Wage differentiation in Belgium according to SILC data

Introduction

Employees still represent over 85 %[1] of persons in work in Belgium. What is the trend in wages according to the harmonised European microeconomic data ?

Apart from the dominance of salaried workers in total employment, employees in Belgium are often paid according to a set pay scale. In addition to the impact of the level of education and skills, it is experience or the number of years spent working for the employer that determine the wage level.

With a centralised wage bargaining system and – for the private sector – differentiation primarily depending on the joint committees covering firms according to their main sphere of activity, wage dispersion is rather low in Belgium compared with other countries.

The article takes stock of the return on experience according to recent data. Did this return change in the light of technological progress, globalisation and the increased organisational scope for firms to manage their production, leading to fundamental changes in the world of work ? In line with normal practice in empirical research on wages, the findings are presented separately for men and women.

The database used in this paper is the Statistics on Income and Living Conditions (SILC)[2]. It is a survey designed to give an overview of the income distribution in Belgium and its Regions. For employees, it contains reliable information about their individual characteristics, their jobs and the gross wages. Furthermore, the SILC data provide some information about the family setting of the worker.

The article is structured as follows. After a brief introduction, section 1 provides more detail on the data, variables and methodology used. In section 2, we present our findings. The last section sets out the main conclusions of the analysis.

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1 According to the Labour Force Survey, employed population aged 20-64 years, 2019.
2 We would like to thank Eurostat for providing the data used in this paper, under Contract RPP 161/2018-EU-SILC. The data were made available by Eurostat in November 2020. Any opinions, findings, and conclusions expressed in this material are those of the author(s) and do not necessarily reflect the views of Eurostat. The usual disclaimer applies.

1. Wage determinants and SILC data

1.1 The SILC data

The SILC survey assesses the income and living conditions of persons living in private households (excluding persons living in a community) for all European countries, including Belgium and its Regions. This annual survey focuses on both individuals and households.

In Belgium it concerns around 6 000 households. Here we use cross-sectional data from the 2019 survey. The reference period for income (including gross pay for employees) is a fixed 12-month period. For Belgium, it is the calendar year. In other words, wages here relate to the year 2018. The other data are collected at the time of polling.

In the SILC, gross pay comprises the wages paid according to the working arrangement/work specified by the contract plus payments for overtime, the variable remuneration element, holiday pay, Christmas bonuses and any other bonuses (such as profit sharing, performance bonuses, etc.). However, it excludes the reimbursement of expenses (travel, etc.) and redundancy pay or supplementary amounts paid by the employer on retirement. To sum up, this way of measuring gross pay in the SILC corresponds closely to the concept of remuneration under Belgian social law.

1.2 SILC data and the estimation of a Mincerian wage equation

While employees move up the career ladder mainly as a result of experience gained and changes to their jobs, the qualifications and skills relevant to the occupation have a decisive influence on the wage level.

In the SILC data there is no variable which directly measures monthly or hourly pay. We construct the hourly pay on the basis of annual remuneration, the number of months that the person has worked as an employee, and the number of hours specified in the contract of employment. Employees who have changed their working arrangements during the reference year are excluded.

According to the pioneering work by Mincer, the wage equation links wages to three groups of variables: those describing initial training, those describing experience (from entry to the labour market[1]) and finally, the other characteristics (characteristics of the worker, the employer and the job). It therefore provides an estimated return on qualifications and experience, all other things being equal.

To avoid heteroskedasticity problems, we use the logarithm of the wage for the estimate. The coefficients are easy to interpret in the log-linear specification: they measure the relative difference in relation to the reference individual's wage.

2. Econometric results and discussion

The model performs well since the variables used explain more than 45 % of the observed variation in gross wages.

The return on a diploma is given by the parameter of the corresponding indicative variable (Table 1). All other things being equal, persons completing their secondary education gain 9 % compared to the group with only low level diplomas in the case of men and 6 % in the case of women, while for higher education the gain averages 28 % for men and 27 % for women. In regard to skills, a skilled trade will pay on average 5 % more

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1 Experience is measured as the number of years in paid work. The length of service with the current employer is not available in SILC, but we can see whether there was a change of employer during the reference year.

Chart 1

Gross hourly wage distribution[1] by education level

(in € per hour worked, Belgium, 2018)
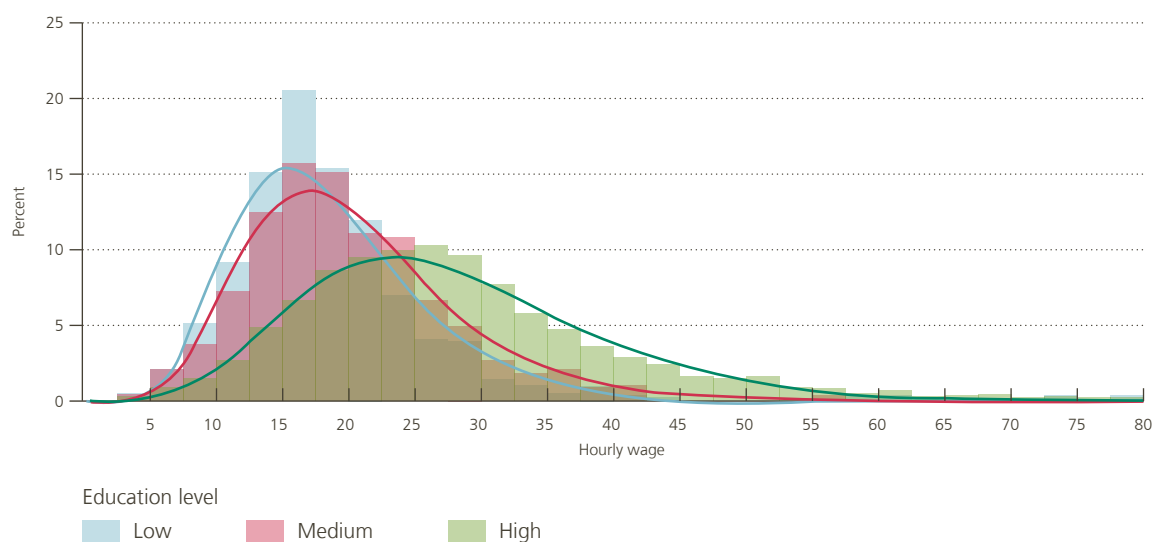
Source : Eurostat (SILC 2019, unweighted data).
1 For the purposes of this presentation, the hourly wage scale ends at 80.

than a basic trade[1] for a man and 19 % more for a woman, while in the case of a highly skilled job the gap is 26 % for men and 34 % for women compared to a job requiring no skills at all.

The returns on diplomas and skills are averages. Chart 1 presents the distribution of gross hourly wages by educational level. Wage dispersion is high for the remuneration of persons with a higher education diploma, whereas it is very low in the case of persons with a low level of education, the minimum wage constituting the lower bound. These differences in dispersion between the three classes of employees are statistically significant.

In Belgium, it is not the minimum wage set by the National Labour Board that is relevant, but the minimum wage under the various joint committees, because few employees actually receive the statutory minimum wage[2], even though almost all private sector employees are covered by the collective agreements. A rough estimate of the statutory minimum hourly wage for 2018 is € 10. There is no visible peak on the histogram around the statutory national minimum wage. According to Vandekerckhove *et al.*, sectoral minimum wages in 2015 were on average 19 % higher than the statutory national minimum wage.

There could be an upward bias in the estimated return on a diploma, particularly if there are unobserved characteristics which have a positive influence on both professional success and the decision to extend one's education (such as 'ability' for example). In that case, the additional pay obtained by gaining a diploma does not only measure the effect of education, since it is also partly remuneration for greater talent[3].

1 Examples include domestic help, labourers in industry or agriculture, refuse collectors, street traders or workers in fast food outlets. Occupational groups are based on the International Standard Classification of Occupations (ISCO), the latest version of which dates from 2008 and which was used in the surveys from 2011 onwards. This classification, produced by the International Labour Office, is revised periodically according to the content in terms of occupational tasks.

2 According to recent estimates of Vandekerckhove *et al.*, the share of employees working for the statutory national minimum wage in Belgium is around 2-3 %, while older estimates by Kampelmann and Rycx (2012) were about 6 %. The complex nature of the statutory national minimum wage in Belgium explains the discrepancies in the estimates. For comparison, the share of employees paid the minimum wage in France was around 13 %.

3 In other words, the return on education estimated here is most likely an upper bound.

Table 1

Wage equation by gender

(gross hourly wage in logs, Belgium, 2018)

Variable	Male			Female		
	Parameter Estimate	Standard Error	Pr > |t|	Parameter Estimate	Standard Error	Pr > |t|
Intercept [1]	2.5112	0.0533	<.0001	2.3352	0.0493	<.0001
Experience	0.0275	0.0025	<.0001	0.0240	0.0024	<.0001
Experience squared	−0.0004	0.0001	<.0001	−0.0003	0.0001	<.0001
Recently changed job	−0.1233	0.0293	<.0001	0.0333	0.0303	0.2707
Medium educated	0.0859	0.0239	0.0003	0.0565	0.0270	0.0366
Highly educated	0.2817	0.0275	<.0001	0.2578	0.0297	<.0001
Cohabitant	0.0296	0.0170	0.0810	−0.0016	0.0155	0.9160
Non-EU nationality	−0.1787	0.0387	<.0001	−0.0919	0.0458	0.0449
Wallonia	−0.0404	0.0167	0.0154	0.0123	0.0159	0.4415
Brussels	0.0060	0.0221	0.7855	0.0445	0.0222	0.0457
Skill level missing	0.2044	0.0788	0.0096	0.3019	0.2434	0.2150
Medium skilled	0.0508	0.0363	0.1613	0.1916	0.0262	<.0001
Highly skilled	0.2584	0.0386	<.0001	0.3400	0.0289	<.0001
Temporary contract	−0.1409	0.0310	<.0001	−0.1847	0.0260	<.0001
Part time	−0.0487	0.0239	0.0420	0.0025	0.0152	0.8690
Agriculture	−0.0672	0.1283	0.6006	−0.2282	0.1735	0.1884
Construction	−0.1618	0.0309	<.0001	−0.0782	0.0684	0.2532
Trade	−0.1218	0.0275	<.0001	−0.0720	0.0353	0.0419
Transportation	−0.1496	0.0308	<.0001	−0.0247	0.0544	0.6491
Accommodation and food	−0.2125	0.0533	<.0001	−0.1489	0.0550	0.0069
Information and communication	−0.0819	0.0358	0.0221	−0.0287	0.0532	0.5900
Financial services	0.0975	0.0407	0.0166	0.0943	0.0468	0.0442
Professional, scientific and technical activities	−0.1784	0.0315	<.0001	−0.0507	0.0342	0.1382
Administration	−0.0853	0.0267	0.0014	−0.0083	0.0328	0.7997
Education	−0.1321	0.0313	<.0001	−0.0479	0.0312	0.1250
Health and social work	−0.1746	0.0341	<.0001	−0.0691	0.0294	0.0188
Arts and other services	−0.1367	0.0400	0.0006	−0.0850	0.0406	0.0365
Employer's size [2] 11-20	0.0320	0.0323	0.3225	0.0339	0.0302	0.2614
Employer's size 21-49	0.0656	0.0296	0.0266	0.0520	0.0265	0.0501
Employer's size 50 or more	0.1768	0.0250	<.0001	0.1279	0.0224	<.0001

Source: Eurostat (SILC 2019, unweighted data).

1 Wage (in log) of a person who has not recently changed employer, with a low level of education, living alone, a national of an EU country, resident in Flanders, performing a low-skilled job under a full-time, permanent contract in industry, for an employer with no more than 10 employees.

2 This variable refers to the size of the establishment. An establishment is an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, etc.) situated in a geographically identified place. However, the work location is not available in our version of the data.

Wages reward experience. In theory, there is general experience which can be transferred from one job or employer to another, and experience which is specific to a particular job or employer and is not necessarily useful outside of that context. Employees may thus face a loss of wages if they have to change jobs, because their specific experience is not valued ("displaced worker effect").

In the SILC survey, experience is measured by the number of years in paid employment since entering the labour market. We have no data on tenure, i.e. the number of years in service with the same employer or in the same branch of activity ("sector tenure"). On the other hand, the persons polled have to state whether they have changed their job in the past year. We therefore have a way of identifying persons with brief tenure. The reason for the change of job (end of temporary contract, job loss, change of employer, etc.) is not specified.

According to the specification used, wages rise by around 2.5 % per year of experience up to a maximum. The return on experience is similar for men and women. Over the period 2012-2018, there were no striking changes : on average, occupational experience is rewarded in 2018 wages to the same degree as in 2012 wages. For persons who have had to change their job, there is a negative effect of around 5 % to 10 %. The small positive effect of a change of job for women, estimated with 2018 wages, is not statistically different from zero (see table in the annex for estimates per year).

On the basis of the same data for neighbouring countries, the return on experience is similar to that estimated for Belgium. The only exception is France, with a lower return on experience of around 1.6 % per year, compared to 2.5 % in the other three countries. The effect linked to a change of employer is similar in Belgium and Germany, but is not significant in France or the Netherlands.

Cohabiting seems to have a small positive effect on men's wages, whereas that effect is not significant for women. Having a non-European nationality is linked to lower gross pay in Belgium, reducing wages by around 17 % for men and 10 % for women. Nevertheless, the employment gap between nationals and non-EU citizens in Belgium is still the largest among all European countries, with a difference of more than 28 points in 2019 for the 20-64 age group.

Differences in remuneration unconnected with the employee's characteristics are also considerable. The employer's size and sector of activity are the factors which emerge most clearly from the available data.

The size of the employer is an important factor in the differentiation in workers' wages. The fact that large employers pay higher wages than small employers has long been recognised but there is less agreement on the rationale behind this empirical fact. For a survey of possible explanations, see Lallemand and Rycx (2007). In all countries, including Belgium, the social dialogue institutions have more power the larger the workforce. In large companies the staff are, on average, more likely to belong to a union. However, these institutional differences or variations in the rate of unionisation do not account for the effect of the firm's size (for US, Freeman, 1980). That is particularly true in Belgium, where collective agreements are automatically extended to all firms that come under a particular joint committee. More fundamentally, the largest firms are often also the most productive, owing to economies of scale and/or capital intensity, and part of the resulting value is reflected in remuneration. Large firms have more resources to spend on investment, including investment in their staff. Finally, it is probably more difficult to monitor the efforts of workers in large organisations as opposed to small and medium-sized firms. It may therefore make sense for firms to select their employees and ensure their level of effort by paying them more, rather than by setting up an expensive monitoring system (Ferrer and Lluis, 2008). The idea is that employees have more to lose if they do not make a sufficient effort. However, the degree of information asymmetry depends not only on the organisation's size but also on the nature of the business, the sector, etc.

According to the SILC data for Belgium, this size effect is statistically significant once the firm has 20 or more employees. The magnitude of the difference is also linked to size, since it is around 15 % for establishments with 50 or more workers, compared to 6 % for those with between 20 and 49 workers. These orders of magnitude

Chart 2

The employer-size wage premium[1] in Belgium and neighbouring countries

(in % for employers with fewer than 10 employees, 2018)

- Employer's size 11–20
- Employer's size 21–49
- Employer's size 50 or more
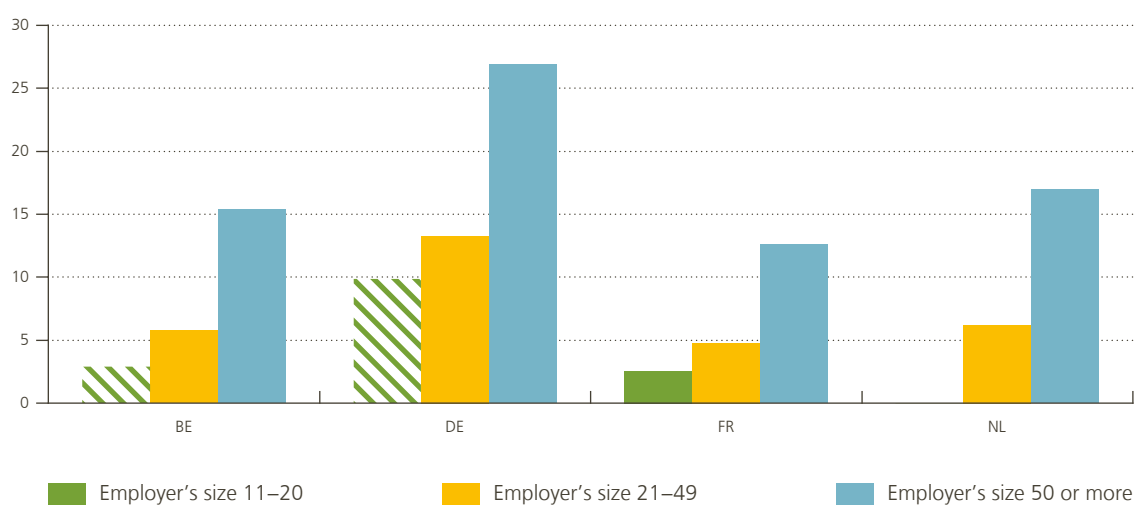
Source: Eurostat (SILC 2019, unweighted data).

1 The employer-size wage premiums were computed on the SILC data using the same specification for the four countries. Regional dummies were not included in that specification. Both male and female employees are taken into account. In the chart, a pattern means that the effect is not statistically significant.

are similar in neighbouring countries, with wider variations in Germany. These findings could be compatible with efficiency wage theories, but it could also be that larger firms offer a broader range of duties and hence more scope for advancement.

There are also wide variations in pay between branches of activity. The groupings in the SILC data are not detailed and refer here to industry in the broad sense, i.e. both manufacturing and undertakings in the sector comprising energy, water and waste management, etc. These are often large, highly capital-intensive undertakings. Compared to this group, only the financial sector records higher remuneration. At the other end of the spectrum, accommodation and food is the branch with the lowest hourly wages, followed by the construction sector.

Finance and energy are both highly regulated sectors. Adjusting the product market regulations to increase competition within these branches could reduce the disparities. Organisational changes obliging all firms to refocus on their core business and use external suppliers for ancillary activities also affect pay differentials between branches. Depending on its sphere of activity, a firm may make greater use of agency staff or outsourcing to other firms or self-employed operators, and that alters the cost structure and reduces the weight of the wage bill.

The type of contract also depends on the nature of the activity. While permanent contracts remain the norm in Belgium, with open-ended contracts representing over 90 % of the total in 2019, the share of temporary contracts has risen slightly in recent years. The impact on hourly wages of a fixed-term contract is still significantly negative, and – even after controlling for other factors – amounts to around 15 % (depending on gender in 2019 : 14 % for men and 18 % for women). In neighbouring countries and across Europe, there is an evident negative effect of between 10 % and 30 % depending on the country (Dias da Silva and Turrini, 2015). There are various theoretical explanations for this. First, it illustrates the fact that employment protection is more applicable

Chart 3

Industry wage differentials[1] are still sizeable after controlling for composition effects

(in % for manufacturing and utilities, 2018)
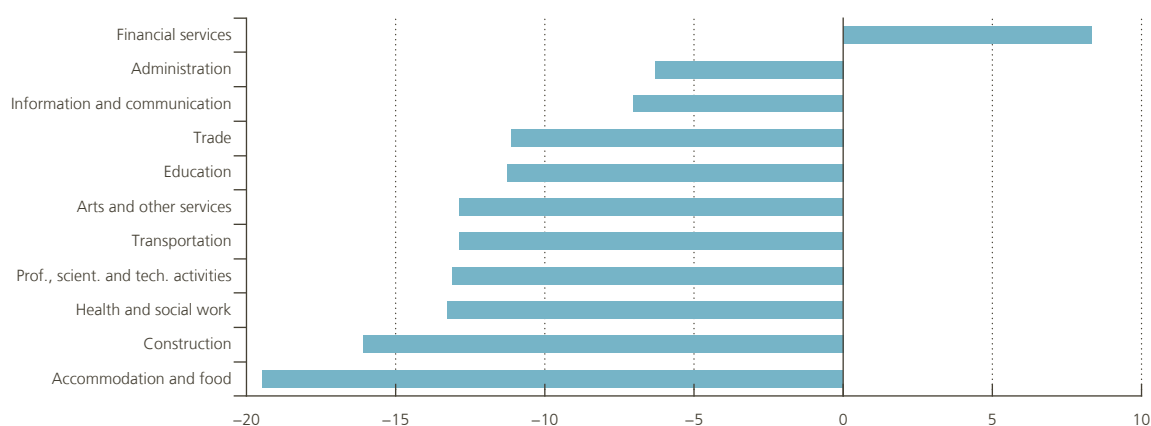
Source : Eurostat (SILC 2019, unweighted data).
1 Industry-specific premiums are estimated with a sample comprising both male and female employees.

to permanent contracts, reducing the employer's bargaining power in relation to employees with permanent contracts. Those employees are therefore both better protected and better paid. Also, it may be linked to information asymmetry at the time of recruitment. The quality of the match is an "experience-good", so that temporary contracts are often used in that context, which is why most of them apply to young employees. Finally, some unobserved characteristics could vary between employees with permanent contracts and other workers. In the 20-64 age group, 8.4 % of employees in Belgium have temporary contracts, compared to 9.3 % in Germany, 13.3 % in France and 13.6 % in the Netherlands.

Part-time work incurs only a small penalty in Belgium. This negative sign is due entirely to male employees. According to comparable specifications for neighbouring countries, part-time work is associated with a considerably higher penalty in Germany and the Netherlands (mini-jobs, etc.).

On the basis of 2018 gross wages and the specification used, there is a significant negative effect for male employees resident in Wallonia compared to Brussels or Flanders. The same exercise conducted for previous years showed no significant differences between Wallonia and Flanders. There is a small positive effect for Brussels, but the difference is no longer statistically significant from 2016 onwards. The positive effect for Brussels is sometimes explained by agglomeration affects, namely the presence and interaction of highly skilled employees, a dense network of activities and undertakings creating spillovers that boost the productivity of firms located in that region.

3. Concluding remarks

Wages in Belgium are largely determined by diploma levels, occupational skills and experience. For a representative sample of employees aged between 20 and 64 years, the average nominal increase in gross wages is 2.5 % per year of experience. Comparison with earlier comparable data shows that this return on experience is undiminished. It is similar to the figure estimated for Germany and the Netherlands, whereas the reward for

experience is slightly lower in French wages. In Belgium, according to our estimates, male employees who have changed their job (for whatever reason) generally record a reduction in wages, which could imply that specific experience, is not necessarily useful to their new employer.

Employees on permanent contracts still receive higher wages with respect to temporary workers, even after controlling for experience. Fixed-term contracts are in fact more likely to apply to young employees with limited work experience. This discrepancy between the types of contract could also indicate labour market segmentation, with insiders both better protected and better paid, while other employees are often stuck in temporary contracts. However, the pay gap of around 15 % between these types of contract is similar to the figure in neighbouring countries, whereas the percentage of temporary contracts is higher than in Belgium.

Although Belgium is a highly decentralised state, the wage setting process and social security are organized at the federal level. Since the 6th State Reform (2014), the Regions have had extensive powers relating to active labour market policies and targeted labour cost reduction measures. According to the 2019 SILC data, there are only very minor differences in average hourly rates between the Regions, with wages in Wallonia slightly lower than in Flanders, and wages in Brussels not significantly higher. Ideally, one would like to control in the wage equation for both the Region of residence and the work location.

An interesting avenue for future work would involve including in the wage equation productivity measures at the firm- or sector-level to test whether this leads to a reduction in the impact of the branch of activity, employer's size or type of contract effects. A better understanding of the link between wages and productivity could promote the reallocation of workers without creating excessive pay differentials between firms.

Annex

Wage equation: estimation results by income year

(gross hourly wage in logs, Belgium)

	2012	2013	2014	2015	2016	2017	2018
Intercept [1]	2.365	2.403	2.387	2.407	2.464	2.508	2.460
Experience	0.023	0.022	0.024	0.022	0.025	0.024	0.026
Experience squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recently changed job	−0.016	0.020	−0.022	−0.094	−0.058	−0.061	−0.051
Female	−0.089	−0.073	−0.078	−0.074	−0.082	−0.088	−0.073
Medium educated	0.059	0.082	0.083	0.115	0.062	0.062	0.081
Highly educated	0.246	0.257	0.240	0.286	0.236	0.258	0.278
Cohabitant	0.031	0.036	0.018	0.009	0.005	0.025	0.016
Non-EU nationality	−0.063	−0.070	−0.044	−0.039	−0.023	−0.094	−0.139
Wallonia	−0.004	−0.008	−0.012	−0.007	−0.014	−0.003	−0.013
Brussels	0.034	0.058	0.029	0.055	−0.008	0.017	0.021
Skill level missing	0.212	0.250	0.194	0.166	0.082	0.157	0.262
Medium skilled	0.126	0.112	0.100	0.085	0.087	0.098	0.129
Highly skilled	0.285	0.261	0.274	0.250	0.248	0.219	0.310
Temporary contract	−0.084	−0.135	−0.140	−0.100	−0.123	−0.119	−0.164
Part time	0.041	0.011	0.010	0.035	0.013	0.013	−0.015
Agriculture	−0.199	−0.031	−0.081	−0.101	−0.056	−0.020	−0.111
Construction	−0.080	−0.105	−0.089	−0.060	−0.112	−0.116	−0.161
Trade	−0.083	−0.079	−0.071	−0.061	−0.088	−0.074	−0.111
Transportation	−0.042	−0.015	−0.083	−0.034	−0.069	−0.040	−0.129
Accommodation and food	−0.022	−0.121	−0.159	−0.093	−0.083	−0.118	−0.195
Information and communication	−0.074	−0.023	−0.032	−0.029	−0.058	−0.048	−0.070
Financial services	0.132	0.111	0.085	0.121	0.107	0.071	0.083
Professional, scientific and technical activities	−0.105	−0.064	−0.040	−0.123	−0.070	−0.100	−0.131
Administration	−0.056	−0.033	−0.052	−0.057	−0.043	−0.057	−0.063
Education	−0.060	−0.061	−0.040	−0.094	−0.089	−0.088	−0.113
Health and social work	−0.099	−0.075	−0.090	−0.105	−0.103	−0.089	−0.133
Arts and other services	−0.011	0.105	0.092	0.053	0.100	0.009	−0.128
Employer's size [2] 11-20	0.048	0.008	0.026	0.020	0.055	0.011	0.029
Employer's size 21-49	0.077	0.052	0.061	0.074	0.067	0.039	0.058
Employer's size 50 or more	0.145	0.114	0.122	0.139	0.152	0.110	0.152

Source: Eurostat (SILC 2019, unweighted data).

1 Wage (in log) of a person who has not recently changed their employer, with a low level of education, living alone, a national of an EU country, resident in Flanders, performing a low-skilled job under a full-time permanent contract, in industry, for an employer with no more than 10 employees.

2 This variable refers to the size of the establishment. An establishment is an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, etc.) situated in a geographically identified place. However, the work location is not available in our version of the data.

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