

# An analysis of non-standard forms of employment in Belgium

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## Introduction

This article reports on non-standard forms of employment in Belgium. The terms “non-standard” – sometimes also called “atypical” or “unconventional” – refer to all forms of employment that differ from the traditional employment arrangement, i.e. a permanent contract for full-time salaried work.

There is a rising trend towards non-standard forms of employment in most industrialised countries. The OECD, the European Commission, the ILO and Eurofound have all shown that these forms of employment are associated with greater insecurity for the worker and/or linked to a lower degree of social protection.

The developments seen on the labour market – one of the features being the rise in non-standard forms of employment – are in large part linked to the profound changes taking place in society and the economy, including globalisation; the expansion of the tertiary sector; the growing number of women entering the labour market; the ageing of the workforce; technological advances and digitalisation; together with the growing demand – on the part of both the employers and the employees – for more flexible work arrangements. Such upheavals in society, and change in the labour market, are nothing new: these changes have been taking place over the last few decades. For instance, the rise of the tertiary sector can be seen quite clearly in the employment figures for the 2005-2017 period. The majority of the 388,000 jobs created in Belgium during that time have basically been in market-related services plus administration, healthcare and education. Although most of these have been salaried jobs with permanent contracts, there has also been a non-negligible rise in the number of people on temporary work contracts and self-employed workers. Not least, more than half of all the jobs created over that period were part-time positions.

These developments are also partly underpinned by changes to labour regulation. Taking only the most recent ones, we can list for example the new law on “feasible and manageable” work, which provides flexibility in, inter alia, calculating working hours; the introduction of flexi-jobs in the “accommodation and food services” sector, plus the extension of this approach in the trade sector and to people drawing retirement pensions; changes to the rules on student work; the application of a more progressive method for calculating the notice period; the extension of temporary work contracts to the entire private sector and, under certain conditions, to the public sector; the expansion of night work in the e-commerce sector; the improvements made to the social security status of self-employed people; and the creation of a status for “student entrepreneurs”.

In a situation where traditional employment contracts are gradually giving way to non-standard forms of employment, it is advisable to remain attentive to working conditions and job quality, whatever the status, contract type and working hours.

There is a wide variety of non-standard forms of employment. In this article we concentrate on the three main types: self-employment, temporary contracts and part-time work. We will sketch out the scope and trends of each of the non-standard forms of employment analysed and compare Belgium's situation with the European average. We will describe the characteristics of these forms of employment in relation to "traditional" jobs. Lastly, we will identify the people who are most likely to be working in non-standard jobs. In order to determine the main factors for this phenomenon, an econometric analysis has been carried out, taking as explanatory variables gender, age, region of residence, level of education, fields of study, marital status, number of children, country of birth and branch of activity.

Unlike descriptive statistics, this type of analysis has the advantage of being able to neutralise the incidence of the other variables on the one under examination, or to study the interaction between two specific variables, independently of the other characteristics. For example, the impact of a person's age on the probability that s/he will be working under a temporary contract is estimated by assessing the incidence of the other variables which might also influence the result, such as his/her sector of activity, origins, gender etc. The data used are drawn from the labour force surveys (LFS) published by Eurostat. Given that survey data are by nature non-exhaustive, the results are presented within a 95 % confidence interval. A detailed explanation of the model, plus all the results, can be found in appendix.

## 1. Self-employed workers

### 1.1 Ever-greater heterogeneity

On an international comparison, Belgium is exceptional due to the increase – albeit a slight one – in the proportion of self-employed workers in the country's total employment figure. Based on the national accounts data, the proportion of self-employed people rose from 16 % to 17 % between 2005 and 2018, while for the EU as a whole the proportion slipped from 17 % to 15 %. The number of self-employed people in Belgium has been buoyed by a number of factors, including inter alia the popularity of the liberal professions, the successive improvements made to the social security regime for the self-employed, the opportunity to combine a retirement pension with an occupational income under self-employed status and the increasingly marked attraction of flexibility.

While the overall proportion of the self-employed in Belgium has not changed very much, what has changed in particular is the diversity of the occupations involved and the form in which they are carried out. Most noteworthy here are secondary occupations (which account for a quarter of all self-employed people registered with the national institute for social security of the self-employed (NISSE); people combining retirement and self-employment (10 %); freelance workers<sup>1</sup> (estimated by UNIZO at 158 000 in Flanders and Brussels in 2018), digital workers (a poorly estimated, but still limited, phenomenon), and students entrepreneurs (1 %).

Among the various branches of activity, it is in the agriculture sector that we see by far the greatest probability of a person being self-employed, with seven out of ten agricultural workers having self-employed status – a significantly higher probability than all other sectors. Other branches of activity showing the highest probabilities after agriculture are "other service activities" and "accommodation and food services" (both with 36 %) and "technical, professional and scientific activities" (33 %).

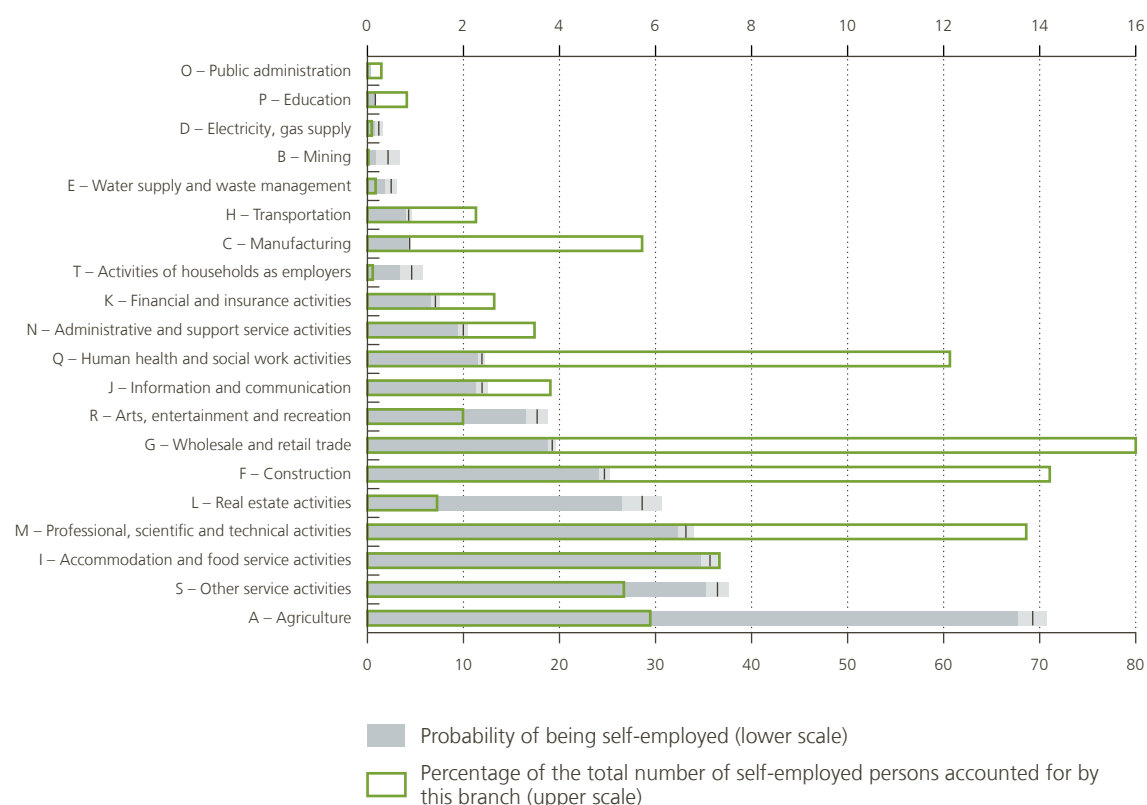
<sup>1</sup> A self-employed worker without saleable business assets, who is not a member of a regulated profession such as the medical or legal profession. Such people choose to work with client companies via an external, non-hierarchical relationship. According to a survey conducted by French freelance work liaison platform MALT, 90 % of the freelancers polled had chosen this status voluntarily, while Eurofound gives a figure of 60 % for this. Freelancers are frequently to be found in the IT, design and graphics professions, but the trend is spreading to other sectors such as accounting, communication and marketing services to companies. Meanwhile, initiatives have been taken by a number of online platforms or workers' groups to improve working conditions for freelancers.

The weight of these sectors is however rather limited in relation to the overall number of self-employed persons. The NISSE database shows that the largest number of self-employed persons are to be found in the health sector (14 % of all self-employed persons), which includes a number of liberal professions; manufacturing industry (14 %); and “wholesale and retail trade” (13 %), though this latter sector is now shrinking. These findings are reflected in the probability that a person will be self-employed based on his/her chosen field of study. Those who have pursued studies in the veterinary medicine or medical and healthcare fields are most likely to opt for self-employed status. The upward trend in the number of self-employed workers in industry, especially in the construction sector, is partly due to the growing number of foreign workers, especially from the newer EU member states, who opt for self-employed status in order to be able to carry out a remunerated occupation in Belgium. The number of non-Belgians working with self-employed status in industry in Belgium has more than tripled between 2005 and 2017, rising from 14 000 to 45 000.

Chart 1

### Self-employed workers by branch of activity<sup>1</sup>

(probability that a worker will have self-employed status based on the Probit model with time-fixed effects<sup>2,3</sup> and proportion of the total number of self-employed persons, 2008-2017<sup>4</sup>, working population aged 15 and over)



Sources: LFS (microdata), NBB estimation.

1 Based on the NACE-2008 classification code.

2 All the results can be found in appendix.

3 Controlling for gender, region of residence, age, level of education, marital status, number of children and country of birth. The results are presented within a 95 % confidence interval.

4 As a break in the series of NACE classification codes occurred in 2008, the data used here are restricted to the 2008-2017 period.

Taking into account workers' personal characteristics<sup>1</sup> and also their branches of activity, persons living in the Brussels Region show the highest probability of being self-employed (14%), with a slightly lesser probability in Flanders and Wallonia, around 13% and 12% respectively. The breakdown by region masks a number of specific province-related features. Indeed, West Flanders and Walloon Brabant show probabilities that are equivalent to Brussels. All other provinces show lower probabilities than the capital region, with differences ranging from 1 (East Flanders) to 3 percentage points (Luxembourg).

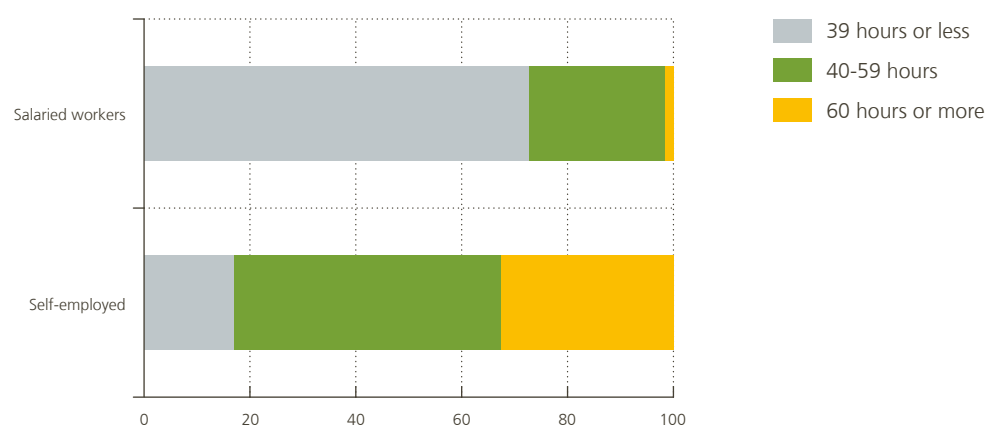
## 1.2 A choice in spite of the more arduous working hours

Self-employed work is characterised by much longer working hours than salaried occupations. While only three salaried employees out of ten report putting in over 40 hours per week, this is the case for eight out of ten self-employed workers. If we take workers who claim to put in more than 60 hours per week, we find very few salaried workers, but one third of all self-employed persons.

### Chart 2

#### Weekly working hours, by employment status

(hours worked per week, as a percentage of the total, excluding variable working hours, 2017)



Source: EC.

In spite of the more demanding work timetable, self-employed persons run a noticeably higher risk of poverty<sup>2</sup>: 14% of them earn an income that is below the poverty line, compared with 4% among salaried workers. However, that proportion is markedly lower than among job-seekers, where it stands at 49%. Irrespective of one's employment status, having a remunerated occupation appears to be an effective bulwark against poverty.

It should be stressed that the social security status of self-employed workers differs considerably from that of employees. The rate of social security contributions paid by self-employed persons is lower than the rate deducted from employees' income (employee and employer contributions combined), but this also confers

<sup>1</sup> In terms of age, level of education, field of studies, marital status, number of children, country of birth.

<sup>2</sup> The poverty risk rate is based on the percentage of households whose total net income is lower than the poverty line, i.e. 60% of the median net income equivalent. In Belgium, the poverty threshold is calculated from the data compiled for the EU Statistics on Income and Living Conditions (SILC). It corresponds to net annual income of € 13 670, equivalent to € 1 139 net per month for a single person, and € 28 708 net per annum or € 2 392 net per month for a household composed of two adults and two children under the age of 14.

a lesser degree of entitlements. Unlike employees in the private or public sector, self-employed workers must also sign up separately with social insurance funds and mutuality insurance. Aside from these obligations, they enjoy certain rights as regards family allowance, sickness and invalidity insurance, maternity cover, pension rights and “bridging” benefits in case of involuntary interruption or cessation of activities. However, the self-employed do not have the right to draw unemployment benefit and they are not covered in the event of a work accident. Measures have been taken to improve both their social security status and their work-life balance, including extending maternity leave and raising the minimum pension. In order to make up for their lower level of social security protection, the self-employed also have the option of supplementing their rights through voluntary insurances.

In spite of these disadvantages, the proportion of self-employed persons who report that they are very satisfied with their work situation (55 %) is higher than among employees (49 %). Practically all (nine out of ten) self-employed people say they do not wish to change their employment status. In Belgium, in 80 % of cases, people who are self-employed have opted voluntarily for this employment status, versus 60 % on average in the EU.

The vast majority (70 %) of self-employed people work alone, without any staff. While 40 % say this is their own preference, 16 % do not think that they have enough work to justify hiring staff and 14 % believe that it is too expensive to do so.

According to a survey carried out by Eurostat in 2017, 1.5 % of all self-employed workers in Belgium are “economically dependent”. This definition is based on a set of three criteria: 1) they have no staff, 2) 75 % of their income depends on a client in a dominant position, and 3) they have no control over their work timetable. In other words, these workers have self-employed status but do not share the basic characteristics of self-employment, in terms of autonomy and freedom from hierarchical relationships. According to the ILO, the average figure for the EU as a whole is 4 %. The relatively small proportion of economically dependent self-employed workers in Belgium is due to the fact that this is one of the very few countries to have laid down formal criteria for deciding who does and does not qualify for self-employed status, so as to reduce any ambiguities regarding this status. The criteria are: absence of a hierarchical link and autonomy in performing their work.

### 1.3 Age and level of education: two decisive factors

There are a number of personal characteristics that affect the probability that a person will have self-employed status. In Belgium, contrary to what one may observe on average across the European Union, the probability that a person will have self-employed status rises in line with his/her level of education. The probability increases from around 10 % for a person with a low level of education to 14 % for someone with a high level of education. While in some other places, the self-employment status is adopted more often by relatively low-educated people in order to get access to the labour market, in our country it is mostly higher education graduates that adopt it. This outcome is largely underpinned by the high proportion of liberal professions among the self-employed.

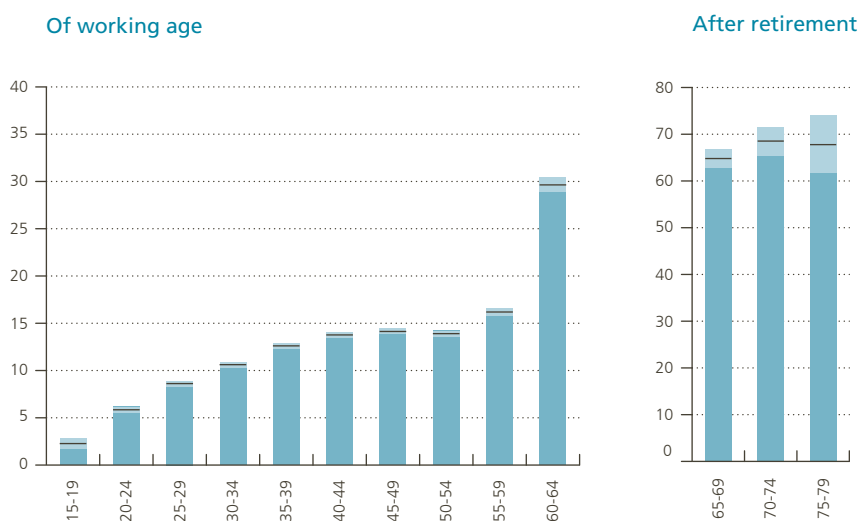
Age also has a significant influence on the probability that a person will be self-employed. The probability rises progressively from 2 % among the 15-19 age group to 11 % for the 30-34 year-olds, subsequently stabilises at around 13-16 % up to 60 years of age, and then doubles among the 60-64 age group. Beyond retirement age, it actually reaches over 60 %. Most people who decide to continue in a remunerated occupation after they begin drawing their retirement pension do so under self-employed status. The fact that people who are in receipt of a retirement pension are entitled to combine this income with revenue from self-employed work is certainly a contributory factor underpinning this phenomenon.

As regards the other personal characteristics, it is worth noting that, all else being equal, a woman is around 8 percentage points less likely to be self-employed than a man. This gap shrinks to 6 % if we control for the

### Chart 3

#### Probability of being self-employed, by age<sup>1</sup>

(based on the Probit model with time-fixed effects<sup>2</sup>, 2005-2017, working population aged 15 and over, 95 % confidence interval)



Sources: LFS (microdata), NBB estimate.

1 All the results can be found in appendix.

2 Controlling for gender, region of residence, level of education, marital status, number of children and country of birth.

branch of activity. Marital status also has an effect on the probability of being self-employed. Married people are more likely to be self-employed than single people (a 14 % versus a 10 % probability). However, the fact of having children or not has no significant influence.

People born in another EU member state are most likely to be working self-employed (a 15 % probability). This is higher than the probability for a person born in Belgium (13 %) and also higher than for those born outside the EU (11 %).

In absolute numbers, after those of Belgian nationality – who account for almost nine out of every ten self-employed workers – Romanian nationals are the most numerous among the self-employed (21 % of all non-Belgian self-employed), followed by the Dutch (14 %) and the French (11 %). Brussels hosts the greatest number of foreign-nationality workers: 41 % of all self-employed people are non-Belgian, compared with 7 % in Flanders and Wallonia.

## 2. Temporary contracts

### 2.1 An increasingly common phenomenon

The term “temporary contracts” comprises fixed-term contracts, contracts from a temporary employment agency, replacement staff contracts, specific assignment contracts and student work.

Up until 2014, the proportion of this type of employment contract within total salaried employment in Belgium hardly changed at all, oscillating around 8 %. Since then however, it has been rising, reaching 10 % in 2017. Permanent contracts nevertheless remain the norm, with nine out of every ten employees working under a permanent employment contract. This is a higher proportion than the EU average (86 %).

The start of this increase coincided with the abolition of the “trial period” clause, which came about as part of the legislative move to unify the legal status of blue-collar and white-collar workers in Belgium. At the same time, the financial conditions for terminating a permanent contract were eased as regards terminating white-collar employment but rendered more stringent for the dismissal of blue-collar workers. From that moment, many employers came to prefer to hire new employees on temporary contracts, in order to assess whether they match the required profile.

The NBB 2018 Annual Report indeed shows a steady increase in the proportion of temporary contracts among new hires. In 2018, 46 % of all new recruitment was carried out under temporary contracts, a rise of 12 percentage points versus 2008.

In order to encourage the use of permanent contracts, the notice periods applicable at the start of the period of employment have been further reduced: since May 2018, the notice period for new employees who have been in the job for three months or less has been reduced to just one week.

In addition to temporary contracts, there exist other mechanisms designed to increase flexibility. These include the flexi-job scheme, whose initial purpose was to increase flexibility and at the same time reduce undeclared work in the hotels, restaurants and catering sector. At that time, this approach was only available to people who were already in a job and working at least 4/5 of full time. It was subsequently extended to the retail sector and to those drawing a retirement pension. This system enables workers to take a side-job with more advantageous financial conditions for both them and their employers (salary exempted from personal social security contributions and from withholding tax on professional income).

Temporary contracts are more common in those sectors that have a particular need for flexibility. Thus, the likelihood that a person will be working on a temporary contract is higher in the education (17 %), “activities of households as employers of domestic personnel” (17 %) and “arts, entertainment and recreation” (14 %) sectors. In absolute figures as well, proportionally the greatest number of people working on temporary contracts are to be found in education (largely due to the current process of appointing teachers and the system for replacing absent teachers), in wholesale and retail trade and the “accommodation and food services” sector (both sectors that experience sharp peaks in their business), plus also the “administrative and support service activities” sector (which includes temporary agency work). By contrast, temporary contracts are proportionally less common in the “public administration”, construction, transportation and ‘human health and social work’ sectors.

## 2.2 Frequently a springboard to a permanent contract

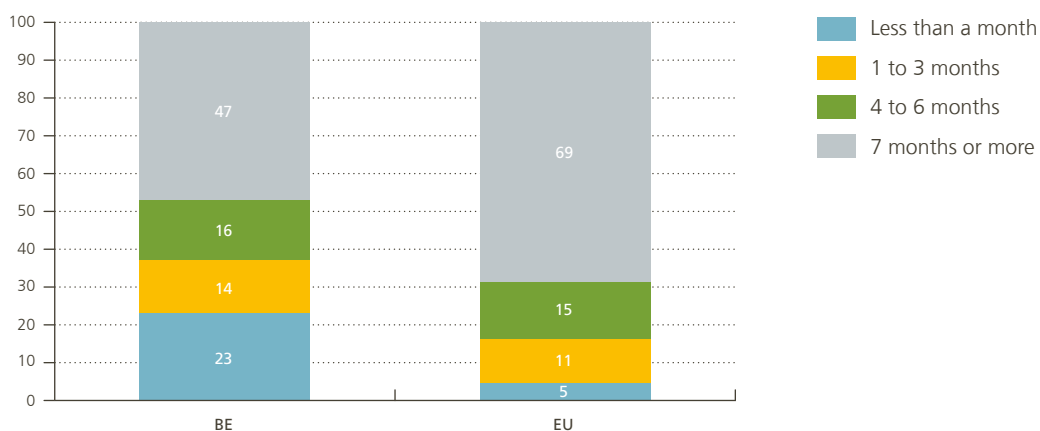
Belgium stands out from the EU average with its frequent use of very short-term temporary contracts. Close to one in four contracts are for less than a month, while in the EU such contracts are used only between a fifth and a quarter as often. As already stated, the abolition of the trial period has resulted in an increase in the use of temporary contracts so that employers can obtain a clearer understanding of an employee’s abilities before hiring him/her on a permanent contract. We would also point out that this type of contract covers not only fixed-term contracts but also contracts from temporary agencies, which employers are increasingly using as a way of delegating recruitment of their personnel. The popularity of student jobs has also contributed to the increase in short-term temporary contracts, particularly since the reform of the calculation method for the number of hours that may be worked<sup>1</sup>.

<sup>1</sup> In January 2017, the limit on working hours for student jobs was increased to 475 hours per year, up from the previous 50 days – i.e. maximum 400 hours or 50 eight-hour days. This resulted in greater flexibility and potentially increased the number of jobs a student could take on. Since 2018 some sectors (retail) benefit from an exception to the ban on Sunday working for young people under 18 working under the student worker scheme.

## Chart 4

### Temporary contracts, by duration

(as a percentage of the total of temporary contracts, 2017)



Source: EC.

Although it is advantageous for an employer to have the option of using a range of employment contracts – whether affording greater flexibility, ending automatically on the stated date, allowing a means of testing out an employee, etc – this may be a disadvantage for the worker as regards his/her career prospects and lack of employment and earnings stability. Workers on temporary contracts are often the first to suffer the impact when business activity slows down, as their contracts are simply not renewed. The degree to which a worker is penalised will depend on his/her age – this kind of flexibility may be an advantage for young people – and, more generally, on his/her socioeconomic position – whether student, head of a household, etc. At the start of a career, flexibility can help employees to gather a wide range of professional experience. However, most workers on temporary contracts have not chosen this route; they simply have not managed to find a job with a permanent contract. This holds true for seven out of ten people on temporary contracts. For those under 25, the percentage is lower, however, at six out of ten. Some of these people voluntarily opt for a temporary contract as the flexibility helps them combine work and study more easily.

Given the instability of employment and thus earnings associated with this type of contract, especially as regards very short-term contracts, people working on temporary contracts are far more likely to have an income that is below the poverty line than those working on fixed-term contracts (13 % compared to 3 %). The probability is however lower than that for registered job-seekers; it is noteworthy that this figure is one in two.

An ILO report published in 2016 stated that temporary contracts tend to have a negative impact on earnings. This means that a worker on a temporary contract earns a lower salary than one on a permanent contract doing the same work, despite the fact that there are legal provisions both at EU and national levels designed to ensure that workers should be treated equally, whatever employment contract they are working under. This negative impact is distributed unevenly across the earnings range: it is very marked at low salary levels and almost non-existent at the upper end of the scale. The report reveals that when the data is controlled for worker and employment characteristics – age, education, occupation and sector of activity – the earnings penalty works out at a little over 10 % in Belgium.

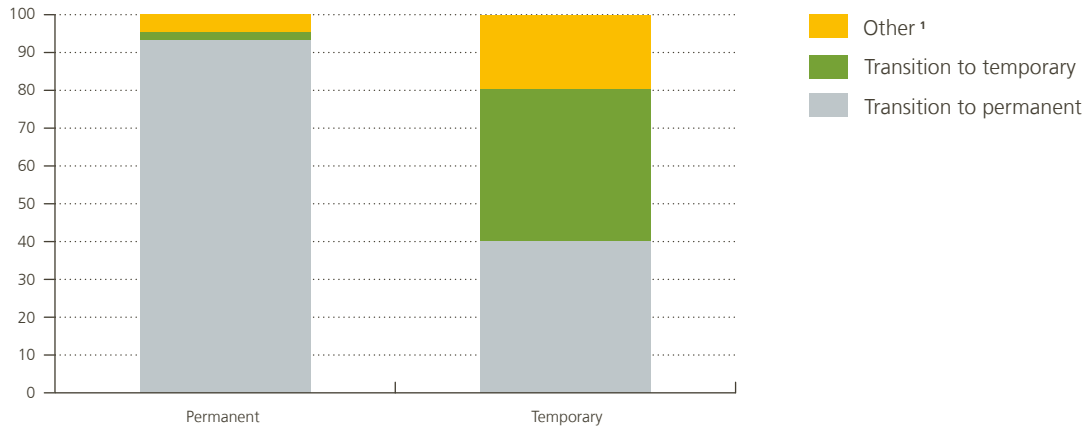
However, this situation is generally transitory. Close to 40 % of those employed on temporary contracts obtain permanent contract the following year, a slightly higher figure than ten years ago (+4 pp). A Federgon report on temporary agency workers published in 2018 revealed that two thirds obtained a fixed contract after two years and that their rate of access to training was significantly higher than the national average (16 % compared with 9 %).



## Chart 5

### Mobility by type of contract

(as a percentage of the total of the corresponding employment, transition between 2016 and 2017)



Sources: EC, Statbel.

1 Other: inactive, unemployed or self-employed.

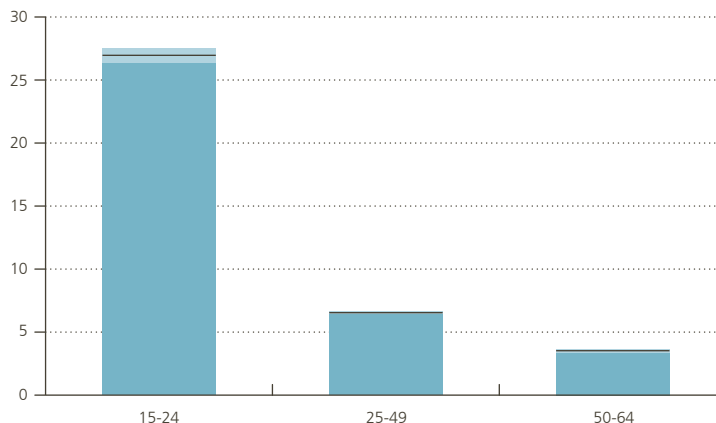
## 2.3 Over-represented at-risk groups

As we have seen, people working under a temporary contract rarely do so out of personal choice, in contrast to those who take on self-employed status (or part-time work, see below). It is therefore not surprising that we find a greater number of vulnerable workers – women, young people, those coming from outside the EU and those with a low level of education – on this type of contract. Other personal characteristics such as marital status and number of children have however little or no impact on the probability that a person will be working on a temporary contract.

## Chart 6

### Probability of working under a temporary contract, by age<sup>1</sup>

(based on the Probit model with time-fixed effects<sup>2</sup>, 2005-2017, salaried population aged 15 and over, 95 % confidence interval)



Sources: LFS (microdata), NBB estimate.

1 All the results can be found in appendix.

2 Controlling for gender, region of residence, level of education, marital status, number of children and country of birth.

The most significant determining factor is the worker's age. Young people are far more likely than other age groups to find themselves working on a temporary contract. This probability decreases very rapidly as the age of the worker increases. It falls from 60 % for people under 20, to 13 % for those aged 25-29, and then fluctuates around 4-7 % up to pensionable age. For young workers, temporary contracts are becoming ever more frequently an inevitable step before obtaining a permanent contract.

Low-educated workers, who have less negotiating power than the more educated, are also more often obliged to take work under temporary contracts, but the education gap is less marked in Belgium than in other EU countries. One worker in ten who has not been educated beyond lower secondary level is hired on a temporary contract, while this is the case for only 6 % of those with medium or high levels of education.

Temporary contracts are more common among those who have studied "sciences, mathematics & statistics", "arts and humanities subjects" and "education". This over-representation of the science subjects is due to the relatively higher number of researchers who are often hired on temporary contracts. This also holds true for many people working in the arts fields. In the field of education people usually begin their careers on temporary contracts as this is the obligatory route to obtaining an appointment. Temporary contracts are also widely used in cases where absent teachers have to be replaced.

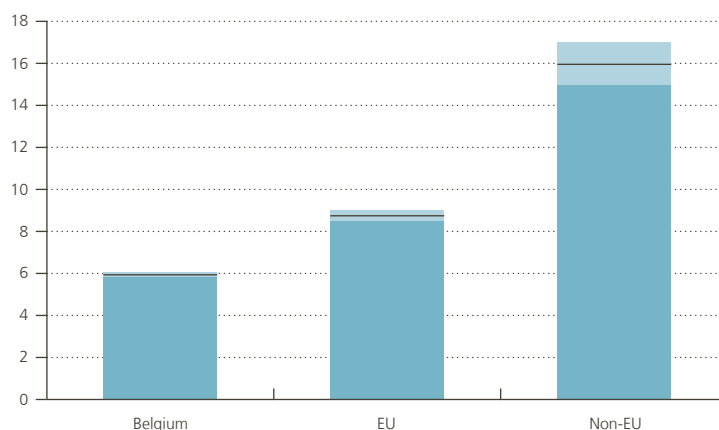
The specific nature of the education sector has an impact on the probability of women being hired on a temporary contract. Seven out of ten people working in education are women. When all other personal characteristics are equal, a woman is around 3 % more likely to be working on a temporary contract than a man. When we control for the branch of activity – and therefore for the fact that women are more numerous in the education workforce than men – the women's probability of working under a temporary contract is only marginally higher (+1 percentage point) than for men.

The over-representation of certain groups among temporary contracts also underlines their difficulty in obtaining a permanent employment contract. Non-EU workers are around three times more likely to be hired on temporary contracts than Belgians. The problems these people encounter regarding recognition

## Chart 7

### Probability of working under a temporary contract, by country of birth<sup>1</sup>

(based on the Probit model with time-fixed effects<sup>2</sup>, 2005-2017, salaried population aged 15 and over, 95 % confidence interval)



Sources: LFS (microdata), NBB estimate.

<sup>1</sup> All the results can be found in appendix.

<sup>2</sup> Controlling for gender, age, region of residence, level of education, marital status and number of children.

of their diplomas and/or skills acquired abroad may explain this phenomenon. Rather than hire the person immediately on a permanent contract, an employer would prefer to initially assess the skillset of the worker by offering a temporary contract. This may be positive for the non-EU worker if it subsequently leads to a permanent contract. On the other hand, if one temporary contract follows another in succession without leading to a permanent contract, this creates greater instability and poverty risk for the person concerned.

### 3. Part-time work

#### 3.1 Applies to a quarter of all workers

The proportion of part-time workers in total employment in Belgium, which had been on the rise since the 1990s, has stabilised at around one in four during the last few years. This is higher than the EU average of one worker in five. The existence in Belgium of various mechanisms such as the time credit scheme, career break option and special-purpose leave, which enable workers to reduce their working time, has undoubtedly contributed to the popularity of part-time work. These schemes were successful, especially among workers coming to the end of their career who wish to gradually reduce their working time before taking retirement.

The sectors in which part-time work is most common are “activities of households as employers of domestic personnel” (51%), ‘human health and social work’ (34%) and “administrative and support service activities” (30%). These are all sectors in which women – who, as we shall see later in this article, form a majority among part-time workers – are strongly represented.

Part-time work is slightly more common in Flanders and Wallonia than Brussels. This holds true for all the provinces, with the exception of Hainaut, where the probability of part-time work is the same as for Brussels. These are the conclusions that emerge from the descriptive statistics but econometric analysis reveals that the outcomes are not due to the composition of the population in each of the regions. An initial explanation might in fact have been that the phenomenon of population ageing is less marked in the Brussels Region. However, the differences in probabilities are not neutralised if we control for workers’ ages. On the other hand, there are two factors which partly explain the regional discrepancies: level of education and marital status. Brussels hosts a higher proportion of highly educated people and – as we shall see later on in this article – the higher a person’s level of education, the less likely it is that s/he will opt for part-time work. Meanwhile the Flanders Region has a larger proportion of married people, who are more inclined to reduce their working time than the unmarried.

The number of hours put in by those working part-time is an important factor in assessing the quality of the jobs in question. As low working hours tend to result in inadequate income, we may conclude that, below a certain number of hours per week, the job is likely to be precarious in nature. In concrete terms, we refer to jobs totalling less than 20 hours as “short part-time” or “underemployment”. Knowing whether this kind of situation is voluntary or constrained is of course vital information for assessing just how critical it is.

In an attempt to combat underemployment, a recent legislative measure<sup>1</sup> requires employers planning to recruit new personnel to offer, as a priority, their existing employees who are forced to work part-time an increase in their working hours. The law also sets minimum working hours equivalent to one third of full-time employment, while also allowing exceptions, especially in the trade sector, which is subject to fluctuations in demand, including contracts for as little as eight hours per week.

<sup>1</sup> Law promulgated on 25 December 2017.

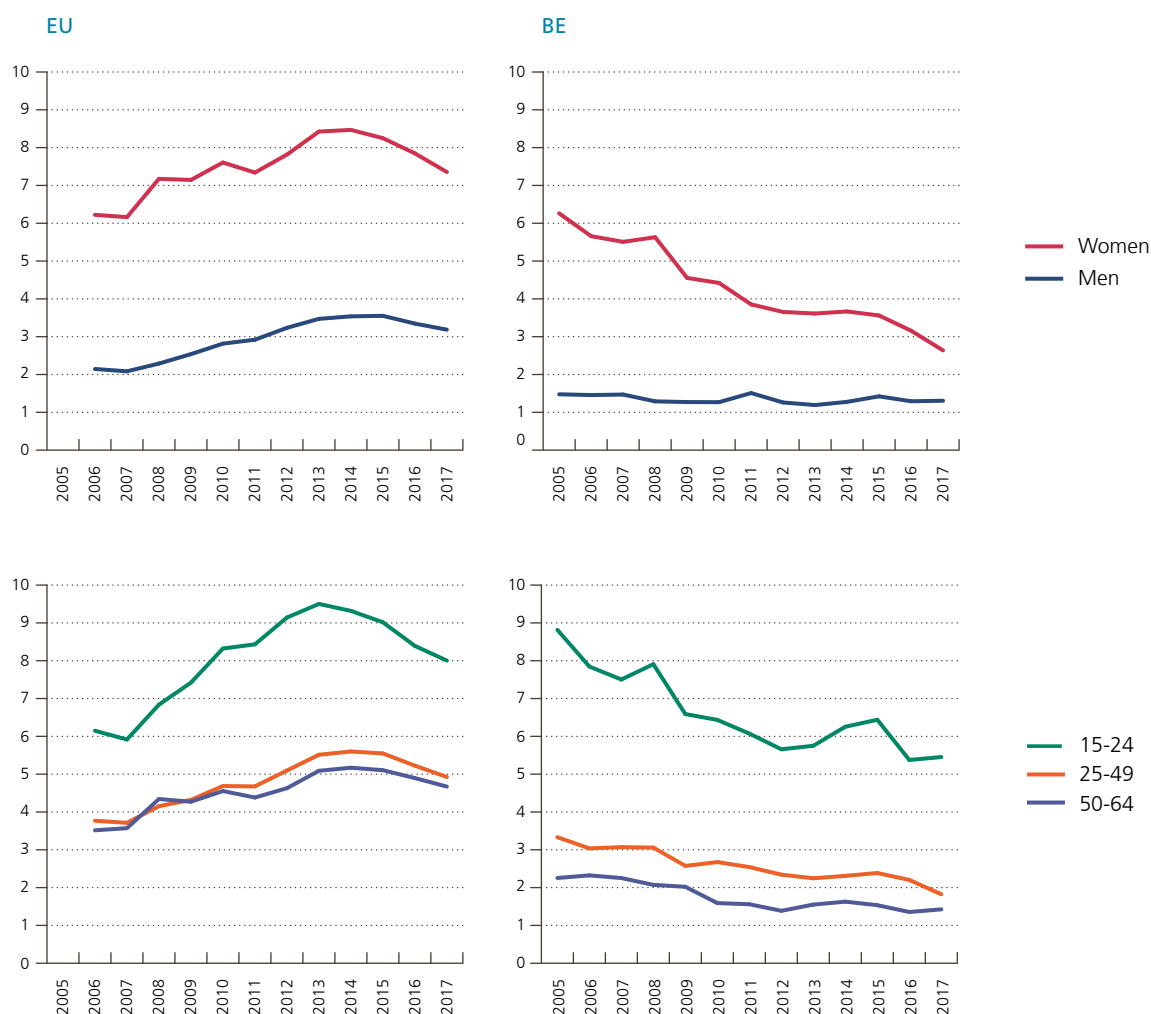
The average number of hours put in by part-time workers in Belgium has been increasing steadily since the early 2000s, rising from around 22 hours per week at that time to 26 in 2017 (partly due to the introduction of the 4/5 time formula). This is higher than the EU average, which has risen merely from 20 to 21 hours over the same period.

In addition to the positive impact which it has on the overall employment rate, part-time work can also help to improve the work-life balance of the workers concerned. Nevertheless, we must not fail to point out the negative effects. Working part-time creates a wage gap, as the hourly wages tend to be lower than what a full-time employee can expect to earn. Moreover, there are fewer opportunities for training and promotion in part-time employment and it carries a higher risk of falling below the poverty line, especially in the case of single parents. This is reflected in a higher poverty risk than among full-time workers, though this risk is still quite modest – 6.5 % versus 4.3 % among full-time workers.

### Chart 8

#### Involuntary part-time work by gender and age

(as a percentage of the corresponding total employment figure)



Source: EC.

The fact of whether working part-time is a voluntary choice or an involuntary imposition is a key factor in assessing how precarious this kind of occupation actually is. In fact, involuntary part-time employment in Belgium – in the order of 2 % – is noticeably less common than the EU average (5 %). In our country, people working part-time have usually made a voluntary choice to do so, for a variety of reasons such as wishing to look after their children or care for others in need of assistance, for health reasons, in order to pursue studies, etc. People involuntarily working part-time are more often women and, especially, young people. The proportion of people involuntarily working part-time in Belgium has been falling since the turn of the century, although it was still rising in the EU up until the economic recovery that began in 2014.

To prevent those who can only find part-time jobs falling into an unemployment trap or dropping out of the workforce altogether, Belgium provides a benefit known as the “income guarantee allowance”, which enables people working part-time involuntarily to draw a supplementary allowance on top of their wages for a temporary period. This benefit ensures that these workers do not suffer any loss of income when they move out of unemployment into employment.

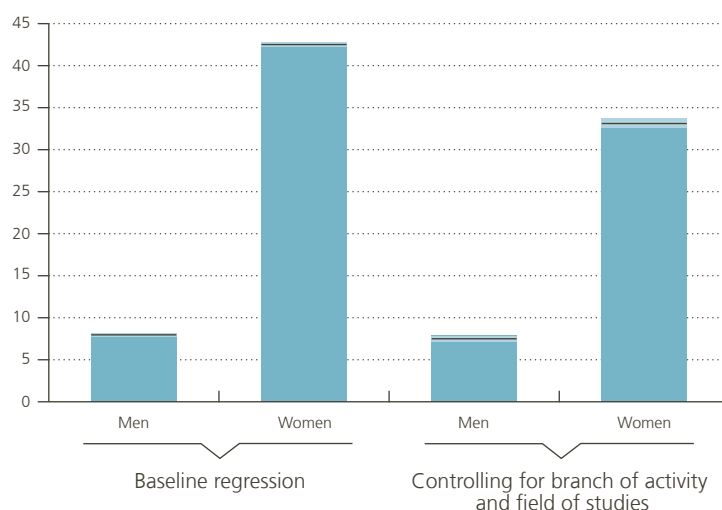
### 3.2 Women and end-of-career workers form a large majority

Among the various personal characteristics taken into account, it is women who are the most likely to be working part-time. All else being equal, a woman has a four times greater probability of reducing her working time than a man. There are a number of factors that explain the predominance of women among part-time workers. Firstly, women are still taking on a greater role in the upbringing of children and domestic tasks than men. Secondly, it is very often more financially advantageous for the woman in a family household to reduce her working time, and therefore her salary, as men earn on average more than women. Last but not least, part-time jobs are more common to certain branches, such as “activities of households as employers of domestic personnel”, “human health and social work” and “administrative and support service activities”. These are all sectors in which women are strongly represented.

Chart 9

#### Probability of working part-time, by gender<sup>1</sup>

(based on the Probit model with time-fixed effects<sup>2</sup>, 2005-2017, population in work aged 15 and over, 95 % confidence interval)



Sources: LFS (microdata), NBB estimate.

1 All the results can be found in appendix.

2 Controlling for region of residence, age, level of education, marital status, number of children and country of birth.

Econometric analysis reveals however that neither the fact of having children or not nor her marital status influences the likelihood that a woman will be working part-time but rather her field of study and the branch of activity in which she works. If we control for these two factors, the difference between men and women is reduced but a marked difference still remains. In fact, women have a greater tendency to go into fields of study or economic sectors where part-time work is more common. Still today, eight out of ten part-time workers in Belgium are women. However, we should underline that there has been a strong movement in recent years towards part-time work among men.

The likelihood that a person will be working part-time depends strongly on his/her age. There is a 24 % probability that workers under 25 will be working part-time. The part-time formula enables people to combine paid employment with studies but it is also the case that people in this age group are more likely to be working part-time involuntarily. The probability that a person will be working reduced hours then falls to 14 % between the ages of 25 and 29 and thereafter gradually rises throughout workers' careers, reaching slightly over 30 % towards the end of their career (60-64). It is extremely rare to find involuntary part-time work among this age-group. This situation has some connection with the existence of a number of schemes that enable people to reduce their working time towards the end of their careers. However, the greatest probability that a person will be working part-time is highest after s/he reaches pensionable age. Seven out of ten of those who decide to continue in a remunerated occupation after 65 years of age do so on a part-time basis.

Having a higher level of education reduces the likelihood that a person will be working part-time. Those with a lower level of education have a 29 % probability, versus 22 % among those with a medium level of education and 14 % for the highly educated. This may be due to a number of factors. First of all, a more highly-educated person is likely to suffer a greater loss in earnings in moving to part-time work. If a person receives benefits from the national employment office, the reduction in income due to going part-time is covered to a greater extent for workers on low wages. Moreover, it is difficult to work reduced hours if one has a position of responsibility within one's employer's organisation.

## Conclusions

The changes that have been taking place in the society and the economy (including globalisation, the expansion of the tertiary sector, digitalisation, etc) for a number of years now are leading to a gradual transformation of the labour market, in particular bringing in ever-greater flexibility in labour relations. Thus, the model of full-time salaried work under a permanent contract, which has hitherto been the norm, is giving way to non-standard forms of employment. In this situation, it is important to remain attentive to the working conditions of the people involved in these forms of employment so as to ensure job quality, whatever the status, contract type and working hours arrangement.

In this article, we have analysed three types of non-standard employment, namely self-employment, temporary contracts and part-time work. In Belgium, the growth of these forms of employment has not generally been accompanied by a worsening of working conditions, though this basic finding needs to be qualified somewhat. In fact, the findings differ according to the particular non-standard form of employment being examined and also according to whether the adoption of that status by the workers in question is voluntary or not.

Self-employment is more widespread in Belgium than on average in the EU (17 % of total employment versus 15 % for the EU). Moreover, while self-employment is proportionally in retreat across the EU, it is showing a slight increase in Belgium. The number of self-employed people in Belgium has been buoyed by number of factors, including inter alia the popularity of the liberal professions, the successive improvements made to the social security regime for the self-employed, the opportunity to combine a retirement pension with an occupational income under self-employed status and the increasingly marked attraction of flexibility. The self-employed typically have a heavier work timetable than salaried employees. Self-employed people are also more likely to have an income below the poverty line than are salaried workers, they have a lower level of social security cover (which also means paying lower contributions) and are not entitled to draw unemployment benefits. In spite of these disadvantages, self-employed workers report having a high degree of job satisfaction and the majority of them say they do not wish to change their employment status. People who adopt self-employed status generally do so out of personal choice because it is worth noting that the professions traditionally operate under this status or in order to grasp an opportunity. A very low proportion (1.5 %) of self-employed persons in Belgium are deemed to be "economically dependent". This is largely due to the fact that Belgium is one of the few countries to have taken steps to avoid any ambiguities as to what "self-employed" means, introducing two formal criteria for determining self-employed status, namely the absence of a hierarchical link and autonomy in carrying out the work.

The proportion of people working under temporary contracts remains low in Belgium, where nine out of ten employees are working under a permanent contract (compared with the EU average of 86 %). Looking at the last 15 years, the incidence of temporary contracts as a proportion of total salaried employment hardly changed at all until the economic recovery began in 2014 but has seen an increasingly sustained rise since then. This shift coincided with the abolition of the "trial period" clause that came about when the employment status of blue-collar and white-collar workers was harmonised. Since that time, many employers appear to prefer not to commit to offering new personnel a permanent contract but in the first instance tend to offer a temporary contract, in order to assess whether the new employee matches the required profile. Unlike the case with self-employed status and part-time work, it is rare that a worker makes a voluntary personal choice to sign a temporary contract. Moreover, this type of employment contract is linked with greater job and income insecurity. For young people, a temporary contract is becoming ever more frequently an inevitable first step before obtaining a permanent contract. Given that people do not generally enter into temporary contracts willingly, the sharp increase in temporary work, especially those of very short-term, concentrated among young workers, deserves special attention. In particular, if people are forced to work under successive temporary contracts, which do not lead over time to the offer of a permanent contract, this is bound to lead to greater instability and a higher risk of poverty.

Part-time work is more common in Belgium than on average in the EU (25 % against 19 % respectively). However, unlike the other EU countries, working part-time is in most cases the result of a voluntary decision by the workers in question : just 2 % of workers in Belgium do so involuntarily, compared with 5 % in the EU. While the proportion of people working part-time involuntarily is quite small, it would nevertheless be advisable to remain attentive to the issue of underemployment (where the employee is working less than 20 hours per week), especially as regards the risk of precarious income and particularly among people living alone. Nevertheless, given the low percentage of people working part-time involuntarily, we may deduce that most “under-employed” people have made a personal choice to work fewer hours. Working part-time, which is the case for four times as many women as men in Belgium, helps to ensure a good work-life balance. The predominance of women among part-time workers is due to a number of factors, especially the fact that women still today take on a greater share than men in the upbringing of children and the performance of household tasks. Part-time work is also widely used by people approaching the end of their careers in order to reduce their working hours before finally taking retirement. The high proportion of part-time work in total employment in Belgium is partly due to the existence of various mechanisms such as the time-credit scheme, career-break option and special-purpose leave, which have proved to be enormously popular, especially among workers coming to the end of their career.



## Annex

The database used for the econometric estimates comprises all the microdata available in the Labour Force Surveys conducted in Belgium between 2005 and 2017. For each analysis the population sample is made up of everyone aged 15 and over who is in work. Regarding temporary contracts, the sample is taken only from salaried workers. Please also note that the analysis of self-employed workers does not include carers.

As the data used comes from just a sample of the population, we have used Eurostat's weighting coefficients so that the results provide an estimate of the percentages for the entire population. For each of the variables analysed, we have verified the representativeness thresholds so as to ensure that the results are representative.

For each of the three aspects dealt with in this article, we have used an estimation based on a Probit model defined in the following way:

$$\Pr(Y_{it} = 1 | X_{it}) = \Phi(\beta X_{it} + \mu_t + \varepsilon_{it})$$

where  $\Phi$  is the distribution function of the standard normal random variable  $\Phi(z) = \int_{-\infty}^z \frac{1}{\sqrt{2\pi}} e^{-u^2/2} du$   $z, u \in \mathbb{R}$

$Y_{it}$  is the dependent binary variable which takes the value 1 if the person is independent (or on a temporary contract, or working part-time, depending on which category is being studied) and 0 if not;  $X_{it}$  represents all the explanatory variables – gender, region or province of residence, age, level of education, field of study, marital status, number of children, country of birth and branch of activity;  $\mu_t$  is the time-fixed effect; and  $\varepsilon_{it}$  is the error term.

However, the model estimated using this approach cannot be directly interpreted, except for the meaning of the relationship between the variables: if the coefficient is positive (or negative respectively), then, all else being equal, the probability will increase (or decrease) if the variable increases. With discrete variables, if the coefficient is positive (or negative respectively) this means that the variable in question has a positive (or negative) effect on the probability vis-à-vis the reference category. For example, regarding the regression on part-time work, if the coefficient of the "female" variable is positive, this means that, all else being equal, a woman is more likely than a man (the reference group) to work part time.

In order to understand the exact effect of a variable on the probability of a person's employment status, i.e. the size of the variation, we need to calculate the marginal effects. These effects are the partial derivative of the probability for the variable  $j$ , for which we wish to know the effect size. This derivative depends on the value of the other variables. So that we have to choose how to set the other variables. In our case we use the average level, so that each coefficient can be interpreted for all the other variables remaining constant and equal to the average. For example, based on the table below, we could say that for two people who show average characteristics in terms of age, region of residence, level of education, marital status, number of children and country of birth, a woman is 35 % more likely to be working part-time than a man.

Based on our estimate, we could also estimate the predicted probability for all the variables included in the regression. These are the data presented in the tables shown in this article. A 95 % confidence interval has been calculated for each of the predicted probabilities.

The following tables show the marginal effects derived from the model. For each category the table shows four regressions: the first takes the personal characteristics of workers excluding their field of studies, the second includes their field of studies, the third excludes their field of studies but includes their branch of activity and the last is an estimate including all the variables. We have broken down the information in this way because of the loss of information when the "field of studies" and "branch of activity" variables are included in the regression. Information on "field of studies" is only available for those with at least a higher secondary school

diploma. Including them in the analysis therefore implies excluding all those with lower levels of education. As regards information on the "branch of activity", there is a break in the data series in 2008 as the EU Statistical Classification of Economic Activities (NACE-code) was then revised. Including "branch of activity" in the regression therefore means that we lose three years of estimates.

The second table shows the predicted probabilities. Data for gender, region of residence, age, level of education, marital status, number of children and country of birth are calculated based on the first regression (excluding field of studies and branch of activity). The data supplied for "field of studies" are based on the results of the second regression and those for "branch of activity" on the third regression.

## Annex 1

### Marginal effects of the probability of being self-employed

(coefficients multiplied by 100, on the basis of the Probit model with time-fixed effects, population at work aged 15 and over, 2005-2017<sup>1</sup>)

	Personal characteristics		Personal characteristics and field of studies		Personal characteristics and branch of activity		Personal characteristics, field of studies and branch of activity	
<b>Gender</b>								
Male	Ref.		Ref.		Ref.		Ref.	
Female	-7.9***	(0.1)	-8.0***	(0.1)	-5.9***	(0.1)	-6.1***	(0.1)
<b>Region</b>								
Brussels	Ref.		Ref.		Ref.		Ref.	
Flanders	-1.8***	(0.2)	-1.7***	(0.2)	-1.9***	(0.2)	-1.6***	(0.2)
Wallonia	-2.6***	(0.2)	-2.5***	(0.2)	-2.1***	(0.2)	-2.0***	(0.2)
<b>Age</b>								
Under 30	Ref.		Ref.		Ref.		Ref.	
From 30 to 59	5.4***	(0.1)	5.3***	(0.2)	4.9***	(0.1)	4.7***	(0.1)
60 and over	28.6***	(0.4)	26.7***	(0.6)	21.9***	(0.4)	21.7***	(0.7)
<b>Level of education</b>								
Low	Ref.				Ref.			
Medium	2.8***	(0.1)	Ref.		2.3***	(0.1)	Ref.	
High	4.6***	(0.1)	3.2***	(0.1)	6.1***	(0.1)	3.2***	(0.1)
<b>Field of studies</b>								
General programmes			Ref.				Ref.	
Education			-9.1***	(0.3)			-3.2***	(0.4)
Arts and humanities			-0.4	(0.3)			-0.2	(0.3)
Social sciences, business and law			-0.3	(0.3)			-1.3***	(0.2)
Sciences, maths, stats			-6.9***	(0.3)			-5.4***	(0.3)
ICT			-5.4***	(0.4)			-4.5***	(0.3)
Engineering, manufacturing, construction			-0.8***	(0.2)			-1.8***	(0.2)
Agriculture, veterinary			19.0***	(0.7)			5.1***	(0.6)
Health, welfare			5.2***	(0.3)			5.4***	(0.3)
Services			6.5***	(0.4)			0.9***	(0.3)
<b>Marital status</b>								
Separated, divorced, widowed	Ref.		Ref.		Ref.		Ref.	
Single	-2.3***	(0.2)	-2.7***	(0.2)	-2.5***	(0.2)	-2.6***	(0.2)
Married	1.6***	(0.2)	1.2***	(0.2)	1.2***	(0.2)	0.9***	(0.2)
<b>Number of children</b>	<b>0.1**</b>	<b>(0.1)</b>	<b>0.1</b>	<b>(0.1)</b>	<b>0.0</b>	<b>(0.1)</b>	<b>0.1</b>	<b>(0.1)</b>

Sources: LFS (microdata), NBB estimate.

Note: (standard errors), \* significant at 90%, \*\* significant at 95%, \*\*\* significant at 99%.

1 Regressions including data relating to branch of activity only cover the period 2008-2017.

Annex 1 (continued)

**Marginal effects of the probability of being self-employed**

(coefficients multiplied by 100, on the basis of the Probit model with time-fixed effects, population at work aged 15 and over, 2005-2017<sup>1</sup>)

	Personal characteristics		Personal characteristics and field of studies		Personal characteristics and branch of activity		Personal characteristics, field of studies and branch of activity	
<b>Country of birth</b>								
Belgium	Ref.		Ref.		Ref.		Ref.	
EU	2.2***	(0.2)	1.6***	(0.3)	1.2***	(0.2)	1.1***	(0.2)
Non-EU	-1.9***	(0.2)	-1.5***	(0.3)	-2.7***	(0.2)	-2.3***	(0.2)
<b>Branch of activity</b>								
A. Agriculture					Ref.		Ref.	
B. Mining					-67.1***	(1.0)	-60.8***	(1.5)
C. Manufacturing					-64.9***	(0.8)	-59.0***	(1.2)
D. Electricity and gas supply					-68.1***	(0.8)	-62.0***	(1.2)
E. Water supply and waste management					-66.8***	(0.8)	-61.1***	(1.3)
F. Construction					-44.6***	(0.8)	-38.5***	(1.3)
G. Wholesale and retail trade					-50.0***	(0.8)	-45.6***	(1.2)
H. Transportation					-65.0***	(0.8)	-59.3***	(1.2)
I. Accommodation and food service activities					-33.6***	(0.9)	-31.8***	(1.4)
J. Information and communication					-57.3***	(0.8)	-49.5***	(1.3)
K. Financial and insurance activities					-62.2***	(0.8)	-56.0***	(1.2)
L. Real estate activities					-40.7***	(1.3)	-31.7***	(1.8)
M. Professional, scientific and technical activities					-36.1***	(0.9)	-29.5***	(1.3)
N. Administrative and support service activities					-59.3***	(0.8)	-52.7***	(1.3)
O. Public administration					-69.0***	(0.8)	-63.1***	(1.2)
P. Education					-68.4***	(0.8)	-62.5***	(1.2)
Q. Human health and social work activities					-57.4***	(0.8)	-53.9***	(1.2)
R. Arts, entertainment and recreation					-51.6***	(0.9)	-46.3***	(1.4)
S. Other service activities					-32.8***	(1.0)	-29.7***	(1.4)
T. Activities of households as employers of domestic personnel					-64.7***	(1.0)	-58.8***	(1.4)
Sample size	534 847		337 837		395 972		246 316	

Sources: LFS (microdata), NBB estimate.

Note: (standard errors), \* significant at 90 %, \*\* significant at 95 %, \*\*\* significant at 99 %.

1 Regressions including data relating to branch of activity only cover the period 2008-2017.

## Annex 2

### Marginal effects of the probability of being employed on a temporary contract

(coefficients multiplied by 100, based on the Probit model with time-fixed effects, salaried population aged 15 and over, 2005-2017<sup>1</sup>)

	Personal characteristics		Personal characteristics and field of studies		Personal characteristics and branch of activity		Personal characteristics, field of studies and branch of activity	
<b>Gender</b>								
Male	Ref.		Ref.		Ref.		Ref.	
Female	3.1***	(0.1)	2.2***	(0.1)	1.1***	(0.1)	1.1***	(0.1)
<b>Region</b>								
Brussels	Ref.		Ref.		Ref.		Ref.	
Flanders	-2.2***	(0.1)	-3.2***	(0.2)	-1.9***	(0.2)	-2.7***	(0.2)
Wallonia	0.3*	(0.2)	-0.6***	(0.2)	0.4**	(0.2)	-0.3	(0.2)
<b>Age</b>								
Under 30	Ref.		Ref.		Ref.		Ref.	
From 30 to 59	-13.2***	(0.2)	-11.4***	(0.2)	-13.2***	(0.2)	-11.5***	(0.2)
60 and over	-11.2***	(0.3)	-9.9***	(0.5)	-11.8***	(0.3)	-10.8***	(0.5)
<b>Level of education</b>								
Low	Ref.				Ref.			
Medium	-4.2***	(0.1)	Ref.		-4.0***	(0.2)	Ref.	
High	-4.5***	(0.1)	-1.5***	(0.1)	-5.7***	(0.2)	-2.2***	(0.1)
<b>Field of studies</b>								
General programmes			Ref.				Ref.	
Education			6.5***	(0.3)			-0.8***	(0.3)
Arts and humanities			4.5***	(0.3)			2.2***	(0.3)
Social sciences, business and law			-0.4*	(0.2)			0.2	(0.2)
Sciences, maths, stats			3.9***	(0.4)			2.7***	(0.4)
ICT			-1.8***	(0.3)			-1.6***	(0.4)
Engineering, manufacturing, construction			-1.2***	(0.2)			-0.7***	(0.2)
Agriculture, veterinary			1.5***	(0.5)			0.9	(0.5)
Health, welfare			-0.1	(0.2)			-0.2	(0.3)
Services			0.3	(0.2)			-0.2	(0.3)
<b>Marital status</b>								
Separated, divorced, widowed	Ref.		Ref.		Ref.		Ref.	
Single	2.9***	(0.2)	2.8***	(0.2)	3.0***	(0.2)	3.0***	(0.2)
Married	-1.7***	(0.1)	-1.3***	(0.2)	-1.5***	(0.1)	-1.1***	(0.2)
<b>Number of children</b>	0.3***	(0.0)	-0.1	(0.1)	0.2***	(0.1)	-0.2***	(0.1)

Sources: LFS (microdata), NBB estimate.

Note: (standard errors), \* significant at 90%, \*\* significant at 95%, \*\*\* significant at 99%.

1 Regressions including data relating to branch of activity only cover the period 2008-2017.

## Annex 2 (continued)

### Marginal effects of the probability of being employed on a temporary contract

(coefficients multiplied by 100, based on the Probit model with time-fixed effects, salaried population aged 15 and over, 2005-2017<sup>1</sup>)

	Personal characteristics		Personal characteristics and field of studies		Personal characteristics and branch of activity		Personal characteristics, field of studies and branch of activity	
<b>Country of birth</b>								
Belgium	Ref.		Ref.		Ref.		Ref.	
EU	3.7***	(0.2)	4.6***	(0.3)	3.5***	(0.2)	4.1***	(0.3)
Non-EU	9.2***	(0.3)	10.1***	(0.4)	9.0***	(0.3)	10.4***	(0.4)
<b>Branch of activity</b>								
A. Agriculture					Ref.		Ref.	
B. Mining					-4.5***	(1.4)	-0.6	(2.0)
C. Manufacturing					-4.5***	(0.9)	-2.0*	(1.0)
D. Electricity and gas supply					-6.5***	(0.9)	-3.5***	(1.2)
E. Water supply and waste management					-5.6***	(0.9)	-2.6**	(1.2)
F. Construction					-7.0***	(0.9)	-4.6***	(1.0)
G. Wholesale and retail trade					-4.5***	(0.9)	-2.1**	(1.0)
H. Transportation					-5.7***	(0.9)	-3.2***	(1.1)
I. Accommodation and food service activities					-2.3***	(0.9)	0.6	(1.1)
J. Information and communication					-5.3***	(0.9)	-2.7**	(1.1)
K. Financial and insurance activities					-7.7***	(0.9)	-5.2***	(1.0)
L. Real estate activities					-4.9***	(1.0)	-1.8	(1.3)
M. Professional, scientific and technical activities					-3.7***	(0.9)	-1.5	(1.1)
N. Administrative and support service activities					-1.7*	(0.9)	-0.5	(1.1)
O. Public administration					-4.7***	(0.9)	-2.4***	(1.0)
P. Education					7.8***	(0.9)	12.2***	(1.1)
Q. Human health and social work activities					-4.2***	(0.9)	-1.3	(1.1)
R. Arts, entertainment and recreation					4.6***	(1.0)	7.5***	(1.2)
S. Other service activities					-4.2***	(0.9)	-2.8**	(1.1)
T. Activities of households as employers of domestic personnel					7.0***	(1.3)	10.2***	(1.8)
Sample size	459 467		290 889		340 013		212 640	

Sources: LFS (microdata), NBB estimate.

Note: (standard errors), \* significant at 90 %, \*\* significant at 95 %, \*\*\* significant at 99 %.

<sup>1</sup> Regressions including data relating to branch of activity only cover the period 2008-2017.

## Annex 3

### Marginal effects of the probability of being a part-time worker

(coefficients multiplied by 100, based on the Probit model with time-fixed effects, population at work aged 15 and over, 2005-2017<sup>1</sup>)

	Personal characteristics		Personal characteristics and field of studies		Personal characteristics and branch of activity		Personal characteristics, field of studies and branch of activity	
<b>Gender</b>								
Male	Ref.		Ref.		Ref.		Ref.	
Female	34.6***	(0.1)	27.7***	(0.2)	28.9***	(0.2)	24.9***	(0.2)
<b>Region</b>								
Brussels	Ref.		Ref.		Ref.		Ref.	
Flanders	2.7***	(0.2)	2.3***	(0.3)	3.0***	(0.2)	2.5***	(0.3)
Wallonia	1.8***	(0.2)	2.0***	(0.3)	1.9***	(0.3)	1.9***	(0.3)
<b>Age</b>								
Under 30	Ref.		Ref.		Ref.		Ref.	
From 30 to 59	1.9***	(0.2)	2.8***	(0.2)	2.3***	(0.2)	2.7***	(0.2)
60 and over	20.8***	(0.5)	23.0***	(0.7)	20.6***	(0.5)	21.5***	(0.8)
<b>Level of education</b>								
Low	Ref.				Ref.			
Medium	-6.7***	(0.2)	Ref.		-7.0***	(0.2)	Ref.	
High	-14.3***	(0.2)	-9.7***	(0.2)	-15.8***	(0.2)	-9.8***	(0.2)
<b>Field of studies</b>								
General programmes			Ref.				Ref.	
Education			0.5	(0.4)			-2.1***	(0.5)
Arts and humanities			6.8***	(0.4)			7.3***	(0.5)
Social sciences, business and law			0.0	(0.3)			0.6*	(0.3)
Sciences, maths, stats			0.2	(0.5)			0.4	(0.6)
ICT			-1.5***	(0.6)			0.1	(0.7)
Engineering, manufacturing, construction			-4.2***	(0.3)			-2.3***	(0.3)
Agriculture, veterinary			-3.4***	(0.6)			-1.3*	(0.7)
Health, welfare			9.3***	(0.3)			1.9***	(0.4)
Services			3.5***	(0.4)			1.3***	(0.4)
<b>Marital status</b>								
Separated, divorced, widowed	Ref.		Ref.		Ref.		Ref.	
Single	-1.6***	(0.2)	-1.6***	(0.3)	-1.4***	(0.2)	-1.6***	(0.3)
Married	3.8***	(0.2)	3.8***	(0.2)	4.4***	(0.2)	3.8***	(0.3)
<b>Number of children</b>	1.3***	(0.1)	2.0***	(0.1)	1.2***	(0.1)	2.0***	(0.1)

Sources: LFS (microdata), NBB estimate.

Note: (standard errors), \* significant at 90%, \*\* significant at 95%, \*\*\* significant at 99%.

1 Regressions including data relating to branch of activity only cover the period 2008-2017.

## Annex 3 (continued)

### Marginal effects of the probability of being a part-time worker

(coefficients multiplied by 100, based on the Probit model with time-fixed effects, population at work aged 15 and over, 2005-2017<sup>1</sup>)

	Personal characteristics		Personal characteristics and field of studies		Personal characteristics and branch of activity		Personal characteristics, field of studies and branch of activity	
<b>Country of birth</b>								
Belgium	Ref.		Ref.		Ref.		Ref.	
EU	-0.6**	(0.3)	0.5	(0.3)	0.1	(0.3)	1.6***	(0.4)
Non-EU	1.4***	(0.3)	2.1***	(0.4)	-0.8***	(0.3)	0.5	(0.4)
<b>Branch of activity</b>								
A. Agriculture					Ref.		Ref.	
B. Mining					1.7	(1.8)	3.4	(2.5)
C. Manufacturing					2.1***	(0.5)	1.6**	(0.7)
D. Electricity and gas supply					0.4	(0.9)	-0.2	(1.0)
E. Water supply and waste management					1.7*	(0.9)	2.2*	(1.2)
F. Construction					-1.0*	(0.5)	-0.3	(0.7)
G. Wholesale and retail trade					9.9***	(0.5)	9.5***	(0.7)
H. Transportation					5.4***	(0.6)	4.8***	(0.7)
I. Accommodation and food service activities					18.5***	(0.7)	20.2***	(0.9)
J. Information and communication					6.8***	(0.7)	4.9***	(0.8)
K. Financial and insurance activities					10.0***	(0.6)	7.3***	(0.8)
L. Real estate activities					9.4***	(1.1)	6.7***	(1.3)
M. Professional, scientific and technical activities					6.5***	(0.6)	4.9***	(0.7)
N. Administrative and support service activities					19.9***	(0.6)	15.5***	(0.8)
O. Public administration					6.9***	(0.5)	5.7***	(0.7)
P. Education					14.1***	(0.5)	13.3***	(0.7)
Q. Human health and social work activities					23.2***	(0.5)	20.4***	(0.7)
R. Arts, entertainment and recreation					19.1***	(0.8)	18.2***	(1.1)
S. Other service activities					10.6***	(0.7)	9.4***	(0.9)
T. Activities of households as employers of domestic personnel					40.8***	(1.4)	37.9***	(1.9)
Sample size	541 239		341 110		400 213		248 500	

Sources: LFS (microdata), NBB estimate.

Note: (standard errors), \* significant at 90 %, \*\* significant at 95 %, \*\*\* significant at 99 %.

<sup>1</sup> Regressions including data relating to branch of activity only cover the period 2008-2017.



## Annex 4

### Marginal effects for the provinces and more detailed age-groups

(coefficients multiplied by 100, based on the Probit model with time-fixed effects, population at work aged 15 and over, 2005-2017; controlling for gender, level of education, marital status, number of children and country of birth)

Province	Self-employed		Temporary contracts		Part-time work	
Brussels	Ref.		Ref.		Ref.	
Antwerp	-2.6***	(0.2)	-3.1***	(0.2)	3.4***	(0.3)
Limbourg	-2.6***	(0.2)	-0.4**	(0.2)	5.4***	(0.3)
East Flanders	-1.4***	(0.2)	-2.6***	(0.2)	1.2***	(0.3)
Flemish Brabant	-2.6***	(0.2)	-2.9***	(0.2)	1.9***	(0.3)
West Flanders	0.9***	(0.2)	-2.3***	(0.2)	0.9***	(0.3)
Walloon Brabant	0.9***	(0.3)	-1.3***	(0.2)	0.5	(0.3)
Hainaut	-4.0***	(0.2)	-0.0	(0.2)	-0.9***	(0.3)
Liege	-2.7***	(0.2)	1.3***	(0.2)	3.4***	(0.3)
Luxembourg	-2.2***	(0.3)	-0.3	(0.2)	4.0***	(0.3)
Namur	-2.3***	(0.3)	0.1	(0.2)	2.4***	(0.3)
Age breakdown						
15-19	Ref.		Ref.		Ref.	
20-24	3.6***	(0.3)	-33.6***	(0.8)	-28.1***	(0.9)
25-29	6.3***	(0.3)	-47.4***	(0.8)	-34.5***	(0.9)
30-34	8.3***	(0.3)	-52.9***	(0.8)	-33.3***	(0.9)
35-39	10.3***	(0.3)	-54.8***	(0.8)	-32.0***	(0.9)
40-44	11.5***	(0.3)	-55.7***	(0.8)	-30.7***	(0.9)
45-49	11.9***	(0.3)	-56.4***	(0.8)	-29.0***	(0.9)
50-54	11.6***	(0.3)	-56.9***	(0.8)	-23.2***	(0.9)
55-59	13.9***	(0.4)	-57.3***	(0.8)	-17.1***	(0.9)
60-64	27.4***	(0.5)	-56.3***	(0.8)	-16.4***	(1.0)
65-69	62.5***	(1.1)	-38.1***	(1.8)	19.6***	(1.4)
70-74	66.2***	(1.6)	-34.7***	(3.0)	26.4***	(1.7)
75-79	65.5***	(3.2)	-44.2***	(4.4)	27.5***	(3.1)

Sources: LFS (microdata), NBB estimate.

Note: (standard errors), \* significant at 90 %, \*\* significant at 95 %, \*\*\* significant at 99 %.

## Annex 5

### Predicted probabilities for each dependent variable

(in %, based on the Probit model with time-fixed effects, 95 % confidence interval)

	Self-employed			Temporary contracts			Part-time work		
<b>Gender</b>									
Male	16.5	<b>16.6</b>	16.8	5.2	<b>5.3</b>	5.4	7.9	<b>8.1</b>	8.2
Female	8.6	<b>8.7</b>	8.8	8.2	<b>8.3</b>	8.5	42.4	<b>42.6</b>	42.8
<b>Region</b>									
Brussels	14.2	<b>14.5</b>	14.8	7.7	<b>7.9</b>	8.2	17.2	<b>17.6</b>	17.9
Flanders	12.6	<b>12.7</b>	12.9	5.6	<b>5.7</b>	5.8	20.1	<b>20.3</b>	20.5
Wallonia	11.7	<b>11.9</b>	12.0	8.1	<b>8.2</b>	8.4	19.2	<b>19.4</b>	19.6
<b>Province</b>									
Brussels	14.0	<b>14.3</b>	14.6	7.6	<b>7.9</b>	8.1	17.0	<b>17.4</b>	17.8
Antwerp	11.5	<b>11.7</b>	12.0	4.6	<b>4.8</b>	5.0	20.5	<b>20.8</b>	21.2
Limbourg	11.4	<b>11.7</b>	12.0	7.2	<b>7.5</b>	7.7	22.4	<b>22.8</b>	23.2
East Flanders	12.6	<b>12.9</b>	13.2	5.1	<b>5.3</b>	5.5	18.2	<b>18.6</b>	18.9
Flemish Brabant	11.5	<b>11.8</b>	12.0	4.7	<b>4.9</b>	5.1	18.9	<b>19.3</b>	19.6
West Flanders	14.9	<b>15.2</b>	15.5	5.4	<b>5.6</b>	5.8	18.0	<b>18.3</b>	18.7
Walloon Brabant	14.8	<b>15.2</b>	15.7	6.2	<b>6.6</b>	6.9	17.4	<b>17.9</b>	18.4
Hainaut	10.1	<b>10.4</b>	10.7	7.5	<b>7.8</b>	8.1	16.1	<b>16.5</b>	16.9
Liege	11.4	<b>11.7</b>	12.0	8.9	<b>9.2</b>	9.5	20.4	<b>20.8</b>	21.3
Luxembourg	11.8	<b>12.1</b>	12.5	7.3	<b>7.6</b>	7.9	20.9	<b>21.4</b>	21.8
Namur	11.6	<b>12.0</b>	12.4	7.6	<b>8.0</b>	8.4	19.3	<b>19.8</b>	20.3
<b>Age breakdown</b>									
15-19	1.7	<b>2.2</b>	2.8	58.6	<b>60.2</b>	61.8	46.0	<b>47.8</b>	49.5
20-24	5.5	<b>5.8</b>	6.1	26.0	<b>26.6</b>	27.2	19.1	<b>19.6</b>	20.2
25-29	8.3	<b>8.6</b>	8.8	12.5	<b>12.8</b>	13.1	12.9	<b>13.2</b>	13.6
30-34	10.3	<b>10.6</b>	10.8	7.0	<b>7.3</b>	7.5	14.2	<b>14.5</b>	14.8
35-39	12.3	<b>12.6</b>	12.8	5.2	<b>5.4</b>	5.6	15.5	<b>15.8</b>	16.1
40-44	13.5	<b>13.7</b>	14.0	4.4	<b>4.5</b>	4.7	16.8	<b>17.1</b>	17.4
45-49	13.8	<b>14.1</b>	14.4	3.7	<b>3.8</b>	4.0	18.5	<b>18.8</b>	19.1
50-54	13.6	<b>13.9</b>	14.2	3.1	<b>3.2</b>	3.4	24.2	<b>24.6</b>	25.0
55-59	15.8	<b>16.2</b>	16.5	2.7	<b>2.9</b>	3.1	30.1	<b>30.7</b>	31.2
60-64	28.8	<b>29.6</b>	30.4	3.5	<b>3.9</b>	4.3	30.5	<b>31.4</b>	32.3
65-69	62.7	<b>64.7</b>	66.7	19.0	<b>22.1</b>	25.1	65.3	<b>67.4</b>	69.4
70-74	65.4	<b>68.5</b>	71.5	19.9	<b>25.5</b>	31.1	71.2	<b>74.1</b>	77.1
75-79	61.6	<b>67.8</b>	73.9	7.5	<b>16.0</b>	24.5	69.5	<b>75.3</b>	81.1
<b>Level of education</b>									
Low	9.5	<b>9.7</b>	9.9	10.0	<b>10.2</b>	10.4	28.3	<b>28.6</b>	28.9
Medium	12.4	<b>12.5</b>	12.7	5.9	<b>6.0</b>	6.1	21.7	<b>21.9</b>	22.2
High	14.2	<b>14.3</b>	14.5	5.6	<b>5.7</b>	5.8	14.2	<b>14.3</b>	14.5
<b>Marital Status</b>									
Separated, divorced, widowed	12.4	<b>12.7</b>	13.0	6.4	<b>6.6</b>	6.9	18.1	<b>18.4</b>	18.8
Single	10.2	<b>10.4</b>	10.5	9.4	<b>9.6</b>	9.7	16.6	<b>16.8</b>	17.0
Married	14.1	<b>14.3</b>	14.4	4.8	<b>4.9</b>	5.0	22.0	<b>22.2</b>	22.4
<b>Number of children</b>									
No children	12.4	<b>12.5</b>	12.7	6.3	<b>6.4</b>	6.5	18.8	<b>18.9</b>	19.1
By additional child	+0.0	<b>+0.1</b>	+0.2	+0.2	<b>+0.3</b>	+0.4	+1.4	<b>+1.5</b>	+1.6

Sources: LFS (microdata), NBB estimate.

## Annex 5 (continued)

### Predicted probabilities for each dependent variable

(in %, based on the Probit model with time-fixed effects, 95 % confidence interval)

	Self-employed			Temporary contracts			Part-time work		
<b>Country of birth</b>									
Belgium	12.5	12.6	12.7	5.8	5.9	6.0	19.6	19.7	19.8
EU	14.4	14.8	15.2	9.2	9.6	10.0	18.6	19.1	19.5
Non-EU	10.3	10.7	11.1	14.6	15.1	15.6	20.6	21.1	21.6
<b>Field of studies</b>									
General programmes	11.9	12.3	12.7	6.0	6.3	6.6	16.4	16.8	17.3
Education	3.0	3.2	3.4	12.3	12.8	13.3	16.8	17.3	17.9
Arts and Humanities	11.4	11.9	12.4	10.3	10.8	11.3	22.9	23.6	24.3
Social sciences, business and law	11.8	12.0	12.3	5.7	5.9	6.1	16.5	16.8	17.1
Sciences, maths, stats	5.0	5.4	5.8	9.5	10.2	10.8	16.3	17.1	17.8
ICT	6.4	6.9	7.5	4.0	4.5	5.0	14.3	15.3	16.3
Engineering, manufacturing, construction	11.3	11.5	11.8	4.9	5.1	5.3	12.3	12.6	12.9
Agriculture, veterinary	30.0	31.3	32.5	6.9	7.8	8.7	12.4	13.5	14.5
Health, welfare	17.1	17.5	17.9	5.9	6.2	6.4	25.6	26.1	26.6
Services	18.2	18.8	19.4	6.2	6.6	7.0	19.8	20.4	21.0
<b>Branch of activity</b>									
A. Agriculture	67.8	69.3	70.8	8.0	9.7	11.3	9.5	10.4	11.3
B. Mining	1.0	2.1	3.3	3.0	5.2	7.3	8.6	12.1	15.5
C. Manufacturing	4.2	4.4	4.6	5.0	5.2	5.4	12.2	12.6	12.9
D. Electricity and gas supply	0.8	1.2	1.5	2.3	3.1	3.9	9.2	10.8	12.3
E. Water supply and waste management	1.9	2.5	3.1	3.3	4.1	4.9	10.7	12.1	13.5
F. Construction	24.1	24.7	25.3	2.4	2.7	2.9	9.0	9.4	9.9
G. Wholesale and retail trade	18.9	19.2	19.6	5.0	5.2	5.4	19.9	20.3	20.7
H. Transportation	4.0	4.3	4.6	3.7	4.0	4.3	15.3	15.9	16.4
I. Accommodation and food service activities	34.8	35.7	36.7	6.8	7.3	7.9	27.9	28.9	29.8
J. Information and communication	11.3	11.9	12.5	3.9	4.3	4.8	16.3	17.2	18.1
K. Financial and insurance activities	6.7	7.1	7.6	1.7	2.0	2.2	19.6	20.4	21.1
L. Real estate activities	26.6	28.6	30.6	3.7	4.8	5.9	17.9	19.8	21.7
M. Professional, scientific and technical activities	32.4	33.2	34.0	5.4	5.9	6.4	16.3	16.9	17.6
N. Administrative and support service activities	9.5	10.0	10.4	7.5	8.0	8.4	29.6	30.3	31.1
O. Public Administration	0.2	0.3	0.3	4.7	5.0	5.2	16.9	17.3	17.7
P. Education	0.7	0.8	0.9	16.9	17.4	17.9	23.9	24.5	25.0
Q. Human health and social work activities	11.6	11.9	12.2	5.2	5.4	5.7	33.1	33.6	34.0
R. Arts, entertainment and recreation	16.6	17.7	18.8	13.1	14.2	15.3	28.1	29.5	30.9
S. Other service activities	35.2	36.5	37.7	4.9	5.5	6.1	20.1	21.1	22.0
T. Activities of households as employers of domestic personnel	3.4	4.6	5.8	14.7	16.6	18.5	48.6	51.2	53.8

Sources: LFS (microdata), NBB estimate.

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