

Progression in Employment: A cross country data analysis

The Progression in Employment project

Stella Capuano and James Cockett

Institute for Employment Studies

IES is an independent, apolitical, international centre of research and consultancy in public employment policy and HR management. It works closely with employers in all sectors, government departments, agencies, professional bodies and associations. IES is a focus of knowledge and practical experience in employment and training policy, the operation of labour markets, and HR planning and development. IES is a not-for-profit organisation.

About this report

This report is published by IES with the support of J.P. Morgan under their global New Skills at Work initiative.

New Skills at Work is J.P. Morgan's signature initiative designed to help equip people in communities around the world with the skills they need to compete for quality well-paid, and in-demand, jobs. In 2013, New Skills at Work 1.0, committed \$250 million investment over 5 years, helping nearly 150,000 individuals globally and including \$30 million committed to the Europe, the Middle East and Africa (EMEA) region. In March 2019, New Skills at Work 2.0 was launched as a \$350 million, five-year global commitment to prepare people around the world for the future of work. This commitment will focus on creating economic mobility and career pathways for underserved populations, and, for the first time, connects clearly to the firm's own talent practices, by supporting partnerships between the firm and leading educational and research institutions to further forecast emerging skillsets in the financial services industry and enable new training programs to prepare the firm's workforce for changes in technology and business.

While this report has been supported by the J.P. Morgan, the contents and opinions in this paper are those of IES alone and do not reflect the views of J.P. Morgan, JPMorgan Chase & Co, or any of its affiliates.

Institute for Employment Studies
City Gate
185 Dyke Road
Brighton BN3 1TL
UK

Telephone: +44 (0)1273 763400
Email: askIES@employment-studies.co.uk
Website: www.employment-studies.co.uk

Copyright © 2020 Institute for Employment Studies

IES project code: 01023-4975

Contents

Introduction to the Progression in Employment (PIE) project	4
Executive summary	7
<i>Key findings</i>	7
1 Introduction	9
2 Descriptive evidence on Progression in Employment	10
2.1 Employment status of low-skilled workers.....	10
2.2 Percentage of low-skilled workers that change (to a better) job	13
2.3 Earnings and occupational progression amongst the low-skilled	17
2.4 Self-perceptions of employment progression chances.....	21
3 Econometric analysis of the determinants of employment progression	23
3.1 Impact of factors affecting progression	23
3.2 Predicted probabilities of employment progression for the low-skilled workers	27
4 Concluding comments	33
Bibliography	35
Appendices	37
A.1 Data used and measurement issues	37
A.1.1 Datasets used in this analysis	37
A.1.2 Limitations of this study.....	38
B.1 Descriptive statistics	38
B.1. Descriptive statistics based on the EWCS.....	38
C.1 Econometric methodology	41

Introduction to the Progression in Employment (PIE) project

The Progression in Employment project, of which this paper forms a part, is designed to capture evidence and insights on developing and implementing upskilling pathways for low-skilled adults. The project aims to identify effective employer practice in supporting the in-work progression of adults in low-skilled and low-paid work, and to share the learning from this practice with employers through the creation of an employer toolkit and a range of dissemination activities.

The project is particularly timely and relevant given:

- The increasing risk of in-work poverty since the recession in 2008 (Eurofound, 2017).
- Job polarisation, characterised by demand for high volumes of high skilled and low skilled jobs, and reduced demand for jobs requiring intermediate skills, which is affecting internal career ladders and creating challenges for people with lower skills who want to progress.
- Low-skilled adults are less likely to participate in training (OECD, 2019). This is likely a reflection of both worker attitudes toward training and the lack of opportunities offered by employers to low-skilled workers (Kyndt et al, 2013).
- There are persistent mismatches between employer skills requirements and the available talent pool. Comparative analysis has shown 14 types of critical skills shortages in the UK, 15 in Germany and Spain, eight in Sweden, two in Italy and two in France.
- The Fourth Industrial Revolution is changing and is predicted to reshape the world of work and labour markets. People with low skills are typically the most vulnerable to the effects of labour market change.
- Comparative analysis of institutional contexts, national policy and employer choices show very different prospects for progression in different countries (Gautie and Schmitt, 2009), suggesting the value of sharing learning to support better practice.
- Career progression to higher skilled roles can offer higher salaries, better working conditions, job satisfaction, greater challenge and interesting work. Progression can also provide a platform to engage in lifelong learning and to access further qualifications.

The project is focused on four sectors and across six European countries. The four sectors are:

- Retail
- Hospitality

- Health
- Social care

These four sectors have been chosen as they employ significant numbers of low-skilled workers and are sectors that are projected to grow. By 2025, sectoral shares of employment across EU countries is predicted to increase 7.8 per cent in human health and social care activities, by 5.5 per cent in hospitality, and by 6.2 per cent in retail (Cedefop, 2017). These sectors are also increasingly affected by technological change.

The six countries are:

- Germany
- Spain
- France
- Italy
- Sweden
- United Kingdom

This paper is one of a series of research papers. The focus of this paper is to explore what is known about the progression of low-skilled workers across the six countries from available survey datasets. The analysis builds on previous work by isolating the effect of low skills on progression rather than a simple descriptive analysis of how low-skilled workers fare in the labour market. The results of the analysis will provide useful context for future phases of the project, including the development of the employer toolkit.

The other project outputs focus on the following aspects:

- policy briefing – this paper looks at why employment progression matters, and provides a brief overview of the different policy levers available and the emerging evidence around what works;
- employer initiatives to support progression of low-skilled, low-paid workers – this paper highlights examples of promising employer practice with respect to progression across the six countries drawn from publicly available sources;
- using behavioural insights to promote progression in employment – this paper explores the potential application of behavioural insights or ‘nudge’ approaches to promoting progression for low-skilled, low-paid workers;
- employer toolkit – the toolkit provides example case studies and a range of HR tools and techniques that employers can use to support the progression of low-paid, low-skilled workers;
- case study collection – this provides example employer case studies of action to improve progression in the workplace in each of the six main countries and three sectors included in the Progression in Employment project;
- progression in employment (main report) – this will summarise findings from across all phases of the project, and incorporate in-depth employer case studies of progression.

We hope the project, through widespread communication of promising and effective employer practice, by employers of all sizes, will encourage other employers to take action to support the progression of low-skilled, low-paid workers.

Executive summary

The purpose of this report is to describe and analyse progression in employment amongst low-skilled workers across six European countries (Germany, Spain, France, Italy, Sweden and the UK), and with particular reference to four sectors (retail, hospitality, health and social care), using existing European datasets. Progression in employment across Europe has been subject to little previous quantitative research. This paper extends previous descriptive and aggregate analysis by using econometric techniques to investigate the main drivers of progression. This approach has two main advantages:

- It enables focusing on the progression chances of individuals with different skill levels, whilst holding other determinants of progression constant. This allows for isolating the effect of skill level from other potential determinants of progression.
- It provides a means to predict the probability of progression for individuals with different skill levels and characteristics, and allow meaningful comparison between different groups of workers within the same country.

The analysis presented:

- compares the perceptions of low-skilled workers' employment progression chances with those of other workers;
- describes the average time taken to progress in employment for low-skilled employees, and compares this with other employees;
- assesses the impact of low skills on the chances to progress in each country, while keeping other drivers of progression (such as migrant status, age, and sector) constant;
- predicts the probability of changing to a better job for individuals with different skill levels and with different characteristics. Comparing probabilities within countries gives a sense of how the probability of moving job for the key groups studied compares with the probability of progression for the average worker in that country;
- predicts the probability of employment progression for low-skilled workers in the four sectors of interest, and in the six countries under study.

Key findings

Our main results can be summarised as follows:

- In general, our analysis demonstrates the adverse impact of having low skills on the progression chances of workers, taking account of other factors that may influence progression.

- Our analysis also demonstrates the influence of different sectors on the chances of progression of low-skilled workers. Low-skilled workers in the hospitality sector appear to have better chances of progression than those working in retail or health and social care.
- Being low-skilled is associated with a lower probability of changing to a better job in Germany (by 1.1 percentage points), Spain (by 0.5 percentage points), and the United Kingdom (by 1.4 percentage points). In Italy, whilst low skills appears to impact negatively the probability of changing job, skill levels do not appear to be associated with the probability of changing to a better job.
- In France, the chances of changing job, or to a better job, does not appear to be significantly different for workers with low skills, compared to other skill groups.
- In Sweden, those with low skills have a lower predicted probability of moving to a better job. However, this difference does not show as statistically significant, perhaps as a result of lower sample sizes available in the data for this country.
- Low skilled workers in the hospitality sector tend to have better chances of progressing to a better job when compared with workers in the other sectors involved in the analysis. Only in Sweden does this pattern not appear to hold. Interestingly, in Sweden it appears that the predicted probability of moving to a better job is higher for low-skilled workers in retail than for the other sectors.
- Within the low-skilled, there are some differences in progression chances for workers with different characteristics. These differences appear to vary between the six countries. For example, younger workers (those aged between 16 and 24 years old) have better chances of progression than the national average in Sweden, whilst older, low-skilled workers fare worse than the average employee.

1 Introduction

This paper is structured as follows:

- Section 2 presents a descriptive analysis of the overall picture of progression for low-skilled workers across the sectors and countries of interest. Within this, we present analyses that show:
 - an overview of how skill levels influences employment status;
 - the proportion of low-skilled workers, in comparison with other workers with different skill levels who change (to a better) job;
 - the time taken to achieve earnings and/or occupational progression for low-skilled workers, when compared with other workers with different skill levels;
 - low-skilled workers' self-perceptions of their own chances of employment progression, again, compared with other workers;
 - low-skilled workers' perceptions of the impact of any training received on their future employment prospects, when compared with other workers.
- Section 3 presents econometric analysis of the determinants of employment progression, in particular the influence of low skills on progression when other factors likely to affect progression are held constant. Within this, we present analyses that show:
 - the association of low skills with the probability of changing (to a better) job;
 - predicted probabilities of progression for low-skilled workers, and for workers with different characteristics.
- Section 4 presents some conclusions and potential implications of the findings.

2 Descriptive evidence on Progression in Employment

This section presents a descriptive picture of the six European labour markets under analysis (Germany, Spain, France, Italy, Sweden, and the UK) using the most recent waves of the EU Statistics on Incomes and Living Conditions (EU-SILC), cross sectional and longitudinal data, and the European Working Conditions Survey (EWCS). Details on the datasets used and their potential limitations are outlined in Appendix A.1.

The next subsection describes the key features of these six labour markets using the EU-SILC cross-sectional data.

2.1 Employment status of low-skilled workers

Table 2.1 presents key labour market indicators for each country overall, and by skill level. A description of the main findings are presented below the table.

The variables in Table 2.1 are defined as follows:

- **Low-skilled**: indicates whether a worker has low level of education (ISCED level 0/1/2, corresponding to no education to up to the level of lower secondary education).
- **Medium-skilled**: indicates whether the worker has a medium level of education (ISCED level 3 or 4, corresponding to upper secondary education and post-secondary, non-tertiary education respectively).
- **High-skilled**: indicates whether the worker has a high educational level (ISCED level 5 or 6, corresponding to the first and second stage of tertiary education respectively).
- **Permanent**: indicates whether a worker has a permanent job contract.
- **Temporary**: indicates whether a worker has a temporary job contract.
- **Changed job**: indicates whether the individual has changed job in the last year (self-reported).
- **Better job (over total job changes)**: out of those who changed job in the last year, it indicates whether the individual has changed job to take up a better job (self-reported).
- **Better job (over total employees)**: indicates the percentage of those who moved to better job over the total of those who did not change job and those who changed for other reasons.
- **Unemployed**: indicates an individual who defines their current activity status as unemployed.

- **Employee:** indicates an individual who defines his current activity status as employee (either full-time or part-time).

Table 2.1 Descriptive statistics of key EU-SILC labour market variables, by skill level

	Low-skilled	Medium-skilled	High-skilled	Overall
Germany				
Unemployed	20%	6%	3%	7%
Employee	78%	89%	88%	87%
Permanent	68%	88%	89%	86%
Temporary	32%	12%	11%	14%
Changed job	13%	11%	11%	11%
Better job (over total job changes)	28%	43%	44%	41%
Better job (over total employees)	4%	5%	5%	5%
Spain				
Unemployed	36%	21%	13%	24%
Employee	51%	66%	74%	64%
Permanent	64%	74%	77%	73%
Temporary	36%	26%	23%	27%
Changed job	12%	9%	9%	10%
Better job (over total job changes)	34%	29%	47%	38%
Better job (over total employees)	4%	3%	4%	4%
France				
Unemployed	22%	12%	6%	11%
Employee	70%	77%	83%	78%
Permanent	80%	81%	88%	84%
Temporary	20%	19%	12%	16%
Changed job	4%	6%	6%	6%
Better job (over total job changes)	29%	27%	39%	33%
Better job (over total employees)	1%	2%	2%	2%
Italy				
Unemployed	23%	16%	10%	17%
Employee	59%	67%	71%	66%
Permanent	82%	87%	88%	86%
Temporary	18%	13%	12%	14%
Changed job	6%	6%	7%	6%
Better job (over total job changes)	24%	28%	31%	28%
Better job (over total employees)	1%	2%	2%	2%
Sweden				
Unemployed	17%	6%	4%	7%
Employee	71%	83%	90%	84%

Permanent	79%	87%	88%	86%
Temporary	21%	13%	12%	14%
Changed job	21%	24%	30%	26%
Better job (over total job changes)	39%	39%	54%	46%
Better job (over total employees)	8%	9%	16%	12%
United Kingdom				
Unemployed	8%	5%	3%	5%
Employee	78%	83%	85%	83%
Permanent	97%	95%	95%	96%
Temporary	3%	5%	5%	4%
Changed job	9%	11%	12%	11%
Better job (over total job changers)	77%	57%	59%	61%
Better job (over total employees)	7%	6%	7%	7%

Source: Authors' calculations based on EU-SILC cross-sectional data, years: 2011-2016. Individuals aged 16-65. The percentages shown are weighted using EU-SILC person weights. Low-skilled: ISCED 0/1/2, Medium-skilled: ISCED 3 and 4, High-skilled: ISCED 5 and 6. The percentages of unemployed and employees are computed over the total labour force. The other percentages are computed over the total number of individuals employed as employees.

Key points from the data include:

- The labour market disadvantage of low-skill individuals is evident from their unemployment rates. In all countries the low-skill unemployment rate is higher than that of other skill groups and the national average. The difference between the national and the low-skill unemployment rates ranges between three percentage points in the UK, and 13 percentage points in Germany. In Spain, both the national and the low-skilled unemployment rates are particularly high – 24 and 36 per cent respectively. This reflects the critical situation of the Spanish labour market, which is documented also in other studies (see OECD, 2017).
- Progression in employment as defined in our study relates only to the workforce employed as employees, and excludes the self-employed population. To have a broad sense of how large our population of interest is, we report the proportion of employees in each country. Despite large cross-country differences, we can see that the unfavourable situation for the low-skilled is reflected also in these figures. In Germany, France, Sweden and the UK, where the percentage of employees is the highest (78-87 per cent), the low-skilled are between five and 13 percentage points less likely than the national average to be employed as employees.
- Turning to the type of contracts, we see that the proportion of employees on temporary contracts is the highest in Spain (27 per cent), reflecting the already noticed difficult labour market situation in this country. The percentage of workers with temporary contracts in the other countries is still relatively high (around 11-16 per cent), with the exception of the UK where it is only four per cent. This finding is in line with evidence by Eurofound (2013), based on EU-LFS data. The differences in the percentage of workers with temporary and permanent contracts by skill level are particularly large in

Germany, Spain and Sweden. In these countries the low-skilled are markedly more likely to have temporary contracts and less likely to have permanent contracts.

2.2 Percentage of low-skilled workers that change (to a better) job

We examined the percentage of employees of different skill levels, reporting that they had changed (to a better) job. We used two variables from the EU-SILC dataset:

- A binary variable indicating whether the individual has changed job in the last year.
- Provided that the respondent has changed job in the last year, the EU-SILC questionnaire asks the reason for the job change. The possible answers are: “*To take up and seek a better job*”, “*End of temporary contract*”, “*Obliged to stop by employer*”, “*Sale or closure of own family business*”, “*Childcare and care for other dependants*”, “*Partners job required us to relocate*”, or “*Other reasons*”. Using this variable, we define ‘progression’ as taking up or seeking a better job, based on the individual response to the above question.¹

Figure 2.1 to Figure 2.2 represent the distribution of the “Change job” and “Change to better job” variables by skill group.

Key findings to note include:

- There are large cross-country differences in the chances of progression for the low-skilled with respect to the other skill groups.
- For instance, in Germany and Spain, the percentage of low-skilled reporting to change job is higher than for the other skill-groups. However, the low-skilled are those for whom changing job is less often associated with changing to a better job in both countries. This is evident in Germany, where the percentage of low-skill job-switchers who found a better job is 28 per cent, against a national average of 41 per cent.
- In Sweden, France and Italy, the low-skilled are as likely or slightly less likely to change job in general and also to switch to a better job.
- A striking result for the UK is that, among low-skilled who changed job within a year (nine percent of total low-skilled employees), two thirds report that they did so to start a better job.

¹ Without knowing the previous occupation, and without further details on the current one (except for its denomination), we are not able to assess whether the new job subjectively defined as “better” is, instead, worse in terms of hours, earnings, or skill-match. Despite this, it is valid to assume in the majority of cases that a movement in the labour market, if it does not do so already, improves labour market prospects for that individual and is desirable for them.

Main findings from Figure 2.1

- **In Germany and Spain** low skilled individuals are slightly more likely to change job than other skill groups or the national average.
- **In Sweden** low-skilled individuals are less likely to change job than all other skill groups.
- **In France and the UK**, the low-skilled are slightly less likely than other skill groups to change jobs within a year, In Italy, they are as likely.

Figure 2.1 Percentage of employees who changed job, by skill level

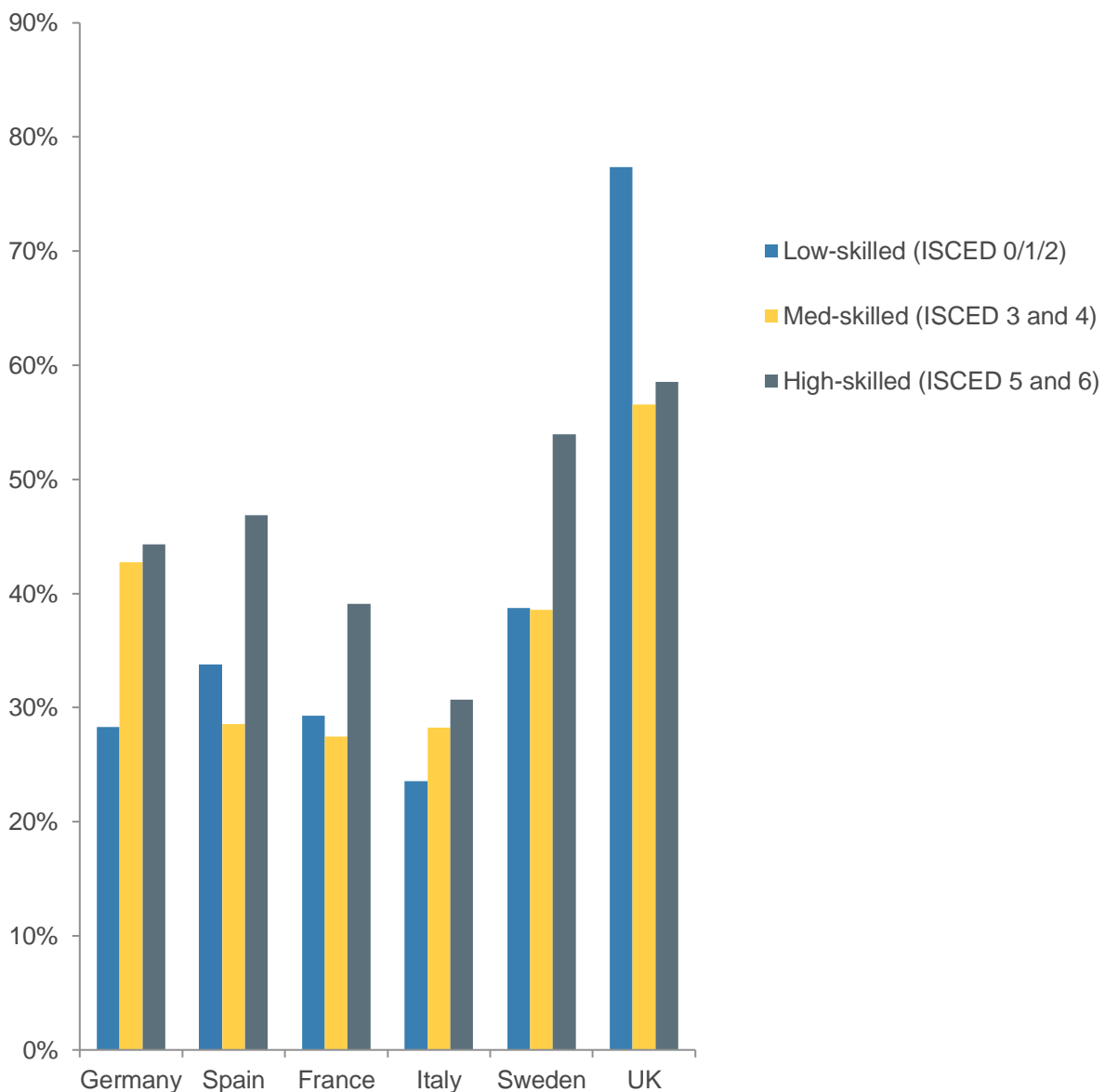


Source: Authors' calculations based on EU-SILC cross-sectional data, year 2016 (2015 for Italy). Estimation sample: employees aged 16-65. The percentages shown are weighted using EU-SILC person weights.

Main findings from Figure 2.2

- In **five out of six countries**, most low-skilled who change jobs do not change to better jobs.
- The exception is the **UK**, where 77 per cent of low-skilled employees who changed job report that they changed to a better job.

Figure 2.2 Percentage of employees who change to a better job (over total job-changers), by skill level



Source: Authors' calculations based on EU-SILC cross-sectional data, year 2016 (2015 for Italy). Estimation sample: employees aged 16-65. The percentages shown are weighted using EU-SILC person weights.

It is important to notice that the raw percentages presented so far may result from the influence of other variables that are correlated both with a low level of education and employment progression. As shown in Table 2.2, in all countries under study the individual skill level is correlated with other relevant socio-demographic and labour market characteristics. For instance, in Germany and Spain, a relatively high percentage of young employees are low-skilled. Moreover, in Spain and Italy we find a high concentration of low-skilled employees among older workers and low-skilled workers in hospitality and retail and amongst non-EU workers.² If these characteristics are also relevant for employment progression, the descriptive evidence discussed so far may not fully represent the true association between the individual skill-level and employment progression. Econometric techniques allow estimating the effect of each potential determinant of progression separately. This enables assessing whether, and to what extent, being low-skilled hinders employment progression, keeping other characteristics constant. We will present the result of our econometric analysis in Section 3.

Table 2.2 Skill distribution within each age, sector and migrant group

	Age			Sector			Migrant status		
	16-24	25-49	50+	Hospitality	Retail	Health and Social Work	National	Non EU	EU
Germany									
Low skilled	44%	9%	13%	27%	18%	11%	11%	25%	-
Medium-skilled	53%	59%	61%	61%	68%	68%	62%	42%	-
High-skilled	3%	32%	26%	12%	14%	21%	27%	33%	-
Spain									
Low skilled	36%	28%	38%	40%	37%	14%	30%	41%	27%
Medium-skilled	32%	24%	25%	29%	31%	22%	23%	29%	37%
High-skilled	32%	49%	36%	31%	32%	65%	47%	30%	36%
France									
Low skilled	13%	9%	24%	19%	13%	16%	12%	28%	35%
Medium-skilled	58%	42%	47%	60%	59%	44%	46%	32%	32%
High-skilled	29%	48%	30%	21%	28%	41%	42%	40%	33%

² The most prevalent occupations for the low-skilled in these sectors are within the ISCO major groups 5 (services and sales workers) and 9 (elementary occupations). Examples of occupations within ISCO major group 5 are “Personal service workers” (most prevalent in the hospitality sector), “sales workers” (most prevalent in retail) and “personal care workers” (most prevalent in the human health and social work sector). Examples of occupations within ISCO major group 9 are “cleaners and helpers” (most often found in the human health and social work sector), “food preparation assistants” (mostly found in the hospitality sector) and labourers in construction, manufacturing and transport (most prevalent in the retail sector).

Italy									
Low skilled	19%	26%	35%	33%	33%	17%	28%	37%	20%
Medium-skilled	74%	47%	44%	57%	52%	41%	46%	45%	58%
High-skilled	7%	27%	22%	10%	14%	42%	26%	18%	22%
Sweden									
Low skilled	9%	10%	16%	29%	14%	13%	9%	30%	17%
Medium-skilled	80%	44%	51%	56%	64%	43%	53%	30%	35%
High-skilled	10%	46%	33%	15%	22%	44%	39%	39%	48%
United Kingdom									
Low skilled	16%	17%	28%	28%	32%	13%	20%	18%	24%
Medium-skilled	57%	29%	30%	46%	41%	29%	35%	19%	27%
High-skilled	27%	53%	41%	25%	27%	57%	44%	64%	49%

Note: Some columns do not sum to 100% due to rounding.

Source: Authors' calculations based on EU-SILC cross-sectional data, year 2016 (2015 for Italy). Baseline sample: employees aged 16-65. The percentages shown are weighted using EU-SILC person weights.

2.3 Earnings and occupational progression amongst the low-skilled

The analysis presented in this section uses the EU-SILC longitudinal data to provide a visual representation of the “time to progression” by skill-level. The EU-SILC rotating panels follow individuals over a four year period, and contain prospective information on occupation, income and some individual characteristics, such as age and skill-level. Knowing the individual occupation and gross yearly income, we can define employment progression in two ways:

1. “occupational progression”, which occurs if at any point in time within the observational period the individual moves to an occupation characterised by a higher median income than the previous one;
2. “earnings progression”, which occurs if the individual moves to a higher decile of the occupational income distribution, without changing occupation.

Figure 2.3 and 2.4 show the survivor functions related to progression in employment in each country by skill-group.³ The survivor function indicates, for each year after the first one, the probability that the individual will be in the same occupation and/or income decile as in the first year. Hence, in Figure 2.3 and Figure 2.4, **higher values of the survivor functions are associated with ‘slower’ progression (the individual is more likely to stay in the same initial status), and lower values with ‘faster’ progression.**

³ The survivor functions are estimated using non-parametric estimation techniques (Kaplan-Meier product limit estimation).

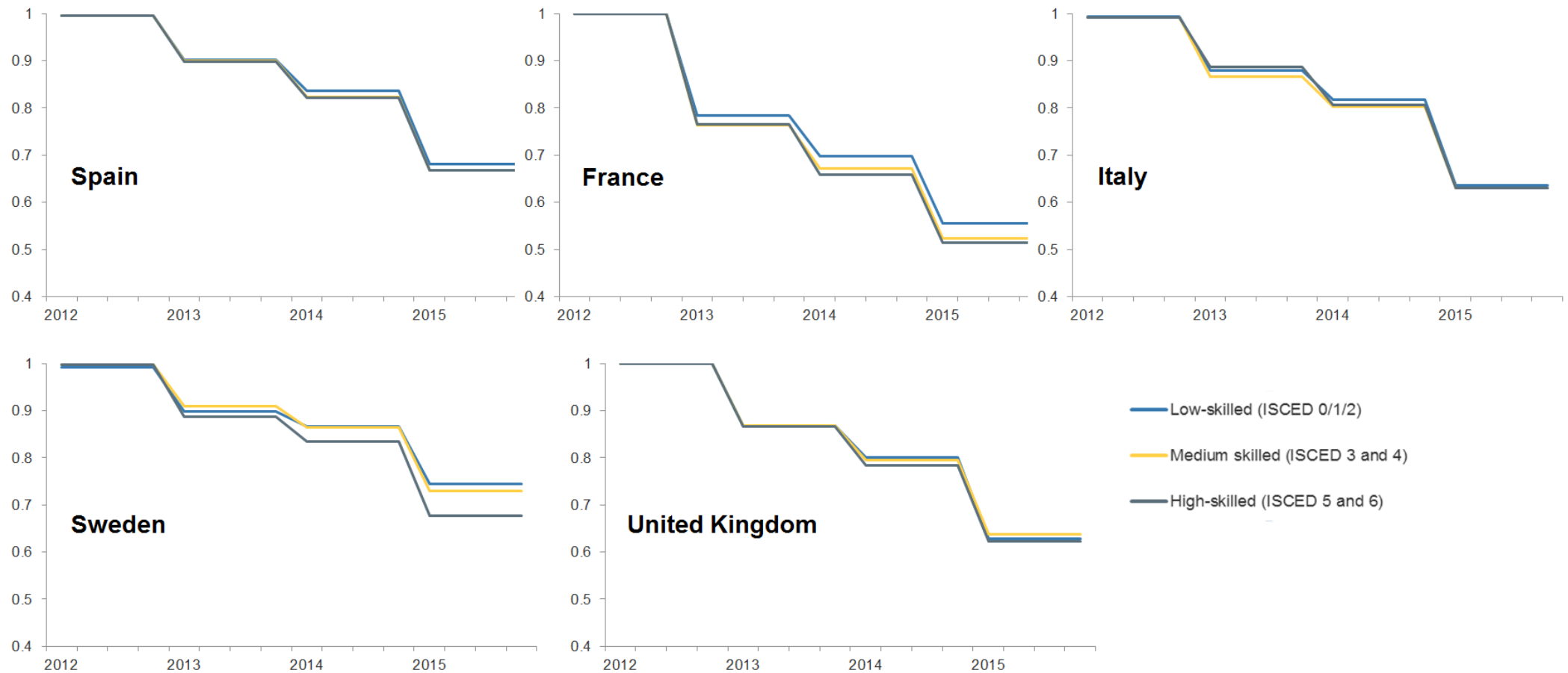
Figure 2.3 shows the dynamics of earnings progression by skill-groups. Key points to note include:

- In France and Sweden the low-skilled progress slower than the other skill groups (ie the survivor functions lay in general above the ones for other groups of workers).
- However, for Spain, Italy and the United Kingdom, there are only modest differences in the time to earnings progression across skill groups.
- Regarding occupational progression (Figure 2.4), the differences across skill groups appear minimal. In Spain, France and the United Kingdom low-skilled individuals display slightly faster progression than other skill groups.⁴

Again, it is important to note that these are descriptive analysis and explore the time to progression of low-skilled workers without attempting to isolate the impact of low skills and other factors on progression. We explore the particular impact of low skills on progression in Section 3.

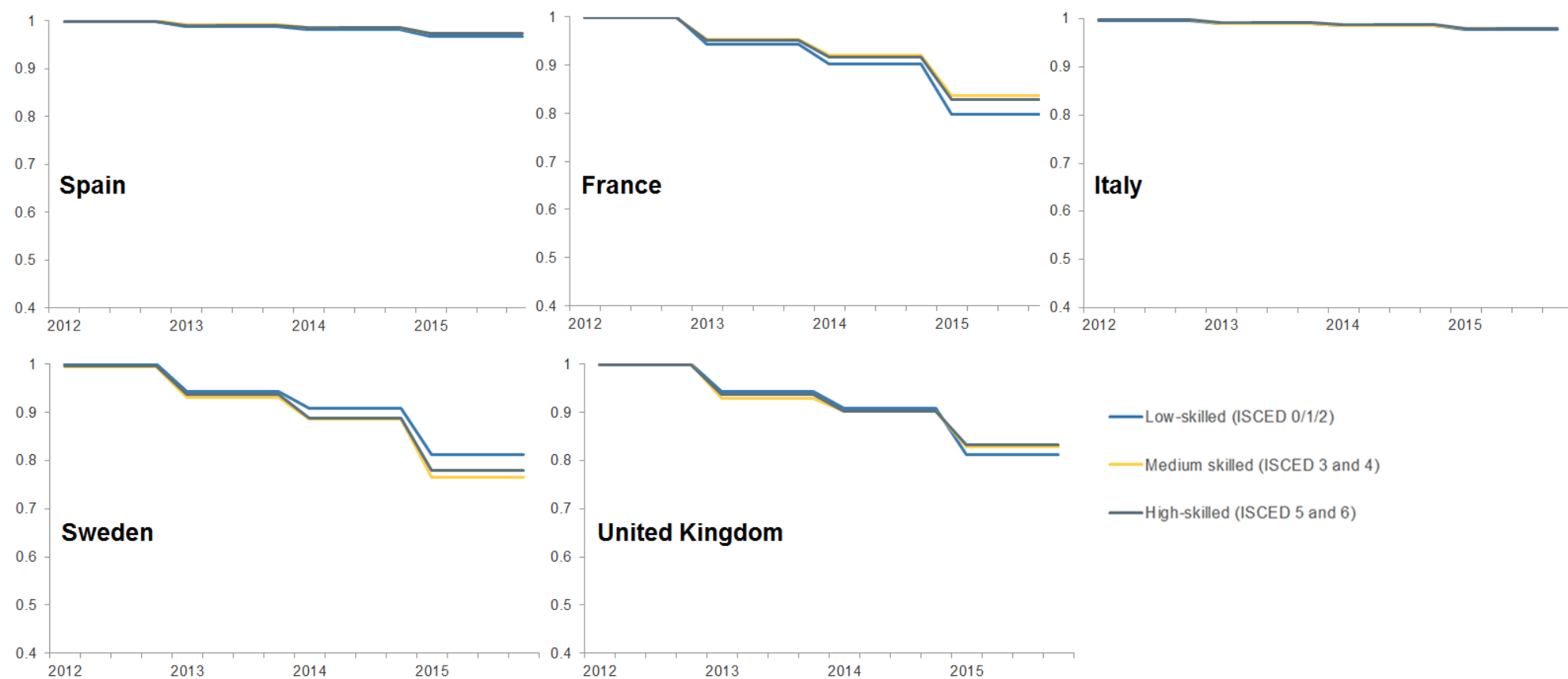
⁴ We have repeated the same estimations restricting our sample to those individuals who were below the “at risk of poverty” threshold in each country. The information on poverty thresholds is taken from Eurostat (2018c). Results are qualitatively similar and are available from the authors upon request.

Figure 2.3 Estimated survivor functions of the time to earnings progression, by skill-groups



Source: Authors' computations based on EU-SILC longitudinal data, 2012-2015. Estimation sample: employees aged 16-65. Earnings progression is defined as moving to an upper decile in the occupational income distribution. The survivor functions are estimated using Kaplan Meier product limit estimation. For each year the survivor function indicates the probability that the individual will not experience any progression after that year. For example: for an individual who has still not progressed in 2013, it will indicate the probability that he will still not progress also after 2013. Higher values of the survivor function are associated with 'slower' progression (the individual is more likely to stay in the same initial status), and lower values with 'faster' progression.

Figure 2.4 Estimated survivor functions of the time to occupational progression, by skill-groups



Source: Authors' computations based on EU-SILC longitudinal data, 2012-2015. Estimation sample: employees aged 16-65. Occupational progression is defined as moving to an occupation characterised by higher median earnings than the previous one. The survivor functions are estimated using Kaplan Meier product limit estimation. For each year the survivor function indicates the probability that the individual will not experience any occupational progression after that year. For example: for an individual who has still not progressed in 2013, it will indicate the probability that he will still not progress also after 2013. Higher values of the survivor function are associated with 'slower' progression (the individual is more likely to stay in the same initial status), and lower values with 'faster' progression.

2.4 Self-perceptions of employment progression chances

We examined low-skilled workers' perceptions of their career prospects in their current job and after any training activity they might have participated in. We present separate figures by country and, for each country, we present these statistics by skill group. The figures refer to the latest wave of the European Working Conditions Survey (EWCS) surveyed in 2015.⁵

In the EWCS, respondents are required to indicate to what extent they agree with the following statement: "My job offers good prospects for career advancement". Possible answers are: "Strongly agree", "Tend to agree", "Neither agree nor disagree", "Tend to disagree", or "Strongly disagree".

Observing overall percentages (Table 2.3), ie irrespective of workers' skills, a large share of workers in all countries declare that they do not believe their job offers them good prospects. The percentages of those who "tend to disagree" or "strongly disagree" sum to over 40 per cent in all countries (with the exception of the UK). Once the figures are broken down by skill-level, some interesting features emerge. In general, the low-skilled are less likely to report that their job offers good career prospects. The percentages of low-skilled individuals who "Strongly disagree" are above the national average and above 30 per cent in each country. The exception is the United Kingdom, where the figure is 17 per cent (see Table 2.4).

Table 2.3 Percentage of workers who disagree that 'My job offers good prospects for career advancement'

My job offers good prospects for career advancement	Germany	Spain	France	Italy	Sweden	United Kingdom
Strongly disagree/ Tend to disagree	41%	46%	48%	52%	42%	33%

Source: Authors' calculations based on the EWCS, wave 2015. Baseline sample: employees aged 16-65

Table 2.4 Percentage of workers overall/low-skilled workers who disagree that 'My job offers good prospects for career advancement'

My job offers good prospects for career advancement	Germany	Spain	France	Italy	Sweden	United Kingdom
Strongly disagree- Low skilled	34%	38%	38%	31%	31%	17%
Strongly disagree- Overall	21%	28%	23%	19%	21%	12%

Source: Authors' calculations based on the EWCS, wave 2015. Baseline sample: employees aged 16-65.

⁵ See Appendix B.1 for the full tables of results.

Professional training is a potential way to improve career prospects. The EWCS asks participants whether they have undertaken any training activity in the last year, and if so whether they feel that the training has improved their employment prospects. Similarly to the question described previously, those who took some training have to indicate their level of agreement with the following statement: “I feel my prospects for future employment are better”. The possible answers are the same as the previous question.

In general, most workers in all countries agree that participation in training has improved their future employment prospects, as shown in Table 2.5. In the United Kingdom, Germany, and Spain, more than three in five respondents strongly agree or tend to agree with the above statement, compared with around one in two workers in all other countries. The low-skilled appear to be at least as satisfied as the national average with employment prospects after training participation. In Germany and Spain, the percentage of low-skilled reporting favourable perceived employment chances after training is particularly high. The proportion of those who strongly agree are 51 per cent and 41 per cent respectively. The other values are shown in Table 2.6.

Table 2.5 Percentage of workers who agree that participating in training has improved their future employment prospects

Training received in the last 12 months. I feel my prospects for future employment are better	Germany	Spain	France	Italy	Sweden	United Kingdom
Strongly agree/ Tend to agree	63%	66%	48%	49%	49%	64%

Source: Authors' calculations based on the EWCS, wave 2015. Baseline sample: employees aged 16-65.

Table 2.6 Percentage of workers/low-skilled workers who agree that participating in training has improved their employment prospects

Training received in the last 12 months. I feel my prospects for future employment are better	Germany	Spain	France	Italy	Sweden	United Kingdom
Strongly agree- Low skilled	51%	41%	24%	21%	19%	32%
Strongly agree- Overall	27%	41%	20%	17%	23%	31%

Source: Authors' calculations based on the EWCS, wave 2015. Baseline sample: employees aged 16-65.

The above figures suggest that employer policies, such as professional training, which are either internal or external might improve the low-skilled workers chances of progression and hence help mitigate the disadvantage of this group in the labour market.

3 Econometric analysis of the determinants of employment progression

3.1 Impact of factors affecting progression

This section presents the results of our econometric analysis of progression in employment by country. We conducted a series of regressions to understand and isolate the impact of low skills, and other variables, on the chances of employment progression⁶. Details on the methodology can be found in Appendix C.1.

The results presented in Table 3.1 and Table 3.2 are marginal effects from probit models and represent the impact of each explanatory variable on the probability to change job (Table 3.1) and the probability to move to a better job (Table 3.2).

Key findings to note with respect to the impact of having low skills on the probability of changing (to a better) job include:

- Being low-skilled is associated with a lower probability of changing job in Germany (by 2.5 percentage points), Italy (by 1.7 percentage points), and the United Kingdom (by 2.8 percentage points).
- Being low-skilled is associated with a lower probability of changing to a better job in Germany (by 1.1 percentage points), Spain (by 0.5 percentage points), and the United Kingdom (by 1.4 percentage points). In Italy, whilst low skills appears to impact negatively the probability of changing job, skill levels do not appear to be associated with the probability of changing to a better job.
- In France, the chances of changing job, or to a better job, does not appear to be significantly different for workers with low skills compared to other skill groups.
- In Sweden, the chances of changing job, or to a better job, do not appear different for workers with low skills compared to other skill groups. It is worth noting that in the following section (Section 3.2), low skills do appear to impact progression chances. The apparent contradiction may be a reflection of the lower number of observations available for Sweden (the sample is smaller and there are only two years of observations from the data).

We also noted from conducting the regression analyses that other variables, such as sector and whether a worker was an EU/Non-EU migrant or not, influenced the probability

⁶ Due to different sample sizes and other data constraints, we are not able to estimate fully comparable specifications across countries. Hence, we can only compare our country results from a more qualitative point of view, ie in terms of the trends and signs of the estimated coefficients

of moving (to a better) job. For example, in Germany, being low-skilled and working in retail are both associated with a lower probability of changing job. In essence, this means that if you are low-skilled and work in retail in Germany your probability of progression is lower than if you are low-skilled and work in hospitality, for example. That said, the influence of sector in this analysis is for all workers, not just low-skilled workers. To look specifically at the impact of sector on progression within the low-skilled group, we computed predicted probabilities of progression which are presented in Section 3.2.

Table 3.1 Probit marginal effects on the probability of changing job within a year

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Changed Job	Germany	Spain	France	Italy	Sweden	United Kingdom
Low-skilled	-0.025*** (0.005)	-0.004 (0.006)	-0.008 (0.009)	-0.017*** (0.004)	-0.029 (0.016)	-0.028*** (0.007)
Medium-skilled	-0.008* (0.003)	-0.009** (0.003)	-0.005 (0.006)	-0.019*** (0.003)	-0.015 (0.021)	-0.015*** (0.004)
EU		0.015 (0.010)	0.019 (0.012)	0.006 (0.009)	0.017 (0.028)	0.022*** (0.004)
Non EU	0.011* (0.004)	0.023*** (0.004)	0.004 (0.008)	0.006** (0.002)	-0.006 (0.028)	0.012* (0.005)
Young (16-24)	-0.004 (0.007)	0.002 (0.005)	0.018* (0.009)	0.001 (0.007)	0.058* (0.028)	0.003 (0.008)
Older (50+)	0.007 (0.005)	0.000 (0.007)	0.009 (0.008)	0.008 (0.005)	0.014 (0.014)	0.001 (0.007)
Retail	-0.015* (0.006)	-0.008* (0.003)	-0.015 (0.013)	0.005 (0.007)	0.029 (0.072)	0.008 (0.006)
Hospitality	0.022** (0.008)	0.029*** (0.006)	0.010 (0.012)	0.039*** (0.002)	0.061 (0.046)	0.039*** (0.006)
Health & Soc.	-0.007 (0.006)	0.001 (0.004)	-0.003 (0.010)	0.001 (0.007)	0.033 (0.059)	0.015** (0.005)
Observations	62,905	67,424	21,712	59,815	4,556	43,430
Years	2011-2016	2011-2016	2011 2015 & 2016	2011-2015	2014 & 2016	2011-2016

Source: Authors' estimations based on EU-SILC cross-sectional data. Years: 2011-2016 (up to 2015 for Italy). Estimation sample: employees aged 16-65. ***: significant at 0.1% level, **: significant at 1% level, *: significant at 5% level. Standard errors are clustered at the regional level for all countries except Germany. Control variables in each specification are: female, age, age squared, marital status, limitation in activities because of health problems, labour market experience, labour market experience squared, education, occupation, part-time contract, sector, year and regional dummy variables. The reference sector in all regression is NACE "R-U", which comprises Arts and Entertainment, Other services activities, activities of households as employers, and activities of extraterritorial organisations. For Germany we could not control for regional dummies because the information is unavailable.

Table 3.2 Probit marginal effects on the probability of changing to a better job within a year

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
Better Job	Germany	Spain	France	Italy	Sweden	United Kingdom
Low-skilled	-0.011*** (0.003)	-0.005*** (0.001)	-0.005 (0.005)	-0.001 (0.002)	-0.034 (0.018)	-0.014** (0.005)
Medium-skilled	-0.004* (0.002)	-0.007*** (0.001)	-0.004 (0.003)	-0.003*** (0.001)	-0.026 (0.020)	-0.011*** (0.003)
EU	-	0.010*** (0.003)	0.008 (0.009)	0.003 (0.003)	-0.007 (0.011)	0.010* (0.005)
NonEU	0.007** (0.003)	0.005** (0.002)	0.002 (0.002)	0.003* (0.001)	-0.014 (0.017)	0.001 (0.004)
Young (16-24)	-0.008 (0.004)	-0.001 (0.002)	-0.004 (0.004)	-0.000 (0.003)	0.027 (0.027)	0.009 (0.005)
Older (50+)	0.002 (0.003)	-0.001 (0.003)	0.003 (0.005)	0.001 (0.001)	0.024 (0.016)	-0.001 (0.005)
Retail	-0.004 (0.004)	-0.003 (0.004)	-0.002 (0.007)	-0.002 (0.002)	0.010 (0.026)	0.001 (0.006)
Hospitality	0.013* (0.005)	0.010* (0.005)	0.007 (0.008)	0.009*** (0.002)	-0.016 (0.048)	0.019** (0.006)
Health and Soc.	0.004 (0.004)	-0.003 (0.004)	-0.001 (0.006)	-0.004 (0.003)	0.001 (0.020)	0.009 (0.005)
Observations	62,905	67,424	21,712	59,815	4,537	43,430
Years	2011-2016	2011-2016	2011 2015 & 2016	2011-2015	2014 & 2016	2011-2016

Source: Authors' estimations based on EU-SILC cross-sectional data. Years: 2011-2016 (up to 2015 for Italy). Estimation sample: employees aged 16-65. ***: significant at 0.1% level, **: significant at 1% level, *: significant at 5% level. Standard errors are clustered at the regional level for all countries except Germany. Control variables in each specification are: female, age, age squared, marital status, limitation in activities because of health problems, labour market experience, labour market experience squared, education, occupation, part-time contract, sector year and regional dummy variables. The reference sector in all regression is NACE "R-U", which comprises Arts and Entertainment, Other services activities, activities of households as employers, and activities of extraterritorial organisations. For Germany we could not control for regional dummies because the information is unavailable.

3.2 Predicted probabilities of employment progression for the low-skilled workers

Using the results of our econometric models it is possible to compute the predicted probabilities of progression for individuals with different characteristics.

We use these probabilities in Figures 3.1 to 3.4 to provide a visual representation of progression chances, and to provide an intuitive and easy way of seeing the extent of differences between groups across the six countries. The datapoints underpinning the visual representation are averages eg a graph may compare the progression chances of the average low-skilled worker in Sweden with the average medium- and high-skilled worker in the same country. Each graph also reports the predictions for an employee with average characteristics in the country. This is indicated as the “baseline”.

Figures 3.2 through 3.4 also look within the low-skilled group to see if there are differences in progression for workers with different characteristics in that group. For example, we look within the low-skilled group to see whether progression chances are different for younger compared to older low-skilled workers.

The main findings from each of the Figures 3.1 to 3.4 are highlighted below.

Main findings from Figure 3.1

- In **Germany**, and the **United Kingdom** low-skilled workers are less likely than the national average to change job or to a better job within a year.
- This is also the case in Sweden, although these differences are not statistically significant as per the analysis in Section 3.1. This may be a reflection of lower sample sizes and, due to fewer years of data, comparatively fewer overall numbers of observations in the analysis.
- There are only minimal differences across skill groups in **France, Spain and Italy**.

Main findings from Figure 3.2

- In **Sweden**, young low-skilled are more likely to progress than the national average, while older low-skilled workers are less likely to progress than the national average.
- In **France, Spain and Germany**, the young low skilled are less likely move to better jobs than other low-skilled age groups.

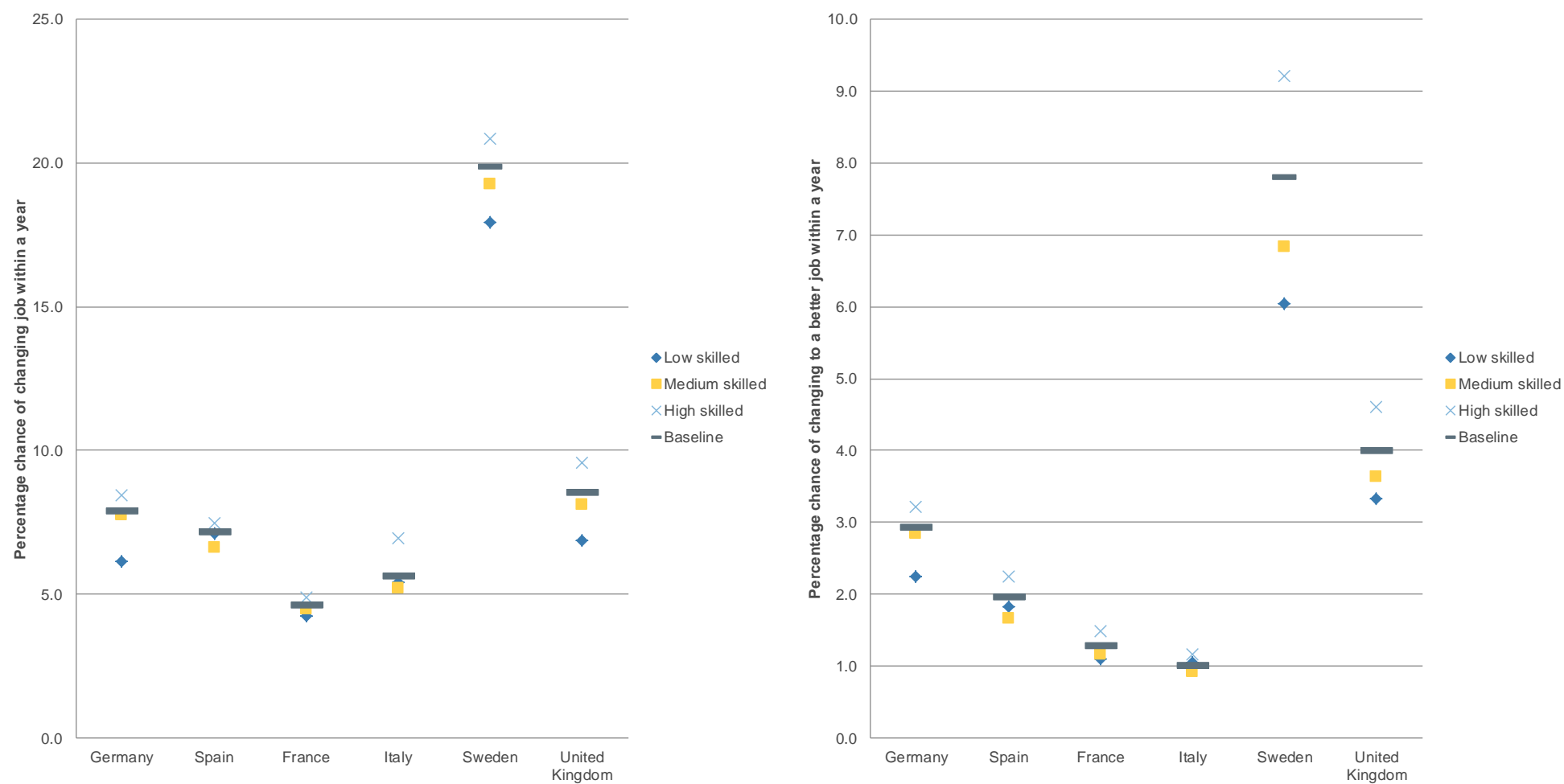
Main findings from Figure 3.3

- Both low-skilled EU and non-EU migrants have higher chances of progression compared with the average employee in **Spain**. In **France**, low-skilled EU migrants fare better than the average employee in terms of chances of moving to a better job.
- In **Sweden** both EU and non-EU low-skilled migrants have lower probabilities of changing job and moving to a better job than the average employee.
- In the **UK**, low-skilled non-EU immigrants are less likely to progress, while low-skilled EU immigrants are not too different from the average employee in terms of their chances of progression.

Main findings from Figure 3.4

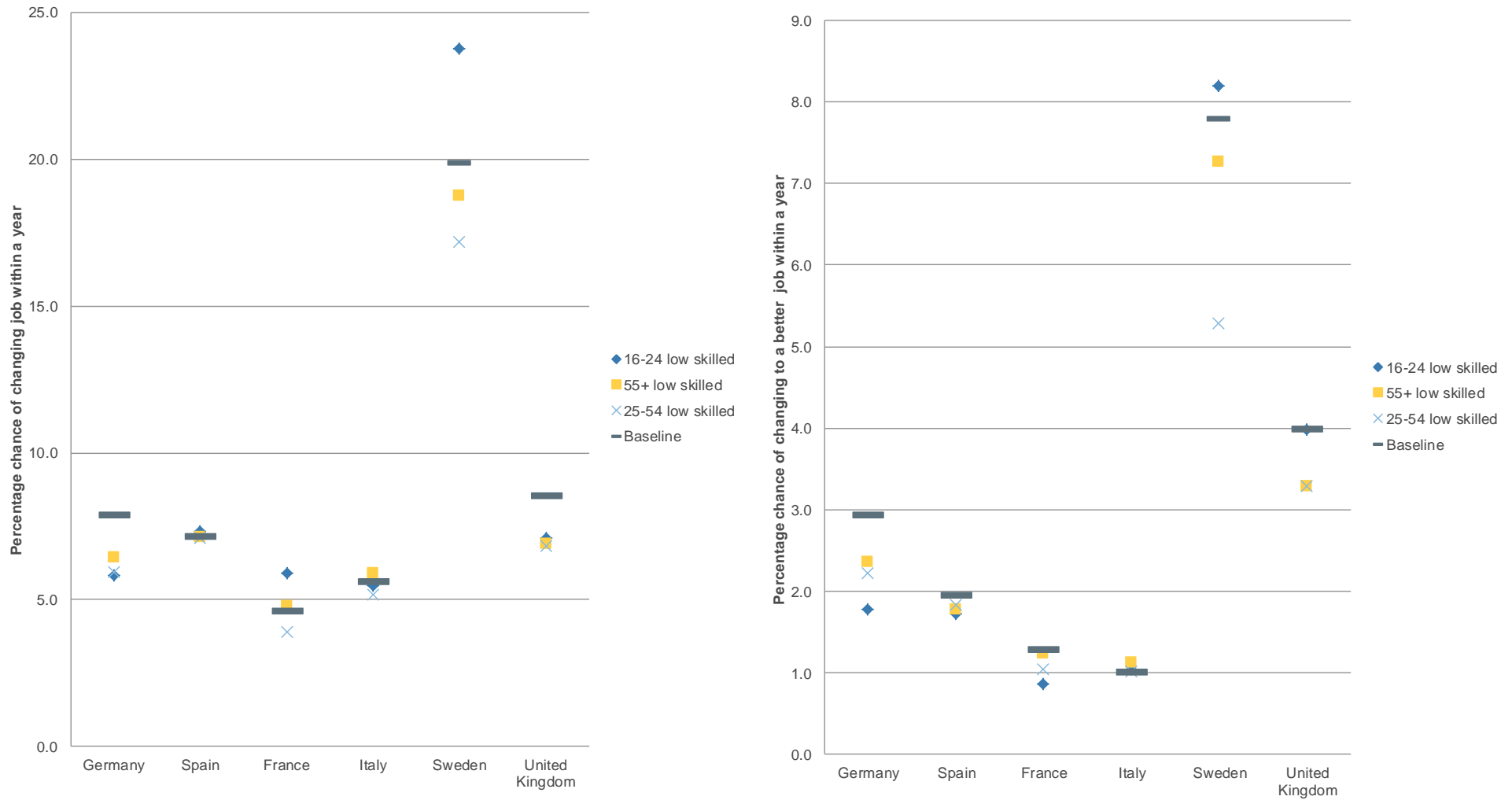
- In **all countries**, the low-skilled in **retail** are less likely to change jobs and to move to better jobs than the average employee.
- Low skilled individuals in the **hospitality** sector are more likely within a year to move to another job and to better jobs than the average employee in each country, **except for Sweden**, where they have a lower chance of moving to better jobs compared to the average employee.
- The low-skilled in **health and social care** are not different from the national average in terms of employment progression in most countries, except for **Sweden**, where they are found to move less often to better jobs.

Figure 3.1 Predicted probabilities of changing job (left panel) and changing to a better job (right panel) within a year by skill level, percentages



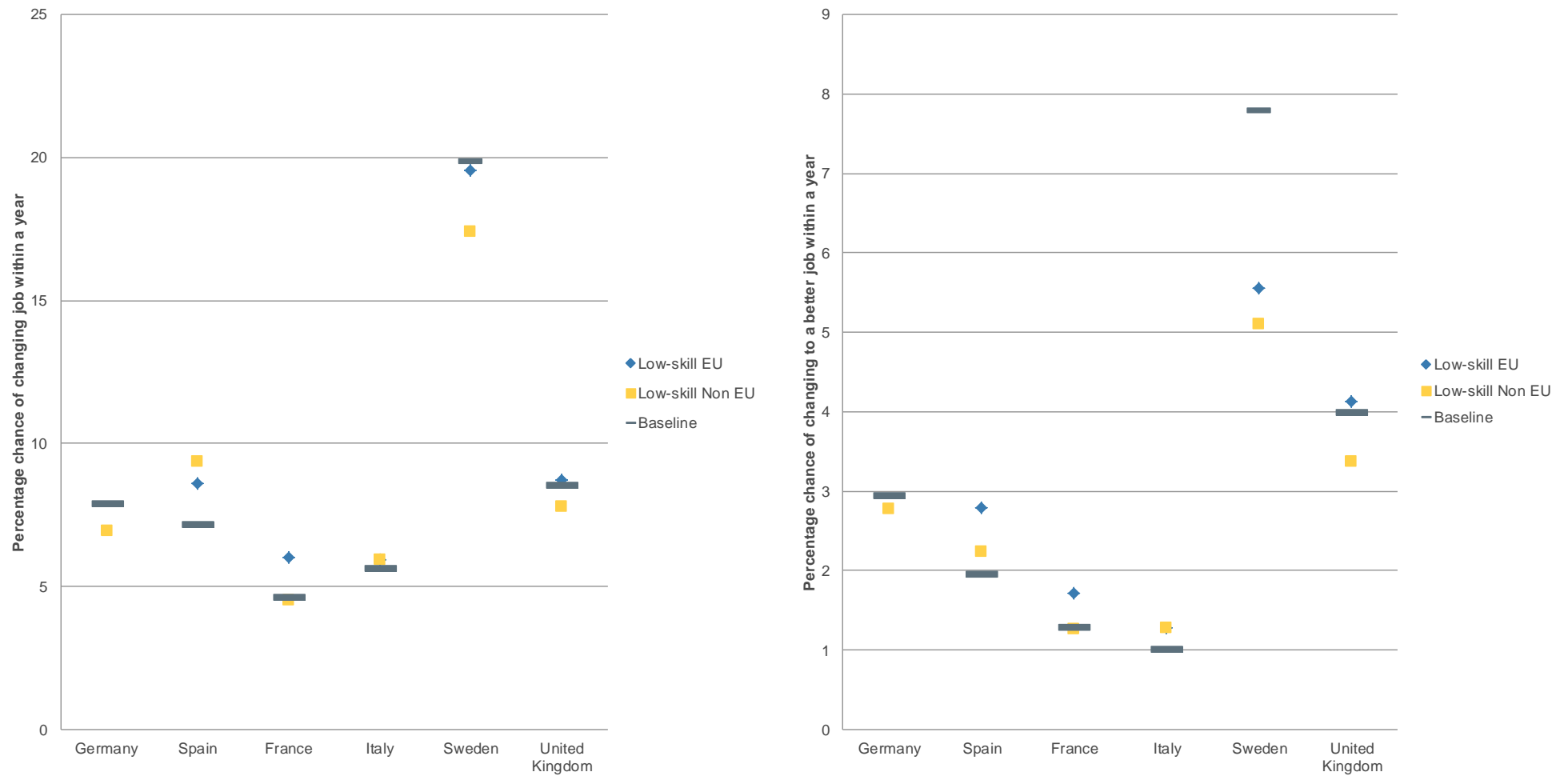
Source: Authors' calculations based on EU-SILC cross-sectional data, years 2011-2016 (up to 2015 for Italy). Low-skilled: ISCED level 0/1/2, medium-skilled: ISCED level 3 and 4, high-skilled: ISCED level 5 and 6

Figure 3.2 Predicted probabilities of changing job (left panel) and changing to a better job (right panel) within a year for low-skilled by age group, percentages



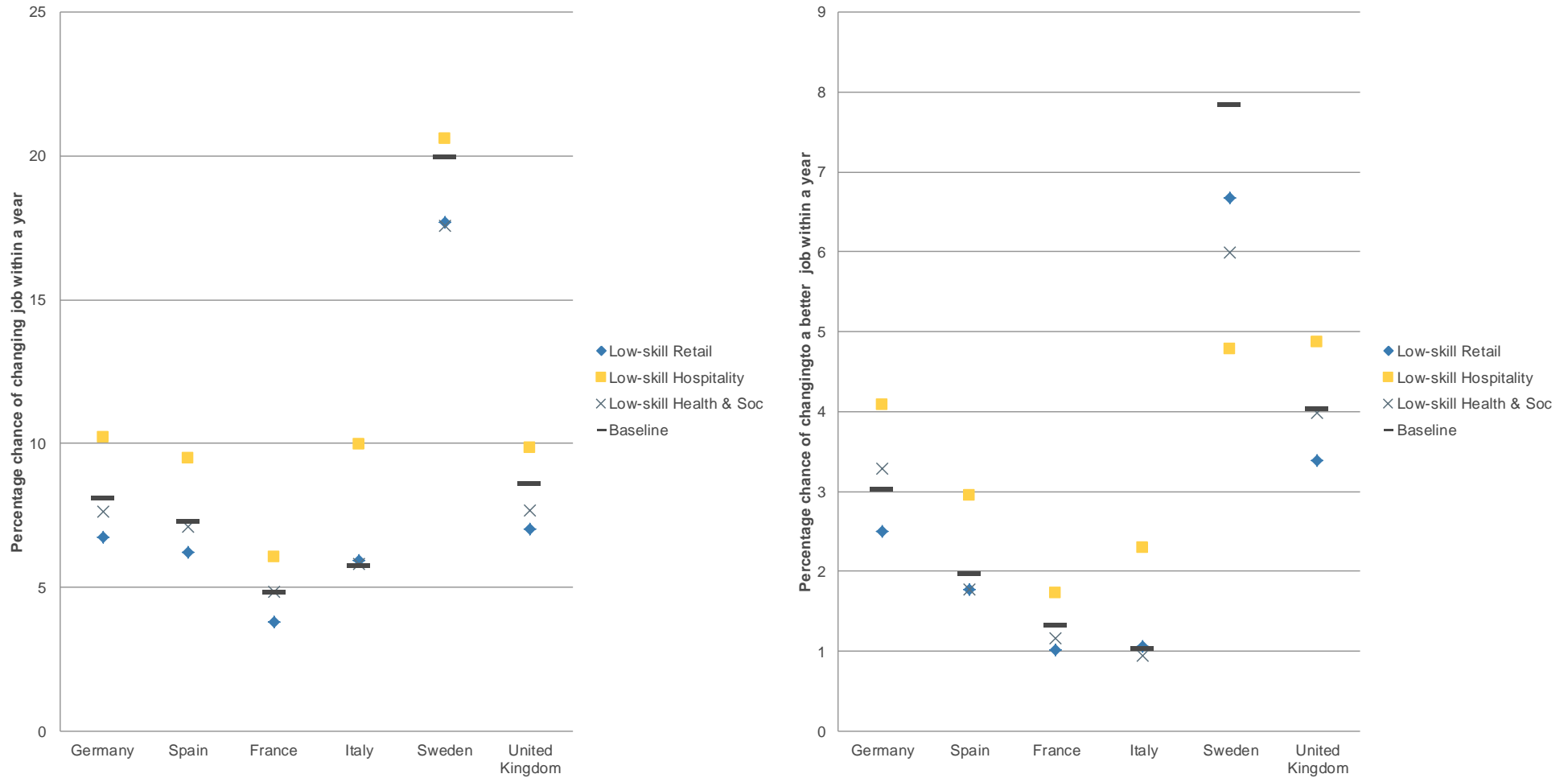
Source: Authors' calculations based on EU-SILC cross-sectional data, years 2011-2016 (up to 2015 for Italy).

Figure 3.3 Predicted probabilities of changing job (left panel) and changing to a better job (right panel) within a year for low-skilled by migrant status, percentages



Source: Authors' calculations based on EU-SILC cross-sectional data, years 2011-2016 (up to 2015 for Italy).

Figure 3.4 Predicted probabilities of changing job (left panel) and changing to a better job (right panel) within a year for low-skilled by sector, percentages



Source: Authors' calculations based on EU-SILC cross-sectional data, years 2011-2016 (up to 2015 for Italy).

4 Concluding comments

Using comparative cross-national micro level datasets, in this report we have described progression chances for the low-skilled, compared with other groups, across six European labour markets (UK, Germany, France, Italy, Spain and Sweden). We have also used advanced statistical analysis to isolate the impact of low skills on progression chances, over and above other influences on progression.

Our analysis demonstrates the adverse impact of low skills on progression chances, in particular the chances of moving to a better job. It also demonstrates that the impact of low skills varies across sectors, with those working in the retail and health and social care sectors at a greater disadvantage in general than those working in hospitality. That in itself is surprising, given the high share of atypical work in this sector. That said, it is a finding worthy of further exploration.

We have also explored how employment progression chances for the low-skilled change across different age, and whether or not an individual is a migrant of EU or Non-EU background.

The disadvantage of the low-skilled in terms of progression chances persists across all age groups. The only exception is Sweden, where we found that low-skill young (16-24 year-olds) employees are more likely to change job and to move to a better job within a year than the average employee. Without any policy variable in our analysis, it is difficult to attribute this result to any particular labour market policy in Sweden. We can only rationalise this finding in light of the policy context in the country. In this respect, higher chances of progression for young low-skilled in Sweden are not at odds with the long Swedish tradition of active labour market policies. In the other countries studied, the young low-skilled seem to experience lower progression than the rest of the population. Overall, these results may hint that policies aimed at fostering employment progression for the low-skilled should probably prioritise younger workers. In fact, the youngest cohorts of workers are generally at their first labour market experience. As outlined in previous studies (see Cedefop, 2017), being in low-pay/low-skill occupations may not be a temporary situation, but instead can last for a long time and hamper future individual labour market outcomes. It is then essential to support the training and upskilling of younger, less qualified workers and enable them to find better jobs and to protect them from the risk of in-work poverty.

When we break down the predicted chances of progression by migrant status we find that low-skilled immigrants of one origin or another are more likely to progress than the average worker in Spain, France, Italy, and the UK (in the latter, only migrants from EU countries). These results are in line with theories of labour market assimilation of immigrants in the host country (Borjas, 1994; Chiswick and Miller, 2005). According to these theories of labour market assimilation, immigrants usually start at disadvantage in

the host country labour market. However, over time, they are able to catch up with the labour market situation of comparable natives. For assimilation to take place, migrants should be observed to change occupations and progress faster than nationals. However, not all countries in our study comply with the assimilation hypothesis. In Germany, Sweden and the UK (in the latter, only non-EU immigrants), low-skilled immigrants are less likely to progress than the average employee. It is important to notice that we are only able to detect job changes that occur within one year. Slower progression rates (eg within two or more years) might occur but would not be captured by our analysis.

Our analysis reveals a complex picture and interrogates the impact of low skills on progression chances, and also highlights differing chances between groups within the low-skilled. There are some indications from the analysis that suggest some potential policy approaches to support the progression of low-skilled workers. For example, our analysis of the EWCS has revealed that low-skilled workers perceive that training activities increase their employment chances. This suggests that upskilling or training policies might be effective in improving the chance of low-skill individuals to move to better jobs.

Bibliography

- Berger M, Schaffner S (2016), 'A note on how to realize the full potential of the EU-SILC data', *Journal of Economic and Social Measurement*, Vol 41, No.4, pp.395-416
- Borjas G J (1994), 'The Economics of Immigration' *Journal of Economic Literature*, 1994, Vol. 32, pp. 1667-1717
- Cedefop (2017), *Investing in skills pays off: the economic and social costs of low-skill adults in the EU*, Research Paper 60, Publications Office of the European Union, Luxembourg.
- Chiswick B R, Lee Y L, Miller P W (2005), 'A longitudinal analysis of immigrant occupational mobility: A test of the immigrant assimilation hypothesis', *International Migration Review*, Vol. 39, No. 2
- Eurofound (2012a), *Employment and industrial relations in the hotels and restaurants sector*, Dublin
- Eurofound (2012b), *Working conditions in the retail sector*, Dublin
- Eurofound (2013), *Young people and temporary employment in Europe*, Dublin
- Eurofound (2017), *In-work poverty in the EU*, Dublin
- European Parliament (2018), *The impact of new technologies on the labour market and the social economy*, Brussels, Publication Office of the European Union
- Eurostat (2018), At-risk-of-poverty thresholds - EU-SILC survey, [Online]. Available at: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_li01&lang=en [Accessed on 21 May 2018]
- Frick J, Krell K (2010), *Measuring income in household panel surveys for Germany: A comparison of EU-SILC and SOEP*, SOEPpapers No. 265, Deutsche Institut fuer Wirtschaft
- Gautié J, Schmitt J (2009), *Low-Wage Work in the Wealthy World*, Russell Sage Foundation, New York
- Iacovou M, Kaminska O, Levy H (2012), *Using EU-SILC data for cross-national analysis: strengths, problems and recommendations*, (No. 2012-03), ISER working paper series
- Izquierdo M, Lacuesta A, Vegas R (2009), 'Assimilation of immigrants in Spain: A longitudinal analysis', *Labour Economics*, Vol. 16, No. 6
- Kyndt E et al (2013), 'Examining the learning intentions of low-qualified employees: a mixed-methodology study', *Journal of Workplace Learning*, Vol 25, No 3 pp. 178-197

OECD (2017), *OECD Employment Outlook 2017*, OECD Publishing, Paris

OECD (2018), Population (indicator), [online] doi: 10.1787/d434f82b-en [Accessed on 23 November 2018]

OECD (2019), 'Getting Skills Right: Engaging low-skilled adults in training' OECD Publishing, Paris

Reyneri E, Fullin G (2011), 'Labour Market Penalties of New Immigrants in New and Old Receiving West European Countries', *International Migration*, Vol. 49

Thompson S, Hatfield I (2015), *Employee progression in European labour markets*. IPPR. <http://www.ippr.org/publications/employee-progression-in-european-labour-markets>

Zaiceva A, Zimmermann K F (2016), 'Returning home at times of trouble? Return migration of EU enlargement migrants during the crisis', in Kahanec M, Zimmermann K F (eds.) (2016), *Labor migration, EU enlargement, and the great recession*, Springer, Berlin and Heidelberg

Appendices

A.1 Data used and measurement issues

A.1.1 Datasets used in this analysis

The EU Statistics on Incomes and Living Conditions (EU-SILC) survey data contain information on a variety of social indicators. These include income poverty, social exclusion and living conditions. The EU-SILC has both a cross-sectional and a longitudinal version.

The longitudinal version of the EU-SILC is not a panel survey, ie one in which individuals are interviewed every year, but rather a rotating panel, as the European Community Household Panel (ECHP) survey (the EU-SILC predecessor, discontinued in 2001). This means that individuals are usually interviewed for a maximum of four years (with the exception of a few), with the sample being refreshed with new participants every year. Since its inception in 2003 the EU-SILC has expanded to include all 28 current EU Member States plus Iceland, Norway, Switzerland and Turkey. The EU-SILC longitudinal data have information on individual income and occupation, from which we have computed the measures of occupational and earnings progression described in the main text. However, this dataset has some shortcomings (as noted in Berger and Schaffner, 2015), which limit the scope of our analysis. In particular, there is no sector information, as well as no information on citizenship or country of birth. Moreover, there is no information on one of our country of interest, ie Germany. Due to the limitation of the EU-SILC longitudinal data we have not performed a full econometric analysis on these data, but we have used them for non-parametric duration analysis (Kaplan-Meier estimations).

The EU-SILC cross-sectional data does not contain information on the same individuals over time.⁷ However, it contains retrospective information on whether individuals changed jobs or moved to better jobs. Differently from its longitudinal version, the EU-SILC cross-sectional data contain a richer set of variables, which allows a study of progression in employment for each of our six countries of interest separately.

The European Working Conditions Survey (EWCS) provides an overview of working conditions in Europe. This data consists of repeated cross-sections of workers interviewed face-to-face every five years since its launch in 1990. Importantly for our analysis, this dataset contains information on individual perceptions of their career

⁷ The monthly retrospective information contained in the EU-SILC cross-sectional and longitudinal files refers only to individual activity status and not to the occupation. Hence, we cannot use it for the analysis of progression in employment as defined in this study.

prospects in their current job, as well as the perception of career and employment prospects after undertaking different types of training.

The time period of the analysis was the years 2011 to 2016 from the EU-SILC cross-sectional data files for each country (data is only available up to 2015 for Italy). The analysis, based on the EU-SILC longitudinal data, only makes use of the most recent panel, ie the four years between 2012 and 2015, for each country except Germany, which is missing in the longitudinal version of the EU-SILC. For the European Working Conditions Survey we have used the latest available wave, ie 2015.

A.1.2 Limitations of this study

The EU-SILC aims to have high-quality standards such as data accuracy, precision, clarity and allows for comparability between subgroups/ regions. The EU-SILC is output-harmonised, ie instead of identical questionnaires across countries, the data-collection method involves the specification of a set of social and economic indicators which are to be collected. It is then the decision of the member states as to how these are collected. Therefore the output harmonisation method used in the EU-SILC dataset relies on high quality homogenous inputs across countries. Despite the above harmonisation efforts, a high degree of heterogeneity remains in the EU-SILC data, in terms of sample size and coverage of some key variables. This makes it difficult to compare the results obtained using these data across countries.

Previous research has discussed the limitations of EU-SILC data. Lacovou et al (2012) discuss the issues relating to design, structure, content and implementation of the EU-SILC. In summary, they suggest some changes which could be implemented to improve researchers' ability to use EU-SILC; primarily concerning the possibility of linking the cross sectional and longitudinal files. At present there is no way of linking the two files. In addition, they are highly critical of the accuracy of the income variables in EU-SILC for several reasons. As discussed also in Frick et al (2010) and Godeme (2010), although the questionnaires designed by the National Statistical Institutes (NSIs) to collect the EU-SILC income data are very comprehensive, due to the output-harmonisation method used, all the data collected are aggregated into a small number of variables. Moreover, due to the different collection methods across countries and the lack of documentation, it is often unclear what the income period is, and hence income figures may vary significantly between countries.

B.1 Descriptive statistics

B.1. Descriptive statistics based on the EWCS

Table B.1.1 Career prospects in the current job, by skill-level

My job offers good prospects for career advancement	Low-skilled	Medium-skilled	High-skilled	Total
Germany				
Strongly Agree	18%	8%	14%	10%
Tend to Agree	20%	20%	29%	21%
Neither Agree nor disagree	17%	28%	31%	28%
Tend to Disagree	10%	22%	17%	20%
Strongly Disagree	34%	22%	9%	21%
Spain				
Strongly Agree	12%	12%	18%	14%
Tend to Agree	16%	21%	25%	21%
Neither Agree nor disagree	14%	22%	21%	19%
Tend to Disagree	20%	18%	15%	18%
Strongly Disagree	38%	27%	20%	28%
France				
Strongly Agree	5%	7%	9%	8%
Tend to Agree	16%	23%	31%	26%
Neither Agree nor disagree	14%	19%	20%	19%
Tend to Disagree	28%	27%	23%	25%
Strongly Disagree	38%	24%	17%	23%
Italy				
Strongly Agree	3%	4%	8%	4%
Tend to Agree	12%	22%	29%	21%
Neither Agree nor disagree	17%	26%	24%	23%
Tend to Disagree	38%	32%	27%	32%
Strongly Disagree	31%	16%	12%	19%
Sweden				
Strongly Agree	7%	6%	13%	9%
Tend to Agree	16%	20%	26%	22%
Neither Agree nor disagree	25%	31%	23%	27%
Tend to Disagree	20%	21%	21%	21%
Strongly Disagree	31%	22%	17%	21%
United Kingdom				
Strongly Agree	12%	14%	20%	15%
Tend to Agree	29%	38%	34%	33%
Neither Agree nor disagree	20%	17%	18%	19%
Tend to Disagree	22%	22%	19%	21%
Strongly Disagree	17%	8%	8%	12%

Source: Authors' calculations based on the EWCS, wave 2015. The figures are weighted using EWCS person weights. Baseline sample: employees aged 16-65. Low-skilled: ISCED 0, 1 and 2, Medium-skilled: ISCED 3 and 4, High-skilled: ISCED 5 and 6

Table B.1.2 Future employment prospects after training, by skill-level

Training received in the last 12 months. I feel my prospects for future employment are better	Low-skilled	Medium-skilled	High-skilled	Total
Germany				
Strongly Agree	51%	27%	22%	27%
Tend to Agree	30%	38%	32%	36%
Neither Agree nor disagree	20%	22%	31%	24%
Tend to Disagree	0%	7%	4%	6%
Strongly Disagree	0%	6%	10%	7%
Spain				
Strongly Agree	41%	44%	39%	41%
Tend to Agree	28%	22%	26%	25%
Neither Agree nor disagree	15%	17%	19%	18%
Tend to Disagree	4%	4%	5%	4%
Strongly Disagree	12%	14%	11%	12%
France				
Strongly Agree	24%	24%	16%	20%
Tend to Agree	30%	28%	29%	28%
Neither Agree nor disagree	22%	22%	33%	27%
Tend to Disagree	14%	12%	10%	11%
Strongly Disagree	10%	15%	12%	13%
Italy				
Strongly Agree	21%	14%	20%	17%
Tend to Agree	36%	31%	34%	33%
Neither Agree nor disagree	28%	33%	26%	30%
Tend to Disagree	15%	18%	17%	17%
Strongly Disagree	0%	5%	4%	4%
Sweden				
Strongly Agree	19%	25%	22%	23%
Tend to Agree	21%	29%	24%	26%
Neither Agree nor disagree	36%	34%	39%	37%
Tend to Disagree	6%	5%	5%	5%
Strongly Disagree	17%	7%	11%	9%
United Kingdom				
Strongly Agree	32%	32%	30%	31%
Tend to Agree	37%	32%	33%	34%
Neither Agree nor disagree	17%	24%	24%	22%
Tend to Disagree	9%	10%	8%	9%
Strongly Disagree	6%	4%	5%	5%

Source: Authors' calculations based on the EWCS, wave 2015. The figures are weighted using EWCS person weights. Baseline sample: employees aged 16-65. Low-skilled: ISCED 0, 1 and 2, Medium-skilled: ISCED 3 and 4, High-skilled: ISCED 5 and 6

C.1 Econometric methodology

In this part of the Appendix we describe the econometric methodology used to identify the factors that contribute to changes in job or to a better job between one year and the next in the six target countries. We estimate country specific probit regression models where the dependent variable is a binary (0 or 1) response variable indicating whether the respondent has changed job or to a better job in the last 12 months. In Section 3 we present the estimated marginal effects from our probit models. The marginal effect of any given explanatory variable can be interpreted as its average impact on the probability of changing job or changing to a better job.

Box 1 provides further details on the probit model and the explanatory variables included.

Box 1 A probit model for employment progression

In Section 3 we present the results of the estimation of a probit model for the individual probability of progression. Formally, the model can be written as:

$$P(\text{Progression}_i | \mathbf{X}_i) = G(\beta_0 + \beta_1 \text{Low} - \text{skill}_i + \beta_2 \text{Medium} - \text{skill}_i + \beta_3 \text{EU} + \beta_4 \text{NonEU}_i + \beta_5 \text{Young} + \beta_6 \text{Older} + \beta_7 \text{Retail} + \beta_8 \text{Hospitality}_i + \beta_9 \text{Health\&Soc}_i + \mathbf{Z}_i' \boldsymbol{\beta})$$

Where $G(\cdot)$ takes on values strictly between zero and one, ie $0 < G(z) < 1$, for all real numbers z . For the probit model, G is the standard normal cumulative distribution function, ie $G(z) = \Phi(z)$.

We present two specifications, in which our dependent variable, *Progression*, will be measured in two alternative ways:

– *Changed Job*_{*i*} = 1, if individual *i* has changed job from the previous year, and 0 otherwise.

or

– *Better Job*_{*i*} = 1, if individual *i* has changed to a better job from the previous year, and 0 if the individual has not changed job at all or if he/she has changed for other reasons.

Variables of interest

Low – skill = 1 if the individual has a low level of education (ISCED 0/1/2)

Medium – skill = 1 if the individual a medium level of education (ISCED 3 or 4)

*EU*_{*i*} = 1 if the individual is an EU national; 0 otherwise.

*NonEU*_{*i*} = 1 if the individual is a non-EU national; 0 otherwise.

*Young*_{*i*} = 1 if the individual is between 16-24 years-old; 0 otherwise.

*Older*_{*i*} = 1 if the individual is between 50 and 75 years-old; 0 otherwise.

*Retail*_{*i*} = 1 if the individual works in the Retail Sector (NACE code: G); 0 otherwise

*Health&Soc*_{*i*} = 1 if the individual works in the Health and Social Care Sector (NACE code: Q); 0 otherwise.

*Hospitality*_{*i*} = 1 if the individual works in the Hospitality sector (NACE code: I); 0 otherwise.

\mathbf{Z}_i = A vector of additional control variables (detailed below).

Throughout our discussion in the main text we present the estimated **marginal effects** from the above probit models, separately for each country. The marginal effects can be interpreted as the effects of each explanatory variable on the probability of changing job or changing to a better job (depending on the estimated model). For example, the coefficient of *Young* could be estimated as 0.075. This would mean that a young person (aged 16-24) is 7.5 percentage points more likely to progress than those aged 25 or above (the reference category) all else being equal (ie keeping the level of the other variables constant).

For a binary variable, the marginal effect will be the difference between the normal cumulative distribution function evaluated when the variable is equal to one and when it is equal to 0. For instance, for the low-skill category the expression for the marginal effect for each is the following:

$$\Phi(\beta_0 + \beta_1 + \beta_3 EU + \beta_4 NonEU_i + \beta_5 Young + \beta_6 Older + \beta_7 Retail + \beta_8 Hospitality_i + \beta_9 Health\&Soc_i + \mathbf{Z}_i' \boldsymbol{\beta}) - \Phi(\beta_0 + \beta_3 EU + \beta_4 NonEU_i + \beta_5 Young + \beta_6 Older + \beta_7 Retail + \beta_8 Hospitality_i + \beta_9 Health\&Soc_i + \mathbf{Z}_i' \boldsymbol{\beta})$$

The above expression computes the marginal effect of the *Low – skill* dummy with respect to the reference age category, ie the high-skilled workers. Most of the explanatory variables of interest do not differ between countries with the exception of Germany, where it was not possible to identify EU immigrants, and hence, no EU dummy is used in the probit models.

As for the control variables (contained in the vector \mathbf{Z}), where possible the following were controlled for: gender, age, age squared, health problems, marital status, labour market experience, labour market experience squared, sector, part-time contract, occupation dummies, year of the survey and region of work. However, due to the high level of heterogeneity in the data availability for each country, it was not always possible to include the full set of control variables listed above in each country regression. Specifically, no regional information is available for Germany, hence regional indicators cannot be used either as control variables or to cluster the standard errors of the regressions. For France there is no labour market experience detailed in the years 2012-2014, as a result of there not being any information on the ‘Age when began first job’ in the EU-SILC data. Therefore the probit specifications only include the years 2011, 2015 and 2016. For Italy EU-SILC data is only available up to year 2015, so we run regressions only for the years 2011-2015. In Sweden, the “better job” variable is only available for two years (2014 and 2016) hence we estimate our model only for these two years.

The predicted probabilities shown in the graphs in Section 3 in the main text use the coefficients from the above probit models. Note that to derive the predicted probabilities by sector we had to use a slightly different model specification, in which the sectors are grouped into fewer categories. This was done to avoid the issue of collinearity.