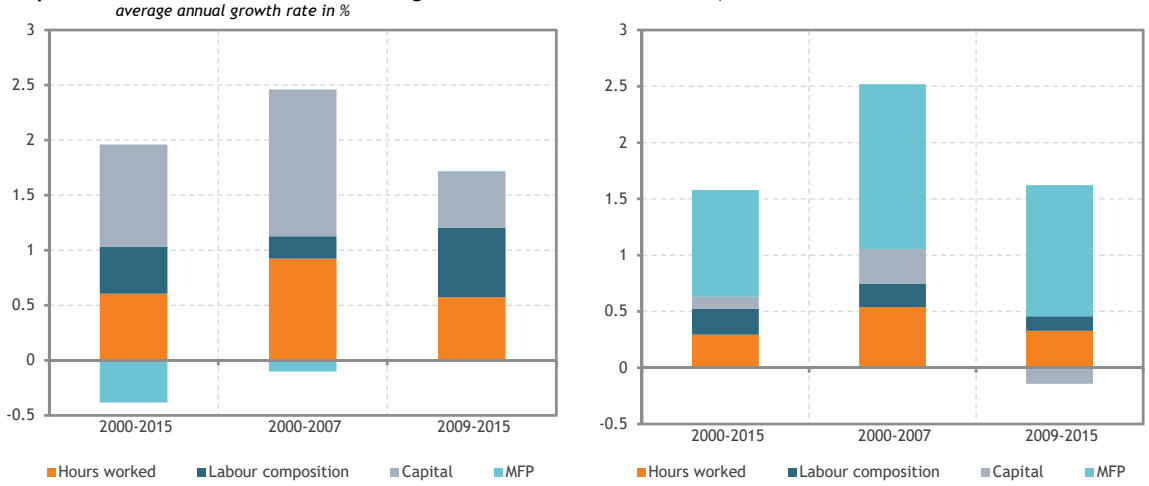
Graph 64 Value added growth in market services - BE, DE, FR, NL
average annual growth rate in %



Graph 65 Contributions to value added growth in market services - BE, DE
average annual growth rate in %



Graph 66 Contributions to value added growth in market services - FR, NL
average annual growth rate in %



4.2. Decomposition of labour productivity growth in market services

Since the crisis, labour productivity growth of market services has been reduced by three-fourths in Belgium and became very low compared with the other countries.

The slowdown of productivity growth in Belgium over the post-crisis period was mainly explained by the fall of capital deepening contribution. Capital deepening contribution in Belgium decreased from 1.0 pp over the pre-crisis period to -0.1 pp over the post-crisis period. The negative contribution came from the non-ICT capital, ICT capital deepening contribution remaining low but positive. This negative contribution was the result of a positive growth of capital services but lower than the growth of hours worked over the post-crisis period.

The other countries also experienced a decrease in the contribution of capital deepening, but the contribution of capital deepening remained positive in Germany and in France. In the Netherlands, the negative contribution was due to a decrease in capital services after the crisis.

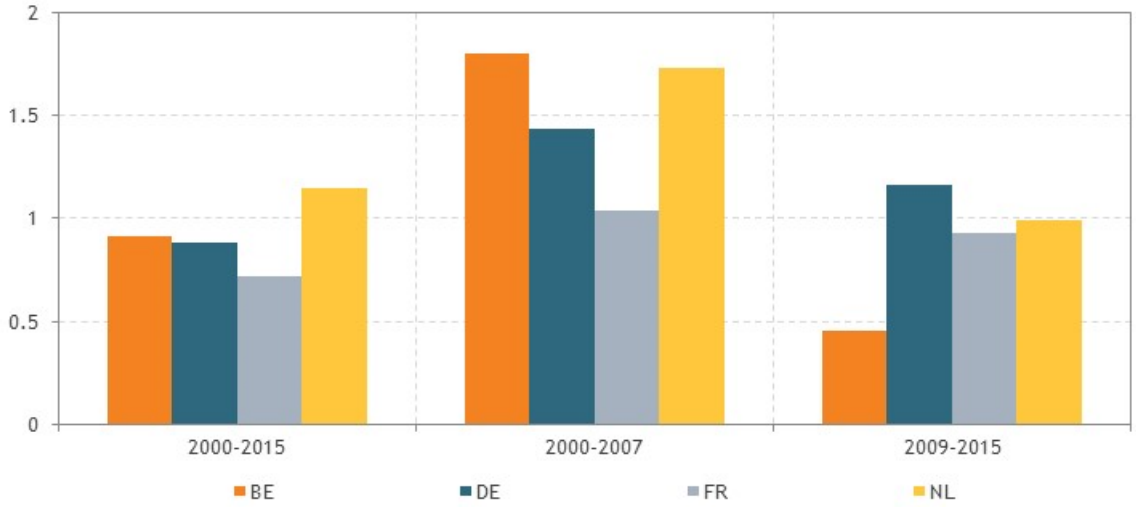
In Belgium and in the Netherlands, MFP growth in market services also recorded a slowdown after the crisis. However, despite this slowdown, MFP growth in the Netherlands remained largely higher than in the three other countries. MFP growth in Belgium was also broadly lower than in Germany, which managed to increase its MPF growth over the post-crisis period.

Over the two sub-periods, the contribution of labour composition was low but stable in Belgium.

Data information: the growth accounting exercise is realised with EUKLEMS database. In this database, variables in volume are aggregated using a Törnqvist index (growth rate are in logarithm), contrary to National accounts which use a Laspeyres index. The input measures correspond to the flow of services delivered by various categories of capital and labour, allowing to take into account the quality changes in capital and labour (labour composition). The contribution of labour composition is the difference between the increase in the volume index of labour services and the increase in the numbers of hours worked, weighted by the labour share in nominal value added. MFP is the residual component from the growth decomposition.

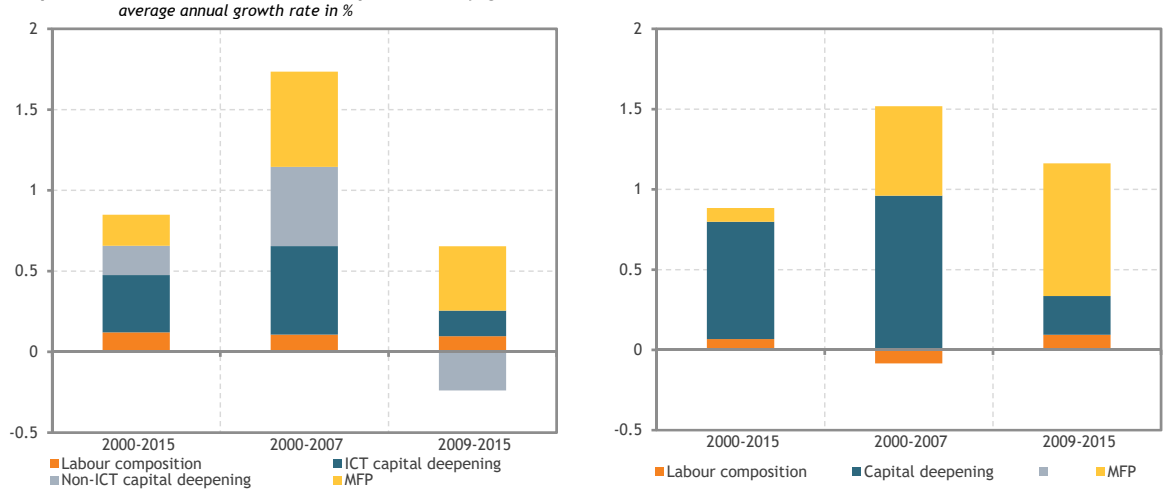
Graph 67 Labour productivity growth in market services - BE, DE, FR, NL

average annual growth rate in %



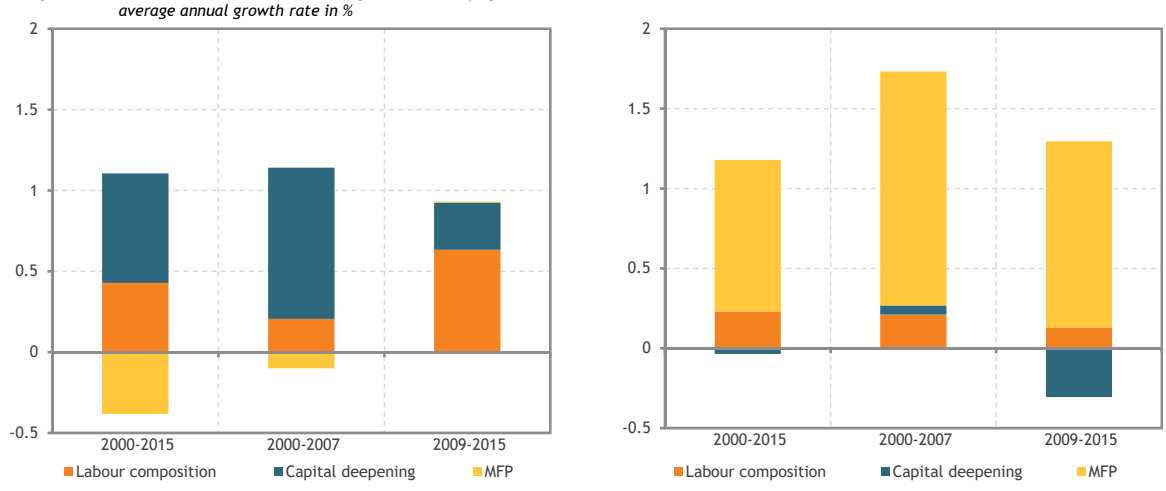
Graph 68 Contributions to labour productivity growth in market services - BE, DE

average annual growth rate in %



Graph 69 Contributions to labour productivity growth in market services - FR, NL

average annual growth rate in %



4.3. Structural changes in market services

In 2015, in the four countries, the largest market service in terms of nominal value added was Trade. In Belgium, it was followed by Legal and accounting activities, Finance and insurance and Transportation. The same activities were also present in the top-four of the neighbouring countries with Administrative and support activities replacing Finance and insurance in France and Germany, and Transportation in the Netherlands. Contrary to what was observed in manufacturing, the degree of concentration of activities was the highest in Belgium with the four largest services representing 74% of total maket services value added against 72% in the Netherlands, 66% in Germany and 63% in France.

Over 2000-2015, in the four countries, Informatics increased its importance while Trade, Publishing and broadcasting, Telecommunications and Advertising reduced their share in total market services value added. In addition to Informatics, the other largest increase in share of value added occurred for Legal and accounting activities in Belgium and in France.

The average annual growth rate of total market services real value added was the highest in Belgium over the period 2000-2015. In the four countries, the highest growth rates were recorded by Informatics and Telecommunications except in Belgium where Scientific R&D replaced Telecommunications. Over the whole period, any negative growth rate was recorded in market services in Belgium and in France contrary to what was observed in the two other countries with a negative growth for four services in Germany and two in the Netherlands.

Over the post-crisis period, however, the growth rate of real value added of Belgian market services was the lowest among the countries of comparison, Germany taking the lead with a large growth rate in Informatics and, to a lesser extent, in Administrative and support activities. Accommodation and food and Telecommunications recorded a negative growth rate in Belgium. For all market services in Belgium, the growth rate of real value added was lower over the post-crisis period than over the period before the crisis, except for Finance and insurance, Scientific R&D and Administrative and support activities, for which the growth rate increased.

Data information: Eurostat, National accounts. Data for Germany are limited to 2014.

Table 27 Nominal value added of 2015 market services by industry and evolution 2000-2015
share in market services nominal value added and evolution of the share, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2014	2000-2014	2015	2000-2015	2015	2000-2015
Trade	28.0	-0.4	27.3	-1.3	24.9	-3.1	29.0	-1.7
Transport	12.4	-2.7	12.6	0.8	12.0	0.5	11.1	-0.4
Accommodation and food	4.3	0.2	4.2	-0.3	7.0	0.5	3.8	-0.5
Publishing and broadcasting	1.9	-0.5	3.2	-0.6	3.2	-0.2	1.7	-0.7
Telecommunications	3.1	-1.1	2.8	-1.8	3.0	-1.0	2.5	-1.0
Informatics	4.5	1.4	7.4	3.0	6.4	0.5	5.8	1.6
Finance and insurance	14.3	-1.2	11.7	-0.7	11.2	0.7	15.4	0.9
Legal, accounting and technical	19.1	3.8	12.0	-1.4	12.4	3.3	13.7	0.0
Scientific R&D	1.0	0.4	2.1	0.3	4.3	-0.1	1.0	0.0
Advertising	1.5	-0.4	2.6	-1.0	2.0	-0.2	2.1	-0.1
Administrative and support	9.8	0.4	14.2	2.9	13.6	-0.9	13.8	1.9
Total Market Services	100		100		100		100	

Table 28 Growth rate of real value added of market services by industry
average annual growth rate, 2000-2015, in %

	2000-2014/15			
	BE	DE	FR	NL
Total Market Services	1.8	1.4	1.6	1.6
Trade	1.5	1.8	1.1	1.8
Transport	0.3	1.8	1.1	1.8
Accommodation and food	0.2	-0.7	0.6	-1.7
Publishing and broadcasting	1.0	-0.3	1.3	-1.4
Telecommunications	1.7	3.6	6.9	3.3
Informatics	4.7	7.8	3.6	5.0
Finance and insurance	1.3	-1.7	2.2	1.2
Legal, accounting and technical	3.6	0.1	2.5	1.0
Scientific R&D	4.8	2.1	1.3	0.7
Advertising	2.4	-1.2	2.1	1.1
Administrative and support	1.6	2.2	0.0	2.0

	2000-2007				2009-2014/15			
	BE	DE	FR	NL	BE	DE	FR	NL
Total Market Services	2.9	2.2	2.4	2.6	1.3	1.9	1.8	1.5
Trade	3.4	3.5	1.7	2.6	0.4	1.4	1.3	2.6
Transport	0.7	3.9	2.0	3.0	0.0	0.1	1.5	2.0
Accommodation and food	2.0	-0.4	0.7	-1.7	-0.2	0.8	1.2	0.3
Publishing and broadcasting	0.5	-0.1	3.1	0.4	0.5	-0.1	1.2	-2.8
Telecommunications	5.0	4.9	10.3	8.4	-2.3	1.4	5.3	-1.0
Informatics	5.6	8.4	4.4	5.4	3.8	9.1	3.3	5.5
Finance and insurance	0.9	-3.5	2.0	3.2	2.4	1.6	1.9	-1.3
Legal, accounting and technical	4.8	2.1	3.7	1.0	2.0	0.0	2.5	1.3
Scientific R&D	3.0	1.7	0.1	0.2	3.4	2.5	2.0	1.4
Advertising	5.2	-2.0	2.1	1.5	2.0	1.7	2.8	1.5
Administrative and support	3.0	2.6	1.4	2.4	3.2	4.0	0.5	2.8

In 2015, in terms of hours worked as in terms of value added, the most important market service was Trade in the four countries. In Belgium, it was followed by Legal and accounting activities, Administrative and support activities and Transport. These three services were also the most important services in the three neighbouring countries. The concentration of activities in terms of hours worked was also the highest in Belgium where these four services accounted for 79% of total market services hours worked, 74% in the Netherlands, 72% in Germany and 69% in France.

Over 2000-2015, in the four countries, the relative importance in terms of hours worked decreased the most for Trade. In Belgium and in Germany, the relative importance increased the most for Legal and accounting activities and for Administrative and support activities while in France, it was for Legal and accounting activities and Informatics and in the Netherlands, for Administrative and support activities and Informatics.

Over 2000-2015, the average annual growth rate of hours worked of total market services was positive in the four countries and the highest in Belgium. Informatics and Scientific R&D were the two Belgian services which recorded the highest growth rate while Financial services and Telecommunications recorded the largest contraction rate. Over the whole period, in the four countries, the growth rate was negative for Telecommunications and positive for Informatics, Legal and accounting activities, Scientific R&D, Advertising and Administrative and support activities.

Over the post-crisis period, growth rate of hours worked remained positive in the four countries and still the highest, even if it decreased, in Belgium. Administrative and support activities and Scientific R&D recorded the highest growth rates in Belgium and in Germany, Advertising and Informatics in France and Administrative and support activities and Accommodation and food in the Netherlands. At the opposite, Trade and Telecommunications still recorded negative rates in the four countries.

Data information: Eurostat, National accounts. Data for Germany are limited to 2014.

Table 29 Hours worked in market services by industry
share in market services hours worked in 2015 and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2014	2000-2014	2015	2000-2015	2015	2000-2015
Trade	26.6	-5.7	32.6	-5.4	30.4	-2.1	30.4	-2.7
Transport	11.4	-3.0	12.3	-0.4	11.5	-1.1	9.8	-1.4
Accommodation and food	6.6	-1.1	9.4	-0.6	10.2	0.5	7.5	0.3
Publishing and broadcasting	1.1	-0.2	1.8	-0.3	1.8	-0.2	1.4	-0.5
Telecommunications	1.2	-0.4	0.8	-0.7	0.9	-0.5	0.8	-0.8
Informatics	3.2	1.2	4.9	1.5	4.5	0.6	5.3	1.5
Finance and insurance	5.6	-2.0	7.3	-1.7	6.9	0.2	5.9	-1.6
Legal, accounting and technical	24.5	5.8	12.1	2.9	10.6	2.1	12.4	1.3
Scientific R&D	0.6	0.2	1.2	0.3	3.9	0.2	0.9	0.1
Advertising	2.2	0.3	2.5	0.4	2.5	-0.2	3.7	0.6
Administrative and support	16.9	5.0	15.1	3.8	16.7	0.5	21.8	3.2
Total Market Services	100		100		100		100	

Table 30 Growth rate of hours worked in market services by industry
average annual growth rate, 2000-2014/15, in %

	2000-2014/15			
	BE	DE	FR	NL
Total Market Services	0.9	0.4	0.9	0.4
Trade	-0.4	-0.6	0.4	-0.2
Transport	-0.6	0.2	0.2	-0.5
Accommodation and food	-0.1	0.0	1.2	0.7
Publishing and broadcasting	-0.1	-0.5	0.1	-1.7
Telecommunications	-1.0	-4.0	-2.2	-4.1
Informatics	3.9	3.2	1.9	2.7
Finance and insurance	-1.1	-1.0	1.1	-1.2
Legal, accounting and technical	2.7	2.5	2.4	1.1
Scientific R&D	3.6	2.6	1.3	0.8
Advertising	1.8	1.7	0.4	1.7
Administrative and support	3.3	2.5	1.0	1.5

	2000-2007				2009-2014/15			
	BE	DE	FR	NL	BE	DE	FR	NL
Total Market Services	1.1	0.7	1.3	0.8	0.8	0.6	0.8	0.4
Trade	-0.1	-0.8	1.0	0.4	-0.4	-0.2	-0.2	-0.3
Transport	-0.6	0.2	0.9	0.0	-1.2	0.8	-0.1	-0.7
Accommodation and food	-0.9	0.0	1.5	0.5	1.2	-0.1	1.2	1.9
Publishing and broadcasting	0.8	-0.6	0.4	-1.5	-1.0	-0.4	-0.1	-1.7
Telecommunications	-0.9	-1.4	-1.4	-5.1	-1.1	-6.3	-3.2	-2.2
Informatics	3.6	4.3	1.6	2.6	2.3	2.5	2.5	2.2
Finance and insurance	-1.4	-1.2	1.4	-0.3	-1.0	-0.7	0.9	-2.2
Legal, accounting and technical	3.7	3.3	2.7	2.0	1.6	1.5	2.3	-0.2
Scientific R&D	3.4	2.0	1.2	0.1	3.4	4.1	0.7	0.9
Advertising	1.0	3.4	-1.0	1.7	2.5	0.6	2.7	1.7
Administrative and support	4.1	3.8	2.2	1.9	3.9	2.7	1.7	2.3

In 2015, in terms of nominal fixed assets stock, the most important market service was Transport in the four countries of comparison. It was followed by Trade, Finance and insurance and Legal, accounting and technical activities in Belgium, by Administrative and support activities, Trade and Finance and insurance in Germany, by Trade, Scientific R&D and Finance and insurance in France and by Trade, Finance and insurance and Administrative and support activities in the Netherlands. These four services accounted for 78% of total market services capital in Germany, 76% in Belgium and in the Netherlands but only 61% in France, the least concentrated country.

Over 2000-2015, the relative importance of Publishing and broadcasting, Informatics and Legal, accounting and technical activities increased in all countries while Advertising decreased its relative importance measured by the share in market services nominal capital. In Belgium, the relative importance increased the most for Legal, accounting and technical activities, Trade and Scientific R&D and decreased the most for Transport, Finance and insurance and Telecommunications.

Over 2000-2015, the average annual growth rate of net fixed assets stock in volume was the largest in France, followed by Belgium, Germany and the Netherlands. Informatics and Legal, accounting and technical activities were market services in the top four services with the highest growth rate in all countries of comparison. They were accompanied by Scientific R&D and Publishing and broadcasting in Belgium. The average annual growth rate was positive for each market services in France while a negative growth rate was recorded by Finance and insurance in Belgium, Germany and the Netherlands.

Over the post-crisis period in comparison with the pre-crisis period, the growth rate of net fixed assets stock in volume in market services decreased in the four countries but became negative only in the Netherlands. This deceleration of the growth was visible in each market services in France (except in Scientific R&D) and in the Netherlands. In Belgium, three services increased their growth rate over 2009-2015 in comparison to 2000-2007: Telecommunications, Informatics and Scientific R&D. In Germany, it was the case in Trade, Accommodation and food and Finance and insurance.

Data information: Eurostat, National accounts. Detailed information not available for Germany.

Table 31 Nominal net fixed assets stock in market services by industry
share in market services capital stock in 2015 and variation of this share 2000-2015, %

	Belgium		Germany		France		Netherlands	
	2015	2000-2015	2015	2000-2015	2015	2000-2015	2015	2000-2015
Trade	20.4	2.8	15.9	-1.8	14.4	-2.2	20.0	-1.4
Transport	36.5	-5.8	30.0	3.9	21.4	-0.3	33.6	7.6
Accommodation and food	3.8	-0.5	3.8	-0.3	5.3	-0.4	2.6	0.1
Publishing and broadcasting	1.5	0.6	:	:	3.6	0.1	1.2	0.0
Telecommunications	3.6	-0.8	:	:	6.4	0.8	8.0	-2.6
Informatics	2.3	1.1	:	:	5.2	1.2	2.3	0.7
Finance and insurance	9.7	-2.9	10.9	-3.1	12.1	2.0	14.3	-6.2
Legal, accounting and technical	9.6	3.7	:	:	7.8	2.4	5.0	0.8
Scientific R&D	2.3	1.3	:	:	12.9	-2.0	3.9	0.5
Advertising	1.4	-0.2	:	:	1.1	-0.1	1.2	0.0
Administrative and support	8.8	0.7	19.9	2.3	9.7	-1.6	8.0	0.5
Total Market Services	100		100		100		100	

Table 32 Growth rate of net fixed assets stock in volume market services by industry
average annual growth rate, 2000-2015, in %

	2000-2015			
	BE	DE	FR	NL
Total Market Services	1.3	1.3	2.4	0.2
Trade	2.3	0.3	0.8	-0.2
Transport	0.2	1.9	2.2	1.6
Accommodation and food	0.5	0.2	0.8	0.3
Publishing and broadcasting	4.2	:	3.0	0.8
Telecommunications	0.8	:	3.2	-1.8
Informatics	6.4	:	5.2	3.8
Finance and insurance	-0.5	-0.7	3.5	-2.1
Legal, accounting and technical	4.8	:	5.0	1.9
Scientific R&D	6.5	:	2.2	0.8
Advertising	0.3	:	2.2	0.4
Administrative and support	2.0	2.6	2.0	1.5

	2000-2007				2009-2015			
	BE	DE	FR	NL	BE	DE	FR	NL
Total Market Services	2.2	1.7	3.2	0.6	0.5	0.8	1.7	-0.4
Trade	3.3	-0.4	1.5	0.6	1.0	1.1	0.2	-1.1
Transport	1.0	2.6	2.7	1.3	-0.3	1.0	1.8	1.2
Accommodation and food	0.9	-0.9	1.0	1.1	-0.5	1.6	1.0	-0.8
Publishing and broadcasting	5.3	:	4.2	1.2	2.4	:	1.8	-0.1
Telecommunications	0.1	:	4.3	-0.9	1.1	:	2.3	-2.6
Informatics	6.1	:	6.1	4.2	7.5	:	3.9	3.2
Finance and insurance	0.3	-1.5	5.0	-2.1	-1.2	0.4	2.0	-2.4
Legal, accounting and technical	6.2	:	6.4	2.8	3.0	:	3.7	0.6
Scientific R&D	6.7	:	1.8	0.9	8.8	:	2.4	0.3
Advertising	1.9	:	3.8	2.2	-1.7	:	0.9	-1.9
Administrative and support	4.6	5.3	4.3	4.2	-0.4	-0.2	-0.2	-0.5

The shift share analysis over the whole period shows the importance of labour productivity growth at industry level to explain total market services labour productivity growth in the four studied countries. This is particularly the case for Belgium and France where between and dynamic effects were zero. In Germany, the growth at industry level was reinforced by a positive allocation of labour as between effect was positive while it was the contrary in the Netherlands where the increase in hours worked occurred in services with a relatively lower productivity level.

The relatively strong decrease in labour productivity growth rate of the Belgian market services over the post-crisis period in comparison to the pre-crisis period was exclusively due to the slowdown recorded at industry level. Indeed, between effect was zero in the pre-crisis period and was slightly positive over the post-crisis period contributing to the labour productivity growth. At the opposite, between effect slightly decreased over the two periods in France. In Germany, the slowdown in labour productivity growth of market services was mainly caused by the decrease of the positive between effect, the reduction of within effect being limited to 0.1 ppt. In the Netherlands, the main explanation of the reduction in the productivity growth was the slowdown in within effect over the two periods as the slightly negative dynamic effect of the pre-crisis period was replaced by a slightly negative between effect in the post-crisis period.

Data information: Eurostat, National accounts at 2-digit industry level. Data for Germany are limited to 2014. Within effect is estimated with weights based on share in nominal value added and sum with the discrepancy due to aggregation of value added in volume with Laspeyres index. Data for Germany are limited to 2014.

Table 33 Shift share decomposition of market services labour productivity growth
average annual growth rate in %

	Belgium	Germany	France	Netherlands
2000-2014/15				
Labour productivity	1.3	1.2	0.7	1.5
Within effect	1.3	1.1	0.8	1.6
Between effect	0.0	0.3	0.0	-0.1
Dynamic effect	0.0	0.0	0.0	0.0
2000-2007				
Labour productivity	2.2	2.0	1.1	2.0
Within effect	2.2	1.5	1.1	2.2
Between effect	0.0	0.6	0.0	0.0
Dynamic effect	0.0	0.0	0.0	-0.1
2009-2014/15				
Labour productivity	1.0	1.6	1.0	1.6
Within effect	0.9	1.4	1.2	1.7
Between effect	0.1	0.2	-0.1	-0.1
Dynamic effect	0.0	0.0	0.0	0.0

4.4. Labour productivity growth in market services by activity

Over 2000-2015, the average annual growth rate of labour productivity in market services was the highest in the Netherlands followed by Germany and Belgium. In the four countries, Telecommunications were the market service which recorded the highest growth rate. However, in comparison with the three neighbouring countries, this rate was relatively weak in Belgium. Finance and insurance recorded the second largest increase in Belgium and in the Netherlands while this position was occupied by Informatics in Germany and Advertising in France. Only one market service, Administrative and support activities, showed a negative labour productivity growth rate in Belgium against six market services in Germany, four in the Netherlands and two in France.

Over the pre-crisis period, labour productivity growth in Belgian market services was comparable to the Dutch one and above the German and French growth. Among market services, in the four countries, Telecommunications recorded the highest growth, followed by Advertising and Trade in Belgium, Informatics and Trade in Germany, Advertising and Informatics in France and Finance and insurance and Transport in the Netherlands. Administrative and support activities, Scientific R&D and Publishing and broadcasting recorded negative labour productivity growth in Belgium. In comparison with the three neighbouring countries, labour productivity growth rate in market services over the pre-crisis period was the lowest in Belgium in three industries: Publishing, Telecommunications and Informatics and the highest in two industries: Accommodation and food and Advertising.

The deceleration of labour productivity growth in market services over the post-crisis period in comparison with the pre-crisis period was visible in the four countries but was particularly strong in Belgium which showed the lowest growth rate. In Belgium, this deceleration was particularly marked in Trade, Telecommunications, Advertising and Accommodation and food, the labour productivity growth rate becoming even negative in these three last industries. At the opposite, Publishing and broadcasting, Finance and insurance and Scientific R&D improved their growth rate. Administrative and support remained negative over the two sub-periods.

In comparison with the three neighbouring countries, labour productivity growth rate in market services over 2009-2015 was the lowest in Belgium in three industries: Trade, Telecommunications and Advertising and the highest in two industries: Publishing and broadcasting and Finance and insurance.

Data information: Eurostat, National accounts. Data for Germany limited are to 2014.

Table 34 Labour productivity growth in market services by industry - BE, DE, FR, NL
average annual growth rate in %

	Belgium	Germany	France	Netherlands
2000-2014/2015				
Total Market services	0.9	0.9	0.7	1.2
Trade	1.9	2.4	0.7	2.0
Transport	0.9	1.6	0.8	2.3
Accommodation and food	0.3	-0.7	-0.6	-2.3
Publishing and broadcasting	1.2	0.3	1.1	0.3
Telecommunications	2.8	8.0	9.2	7.7
Informatics	0.7	4.4	1.6	2.2
Finance and insurance	2.4	-0.7	1.1	2.5
Legal, accounting and technical	0.8	-2.3	0.1	-0.1
Scientific R&D	1.2	-0.5	0.0	-0.1
Advertising	0.6	-2.9	1.7	-0.5
Administrative and support	-1.6	-0.3	-1.0	0.5
2000-2007				
Total Market services	1.8	1.5	1.1	1.8
Trade	3.6	4.3	0.7	2.2
Transport	1.3	3.7	1.2	3.0
Accommodation and food	2.9	-0.4	-0.8	-2.1
Publishing and broadcasting	-0.3	0.5	2.7	1.9
Telecommunications	5.9	6.3	11.9	14.1
Informatics	1.9	3.9	2.8	2.8
Finance and insurance	2.4	-2.3	0.6	3.5
Legal, accounting and technical	1.0	-1.3	1.0	-1.0
Scientific R&D	-0.4	-0.3	-1.1	0.1
Advertising	4.2	-5.2	3.2	-0.2
Administrative and support	-1.1	-1.2	-0.8	0.5
2009-2014/2015				
Total Market services	0.4	1.2	1.0	1.1
Trade	0.8	1.6	1.5	2.9
Transport	1.2	-0.7	1.5	2.7
Accommodation and food	-1.4	0.9	0.0	-1.6
Publishing and broadcasting	1.6	0.3	1.3	-1.1
Telecommunications	-1.2	8.2	8.8	1.2
Informatics	1.4	6.5	0.8	3.2
Finance and insurance	3.4	2.3	1.0	1.0
Legal, accounting and technical	0.4	-1.6	0.2	1.5
Scientific R&D	0.1	-1.6	1.3	0.4
Advertising	-0.5	1.1	0.1	-0.2
Administrative and support	-0.7	1.2	-1.2	0.5

4.5. Industry contributions to market services labour productivity growth

As already mentioned, Belgian market services experienced over the post-crisis period 2009-2015 a stronger fall of labour productivity growth than in the comparison countries. Trade was responsible for a large part of this deceleration. Indeed, its contribution to labour productivity growth of market services decreased from 1.1 pp before the crisis to 0.2 pp after the crisis. Before the crisis, it was the sector with the highest contribution in Belgium. In Germany, Trade also recorded a decline in its contribution by 0.9 pp between the pre- and post-crisis period. In Belgium, three other industries also recorded a deceleration of their contribution to market services productivity growth: Accommodation and food (0.2 pp decline), Telecommunications (0.3 pp decline) and Advertising (0.1 pp decline). Only one service accelerated its contribution. It was Finance and insurance, which doubled its contribution. This industry also experienced an increase in its contribution in Germany over the post-crisis period.

Before the crisis, the contribution of Accommodation and food in Belgium was above the contribution in the three other countries. By contrast, Telecommunications recorded the lowest contribution among the countries of comparison. It was also the case of Administrative and support activities, which recorded in Belgium the strongest negative contribution.

Over the post-crisis period, these two industries plus Trade and Legal, accounting and technical services recorded the lowest contribution to market services labour productivity growth among the four countries. At the opposite, Belgian Finance and insurance recorded the strongest contribution.

Data information: Eurostat, National accounts. Data for Germany limited are to 2014.

Table 35 Industry contributions to labour productivity growth in market services - BE, DE, FR, NL
average annual growth rate in % and contribution in pp

	Belgium	Germany	France	Netherlands
2000-2014/2015				
Total Market services	0.9	0.9	0.7	1.2
Trade	0.6	0.7	0.2	0.6
Transport	0.1	0.2	0.1	0.2
Accommodation and food	0.0	0.0	-0.1	-0.1
Publishing and broadcasting	0.0	0.0	0.0	0.0
Telecommunications	0.1	0.2	0.3	0.2
Informatics	0.1	0.3	0.1	0.1
Finance and insurance	0.3	-0.1	0.1	0.2
Legal, accounting and technical	0.0	-0.2	0.1	0.0
Scientific R&D	0.0	0.0	0.0	0.0
Advertising	0.0	-0.1	0.0	0.0
Administrative and support	-0.3	-0.1	-0.2	-0.1
2000-2007				
Total Market services	1.8	1.5	1.1	1.8
Trade	1.1	1.3	0.2	0.7
Transport	0.2	0.5	0.1	0.3
Accommodation and food	0.2	0.0	-0.1	-0.1
Publishing and broadcasting	0.0	0.0	0.1	0.0
Telecommunications	0.2	0.3	0.5	0.4
Informatics	0.1	0.3	0.2	0.1
Finance and insurance	0.2	-0.3	0.1	0.5
Legal, accounting and technical	0.0	-0.1	0.2	-0.1
Scientific R&D	0.0	0.0	0.0	0.0
Advertising	0.1	-0.1	0.1	0.0
Administrative and support	-0.3	-0.2	-0.2	-0.1
2009-2014/2015				
Total Market services	0.4	1.2	1.0	1.1
Trade	0.2	0.4	0.4	0.8
Transport	0.2	-0.1	0.2	0.3
Accommodation and food	-0.1	0.0	0.0	-0.1
Publishing and broadcasting	0.0	0.0	0.0	0.0
Telecommunications	-0.1	0.1	0.2	0.0
Informatics	0.1	0.5	0.1	0.2
Finance and insurance	0.4	0.3	0.1	-0.1
Legal, accounting and technical	0.0	-0.2	0.1	0.2
Scientific R&D	0.0	0.0	0.1	0.0
Advertising	0.0	0.0	0.0	0.0
Administrative and support	-0.3	0.1	-0.2	-0.1

4.6. Investment in market services by industry

Over the whole period, investment rate in market services in Belgium (21% on average), was, on average, higher than in Germany (18%), in France (17%) and in the Netherlands (15%). The dispersion of investment rate within market services (grey area) was broader in Belgium at the beginning of the period and at the end of the period than in the other countries.

In Belgium, France, and the Netherlands, the same industry, Scientific R&D, recorded the highest investment rate each year over 2000-2015. In Germany, the top industry in terms of investment rate varied between Scientific R&D and Administrative and support activities. In Belgium, the average investment rate in Scientific R&D reached 87% over 2000-2005, then fell in 2006 before stabilizing at 55% on average until 2013. In 2014, investment rate skyrocketted at 164% mainly due to investment in R&D as showed by the capital stock by assets[3]. In the other countries, investment rate in Scientific R&D was more stable at 56% on average in Germany, 52% in France, and 71% in The Netherlands.

In Belgium, the service with the lowest investment rate varied between Legal, accounting and technical services with an average of 14% and Trade with an average of 15% over the period 2000-2015. In Germany, it was Advertising, in France, Trade and in the Netherlands mainly Legal, accounting and technical activities.

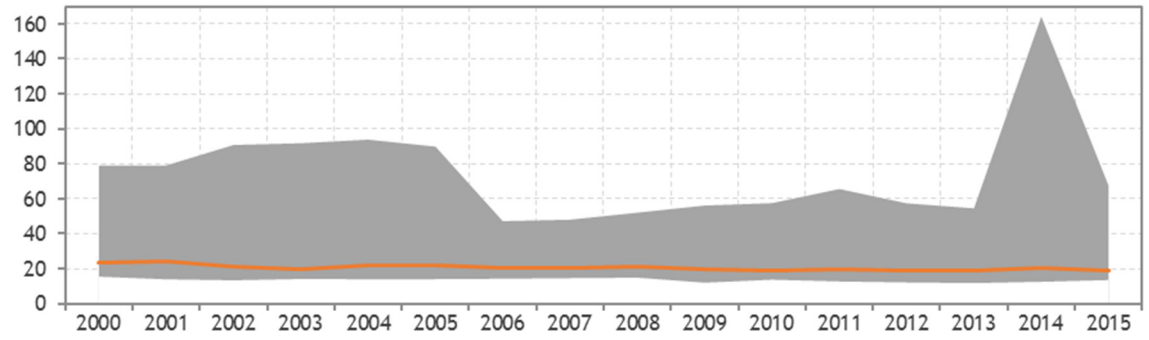
Over the whole period, 2000-2015, Belgium recorded, on average, the highest investment rate in the same industries among the countries of comparison in: Trade, Transport, Accommodation and food, Legal, accounting and technical activities (with France), Scientific R&D and Advertising. Investment rate in Belgium has never been the lowest, on average, among the four countries in any industry.

Three industries in Belgium have recorded a decreasing trend in investment rate since the crisis: Administrative and support activities, Finance and insurance and Accommodation and food. Other countries also experienced the same trend after the crisis in these services. By contrast, one industry recorded an increasing trend in investment rate in Belgium: Publishing and broadcasting. It was also the case in France and the Netherlands.

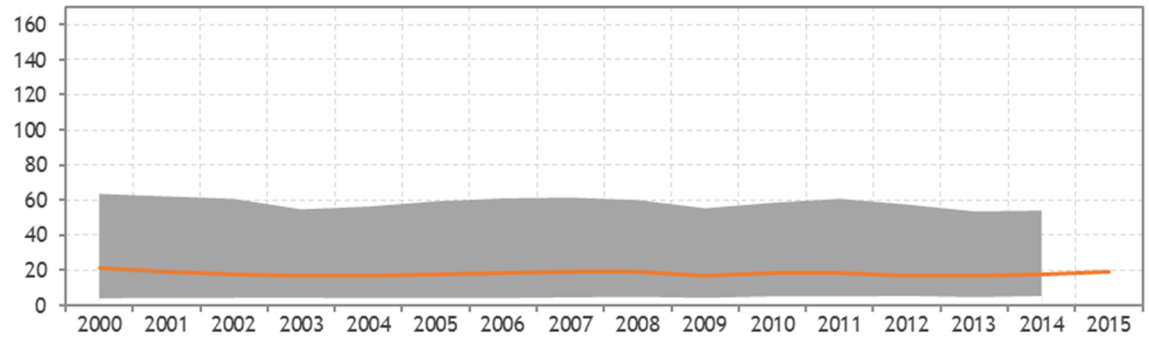
Data information: Eurostat. Data by industry for Germany and the Netherlands are limited to 2014. The grey area represents the dispersion of investment rate within market services. The industry Coke, refined petroleum was excluded. Investment rate of an industry is defined as Gross fixed capital formation of the industry divided by value added of the industry.

[3] A major chemical enterprise transformed its research department into a new subsidiary of which activities are classified in Scientific R&D industry.

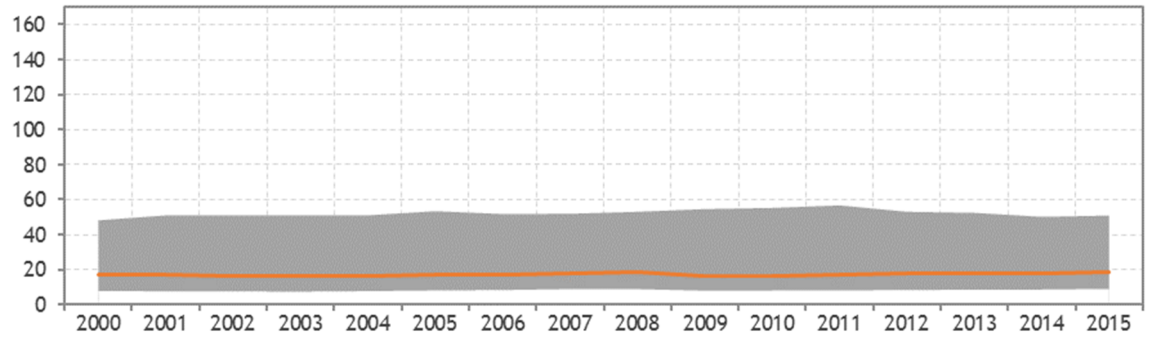
Graph 70 Gross fixed capital formation in market services - BE
% of value added



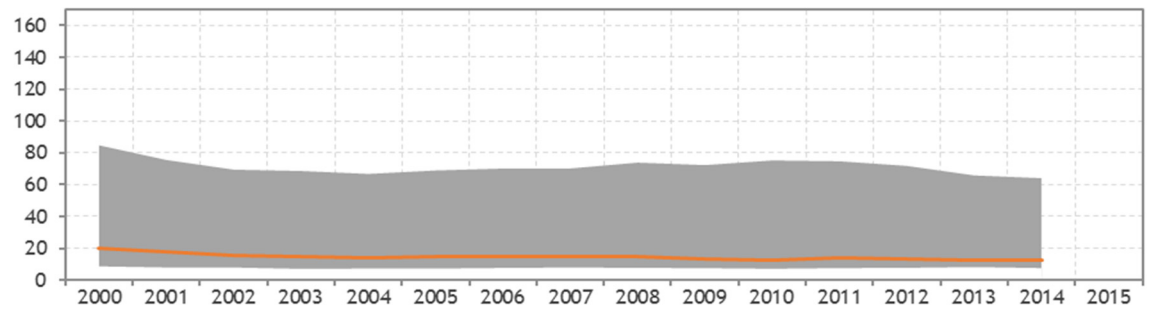
Graph 71 Gross fixed capital formation in market services - DE
% of value added



Graph 72 Gross fixed capital formation in market services - FR
% of value added



Graph 73 Gross fixed capital formation in market services - NL
% of value added



4.7. Profit shares in market services by industry

Over the whole period, average profit share, measured as gross operating surplus plus mixed income on value added corrected by Other taxes and subsidies on production, in market services reached 47% in Belgium, 44% in Germany and in the Netherlands and 35% in France. In the four countries, the dispersion of profit shares across market services was relatively high but France and the Netherlands were the countries where this dispersion was the most extended.

In Belgium, Legal, accounting and technical activities, recorded the highest profit share each year over 2000-2015 with an average profit share of 68%. In France and the Netherlands, the highest profit share was reached by Telecommunications, with an average of respectively 68% and 74%. In Germany, the top industry in terms of profit share changed over time from Advertising (average of 71%) to Telecommunications (average of 69%). The average profit share in Telecommunications in Belgium was lower than in the other countries and reached 62%.

The industry with the lowest profit share changed over time in Belgium, Germany and France but was always the same in the Netherlands: Legal, accounting and technical services which recorded on average a profit share of 30%.

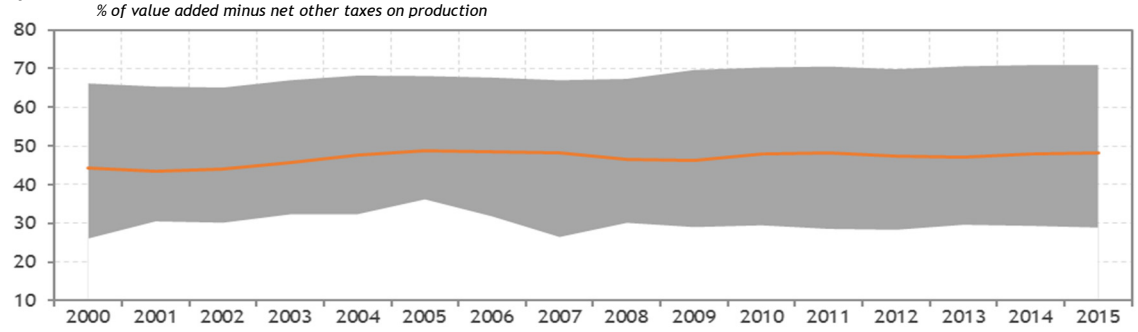
The average profit share of Legal, accounting and technical services was the highest in Belgium with an average of 68% against 48% in Germany, 24% in France and 30% in the Netherlands. At the opposite, the lowest average profit shares of Scientific R&D, Telecomunications and Administration and support activities were in Belgium.

Since the crisis, the profit share has strongly declined in Administrative and support activities, and, to a lesser degree, in Accommodation and food and in Trade in Belgium. At the opposite, two industries recorded a strong increasing trend of profit share over the whole period: Finance and insurance and Publishing and broadcasting.

Data information: Eurostat, National accounts.

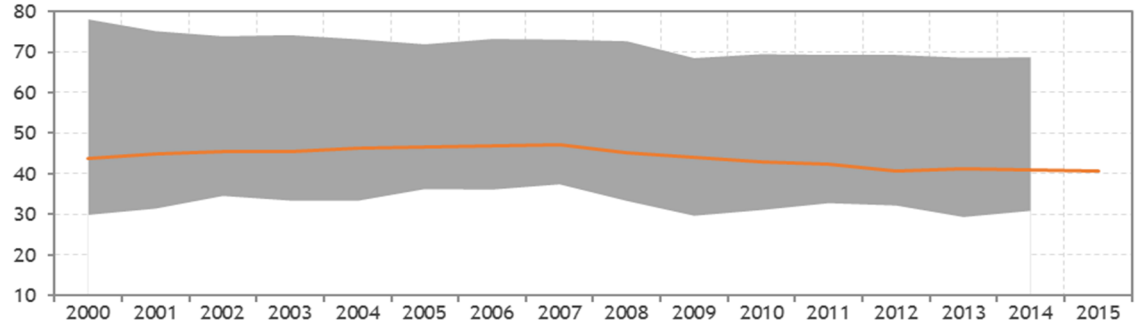
Graph 74 Profit share in market services - BE

% of value added minus net other taxes on production



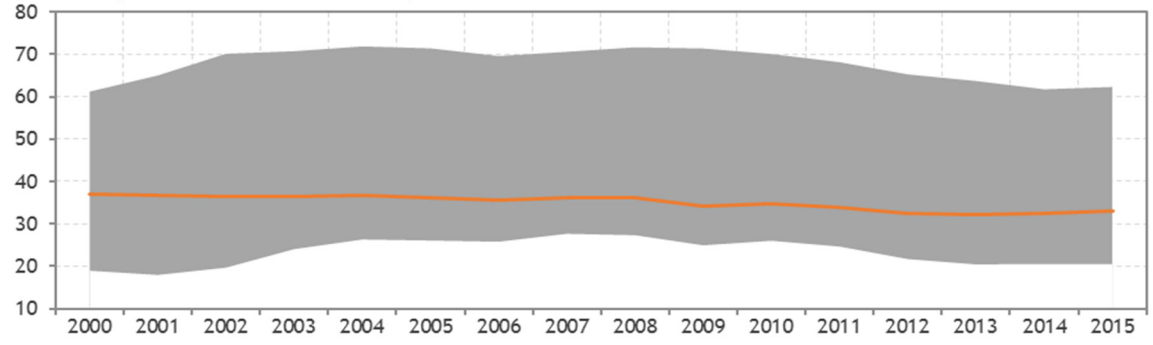
Graph 75 Profit share in market services - DE

% of value added minus net other taxes on production



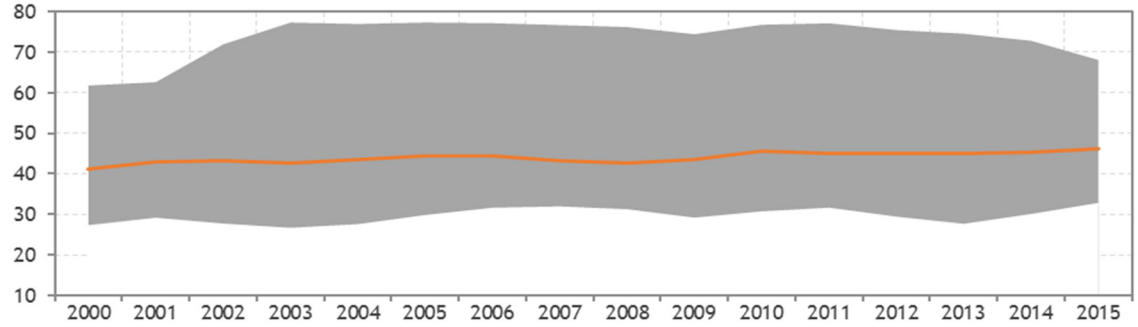
Graph 76 Profit share in market services - FR

% of value added minus net other taxes on production



Graph 77 Profit share in market services - NL

% of value added minus net other taxes on production



Annex

Table 36 Investment and profit shares by industry in manufacturing - BE, DE, FR, NL
% of value added and % of value added minus net other taxes on production

	Gross Investment rate				Profit share			
	BE	DE	FR	NL	BE	DE	FR	NL
2000-2014/2015								
Total Manufacturing	24	19	24	18	39	36	36	46
Food, beverages and tobacco	22	15	13	16	42	28	48	54
Textiles, leather and footwear	16	11	11	10	33	27	25	39
Wood, paper and printing	22	15	16	14	37	35	24	36
Chemicals	21	22	28	25	49	47	39	62
Pharmaceuticals	54	33	32	28	64	64	67	61
Rubber and plastic products	21	15	16	15	33	34	30	38
Basic metals, metal products	18	13	19	12	27	30	25	37
Computer and electronics	37	33	72	23	39	45	43	59
Electrical equipment	17	14	23	30	34	34	26	49
Machinery and equipment	16	14	18	20	38	31	30	40
Motor vehicles	22	32	53	15	24	38	36	50
Other manufacturing	15	10	12	9	28	22	22	24
2000-2007								
Total Manufacturing	23	20	24	17	40	35	37	47
Food, beverages and tobacco	22	14	13	16	42	29	50	54
Textiles, leather and footwear	16	10	10	11	34	27	24	37
Wood, paper and printing	25	16	16	16	39	35	27	38
Chemicals	22	23	26	22	50	48	36	63
Pharmaceuticals	49	36	27	25	64	62	69	65
Rubber and plastic products	21	15	15	16	36	34	33	39
Basic metals, metal products	18	13	19	13	30	29	27	37
Computer and electronics	35	33	70	25	38	48	46	64
Electrical equipment	17	15	18	27	34	33	32	53
Machinery and equipment	16	15	17	20	36	30	33	38
Motor vehicles	22	32	51	15	21	34	37	52
Other manufacturing	17	10	12	8	28	19	22	24
Total Manufacturing	23	20	24	17	42	29	50	54
2009-2014/2015								
Total Manufacturing	25	19	25	18	39	37	35	43
Food, beverages and tobacco	22	15	12	16	42	26	46	54
Textiles, leather and footwear	16	11	13	8	32	28	27	41
Wood, paper and printing	19	14	15	12	35	35	21	34
Chemicals	20	21	30	27	49	46	43	60
Pharmaceuticals	59	30	37	33	64	65	65	55
Rubber and plastic products	20	14	18	14	30	35	27	38
Basic metals, metal products	18	13	19	12	24	30	24	36
Computer and electronics	39	32	74	20	41	41	40	54
Electrical equipment	18	13	27	33	34	36	19	44
Machinery and equipment	17	14	20	20	41	32	27	43
Motor vehicles	22	31	53	15	29	42	36	45
Other manufacturing	13	11	13	10	28	25	23	23
Total Manufacturing	25	19	25	18	42	26	46	54

Table 37 Investment and profit shares by industry in market services - BE, DE, FR, NL
% of value added and % of value added minus net other taxes on production

	Gross Investment rate				Profit share			
	BE	DE	FR	NL	BE	DE	FR	NL
2000-2015								
Total Market services	21	18	17	15	47	44	35	44
Trade	15	8	8	10	45	35	34	49
Transport	35	29	23	27	36	43	28	40
Accommodation and food	17	9	10	9	47	35	41	47
Publishing and broadcasting	27	20	35	10	44	50	42	45
Telecommunications	29	23	23	31	62	69	68	74
Informatics	22	16	23	11	35	37	32	34
Finance and insurance	17	9	19	14	45	38	33	50
Legal, accounting and technical	14	6	14	8	68	48	24	30
Scientific R&D	75	56	52	71	37	53	44	44
Advertising	22	5	12	11	54	71	37	46
Administrative and support	27	53	17	20	33	56	36	37
2000-2007								
Total Market services	22	18	17	16	46	46	36	43
Trade	15	8	8	11	46	36	37	49
Transport	37	29	23	26	35	42	26	39
Accommodation and food	17	8	10	9	49	38	44	50
Publishing and broadcasting	23	21	32	9	40	48	43	45
Telecommunications	28	20	20	36	61	69	69	73
Informatics	21	17	20	11	34	37	35	33
Finance and insurance	19	9	20	16	41	39	31	45
Legal, accounting and technical	14	6	13	8	67	55	25	29
Scientific R&D	77	56	51	71	35	52	45	45
Advertising	22	4	12	11	54	74	39	42
Administrative and support	30	59	18	23	37	60	38	37
2009-2015								
Total Market services	20	18	18	13	48	42	33	45
Trade	15	9	8	9	44	35	31	48
Transport	33	27	23	28	36	44	30	41
Accommodation and food	16	11	10	9	44	31	39	45
Publishing and broadcasting	31	19	38	11	49	51	41	46
Telecommunications	31	26	27	25	63	69	66	74
Informatics	23	14	25	10	36	37	28	35
Finance and insurance	14	9	17	10	50	38	36	57
Legal, accounting and technical	13	6	15	8	70	38	23	30
Scientific R&D	75	57	53	71	40	53	43	42
Advertising	21	5	12	10	55	66	35	49
Administrative and support	23	43	16	17	29	52	34	38