Bulgarian labor market: Part 2
Labour shortages and skills mismatch

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Agenda

1 **Introduction**

2 Labor shortages (total economy perspective)

3 Skills mismatch

4 Labor shortages (banking sector perspective)

5 Implications for UCB strategy

Introduction

This presentation is the second in a string of three presentations dedicated on the Bulgarian labour market in the context of rapidly shrinking and aging population.

While the first presentation looked at demographic trends and the factors shaping these trends in Bulgaria, the second one is mostly focused on labour shortages and skills mismatches.

The presentation starts by looking at labour shortages as quantified in the business surveys, including quarterly surveys in industry and construction sectors compiled by Eurostat, as well as yearly surveys conducted by European Investment Bank and German Chamber of Commerce. Several other labour market related indicators are also used to help construct a more comprehensive and hopefully more reliable picture.

The second section examines skills mismatches. It shows over-qualification rate (vertical skills mismatch) and job mismatch by field of education (horizontal skills mismatch) in CEE and shortly touches upon the main negative effects of skills mismatches on individual, firm and country levels.

The third section looks at the labour shortage in the Financial and insurance services (FIS) sector. It presents a long list of supply and demand side labour market related indicators and comes to the conclusion that the Bulgarian labor market is not a homogeneous one - and while for the economy as a whole labour shortages are a relatively recent phenomenon, in the FIS sector they seems to have occurred way before.

The last section focuses on some possible responses to the labour shortage challenge in FIS. Automation can have some role but smaller than in other sectors, because fewer jobs in FIS are likely to be automated than in other economic sectors. Another option is to simplify processes to the extent where the corresponding jobs can be offered to people without university degree. The analysis concludes that with C/I ratio of around 45%, there is sufficient room to shift to a somewhat stronger wage growth in FIS, one which could help to attract the best talents (for the job categories where this is necessary) as well as to reduce turnover in those job categories where turnover is too high.

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When a labour shortage occurs: DEFINITION

In its narrowest definition, a labour shortage is an economic condition in which employers believe there are insufficient qualified candidates (employees) to fill the marketplace demands for employment at a wage that is mostly employer-determined.
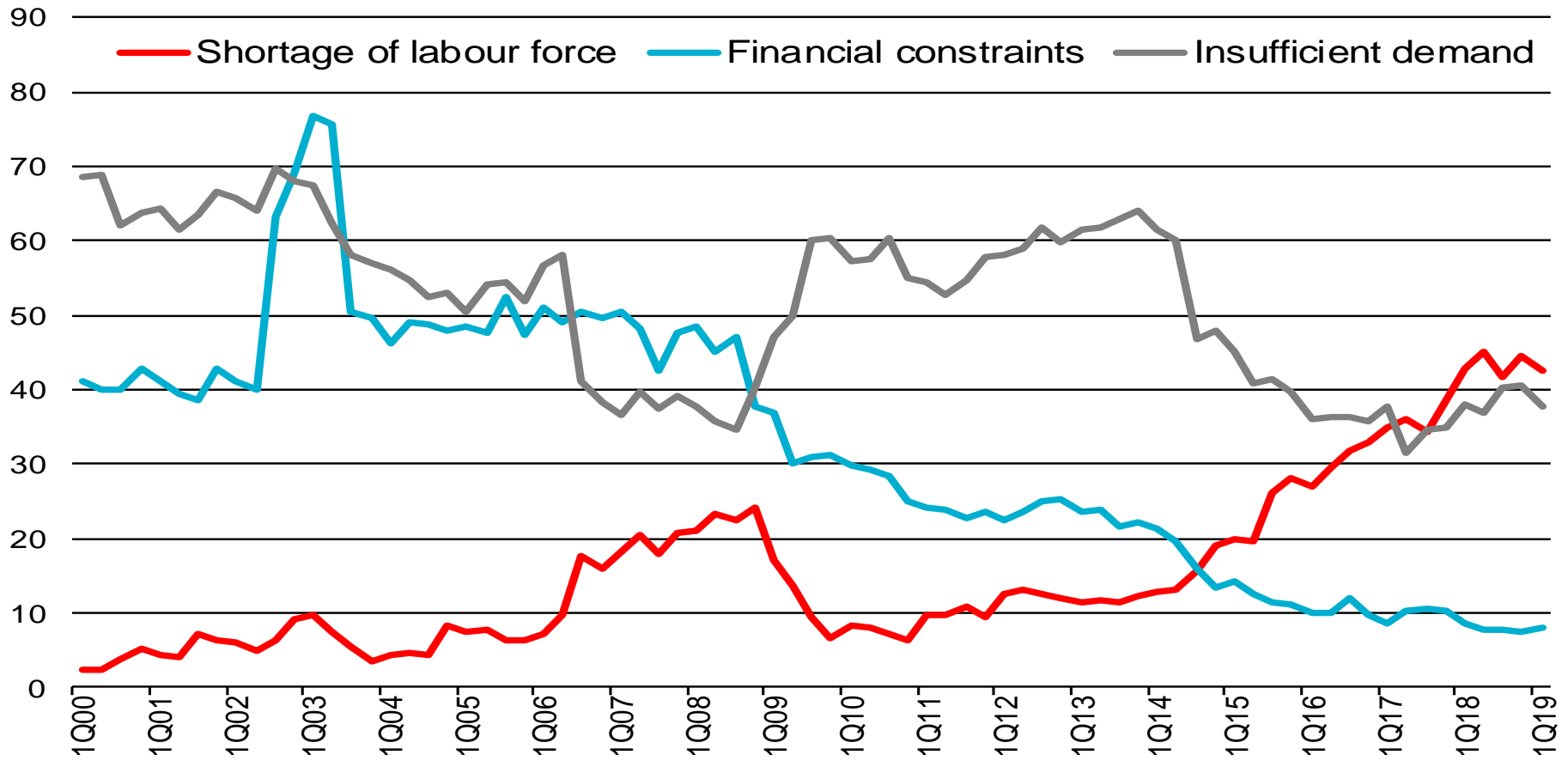
A labour shortage occurs after unemployment rates fall below the so called natural rate of unemployment (NAIRU), which is the lowest level of unemployment that the economy can maintain in the long run without risk for macroeconomic stability (inflation) .

For a country like Bulgaria, NAIRU is estimated at around 5%. This means that it would be premature to speak about a labour shortage (for the economy as a whole) before the unemployment rate goes down below NAIRU.
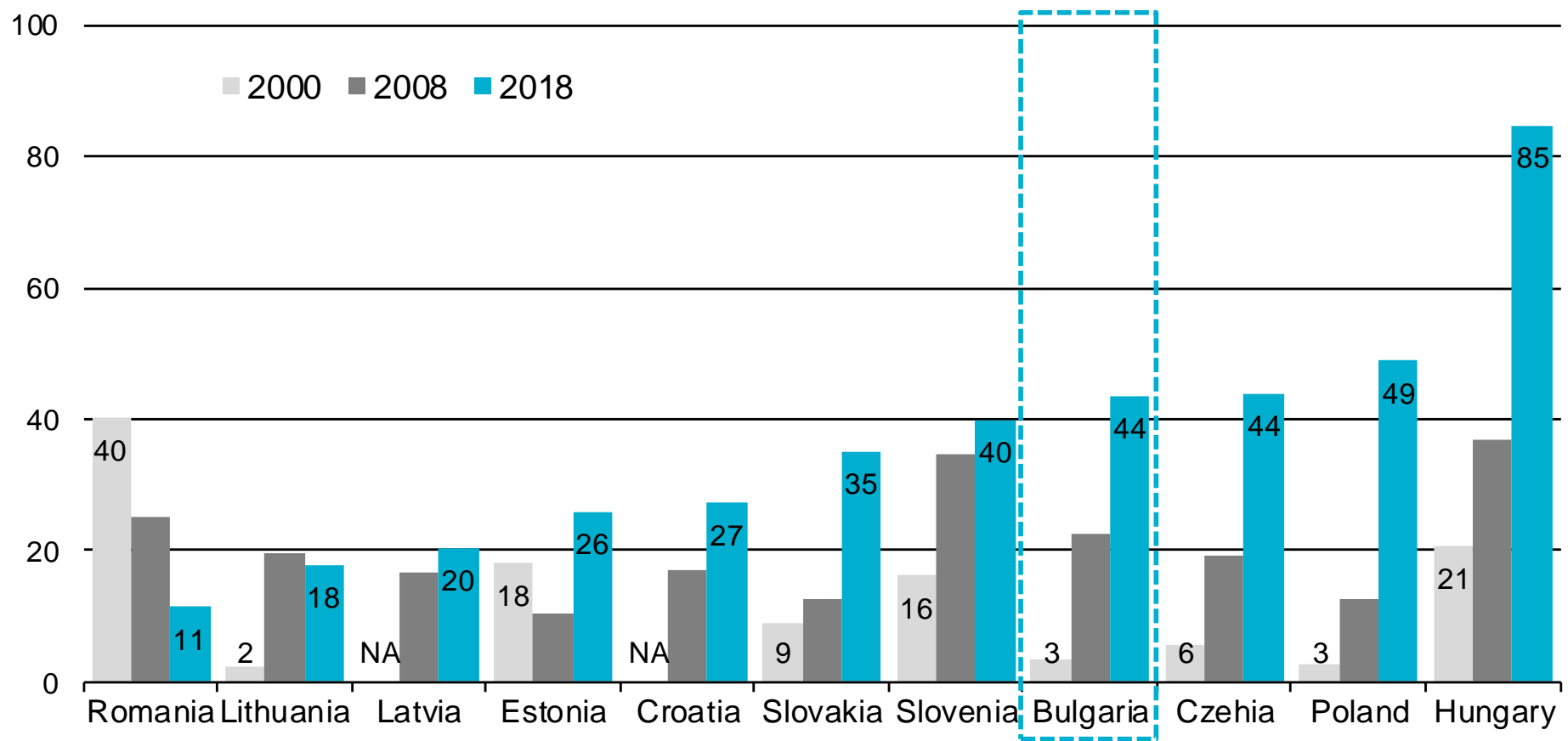
Shortage of labour has become number one constraining factor for industrial enterprises in 1Q17 (1Y before the economy reached full employment)

Bulgaria: Factors limiting the activity of industrial enterprises (% of companies)

Legend: Shortage of labour force · Financial constraints · Insufficient demand

Source: Eurostat, UniCredit Research

Three CEE countries report higher labour shortages (business managers identifying labour shortages as a constraining factor) in industry than Bulgaria

CEE: Labour shortages in industry (% of companies reporting labour shortages)

Legend: 2000, 2008, 2018

Country	2000	2008	2018
Romania	40	25	11
Lithuania	2	19	18
Latvia	NA	16	20
Estonia	18	10	26
Croatia	NA	17	27
Slovakia	9	12	35
Slovenia	16	35	40
Bulgaria	3	22	44
Czehia	6	19	44
Poland	3	12	49
Hungary	21	37	85

In the construction sector, labour shortages became the number one constraining factor at about the same time as in industry – early 2017
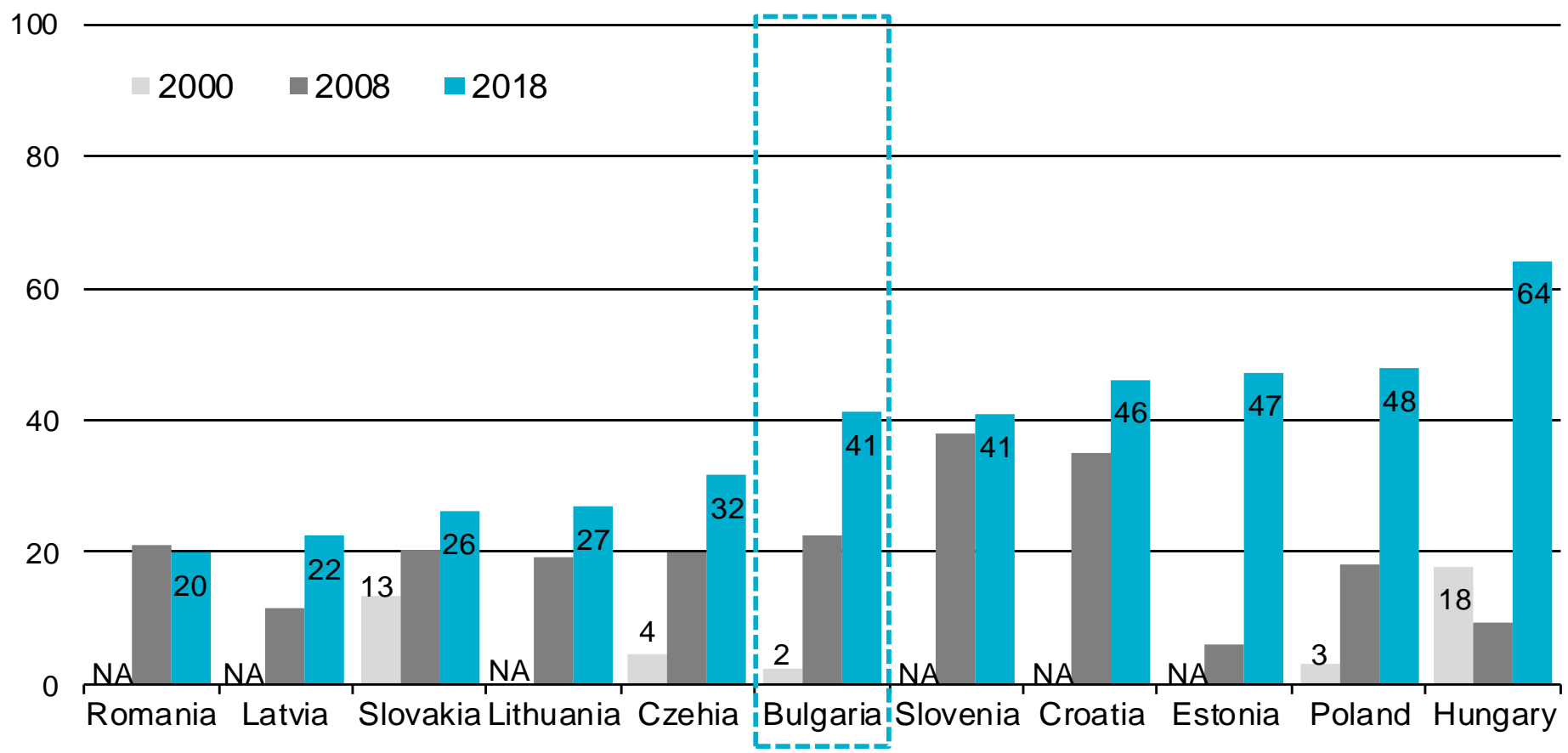
Bulgaria: Main factors limiting construction activity (% of companies)

Legend: Shortage of labour force — Financial constraints — Insufficient demand

Source: Eurostat, UniCredit Research
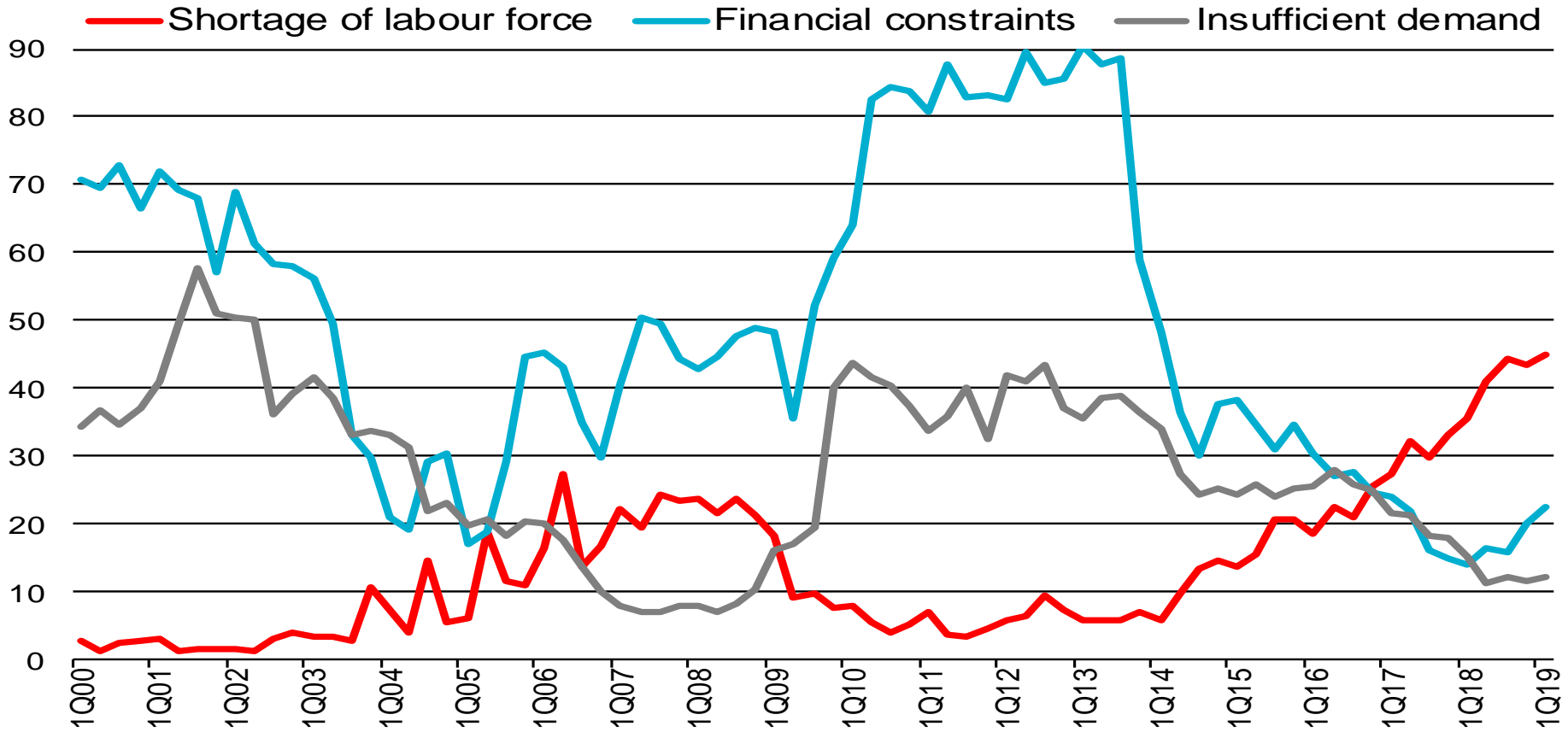
The number of CEE countries with higher labour shortages in construction sector than in Bulgaria is higher when compared with the industry sector (see slide N8)

CEE: Labour shortages in construction (% of companies' managers reporting labour shortages)

Legend: ■ 2000 ■ 2008 ■ 2018

Romania: 2008 = 21, 2018 = 20, 2000 = NA
Latvia: 2008 = 11, 2018 = 22, 2000 = NA
Slovakia: 2000 = 13, 2008 = 20, 2018 = 26
Lithuania: 2008 = 19, 2018 = 27, 2000 = NA
Czehia: 2000 = 4, 2008 = 20, 2018 = 32
Bulgaria: 2000 = 2, 2008 = 22, 2018 = 41
Slovenia: 2008 = 38, 2018 = 41, 2000 = NA
Croatia: 2008 = 35, 2018 = 46, 2000 = NA
Estonia: 2008 = 6, 2018 = 47, 2000 = NA
Poland: 2000 = 3, 2008 = 18, 2018 = 48
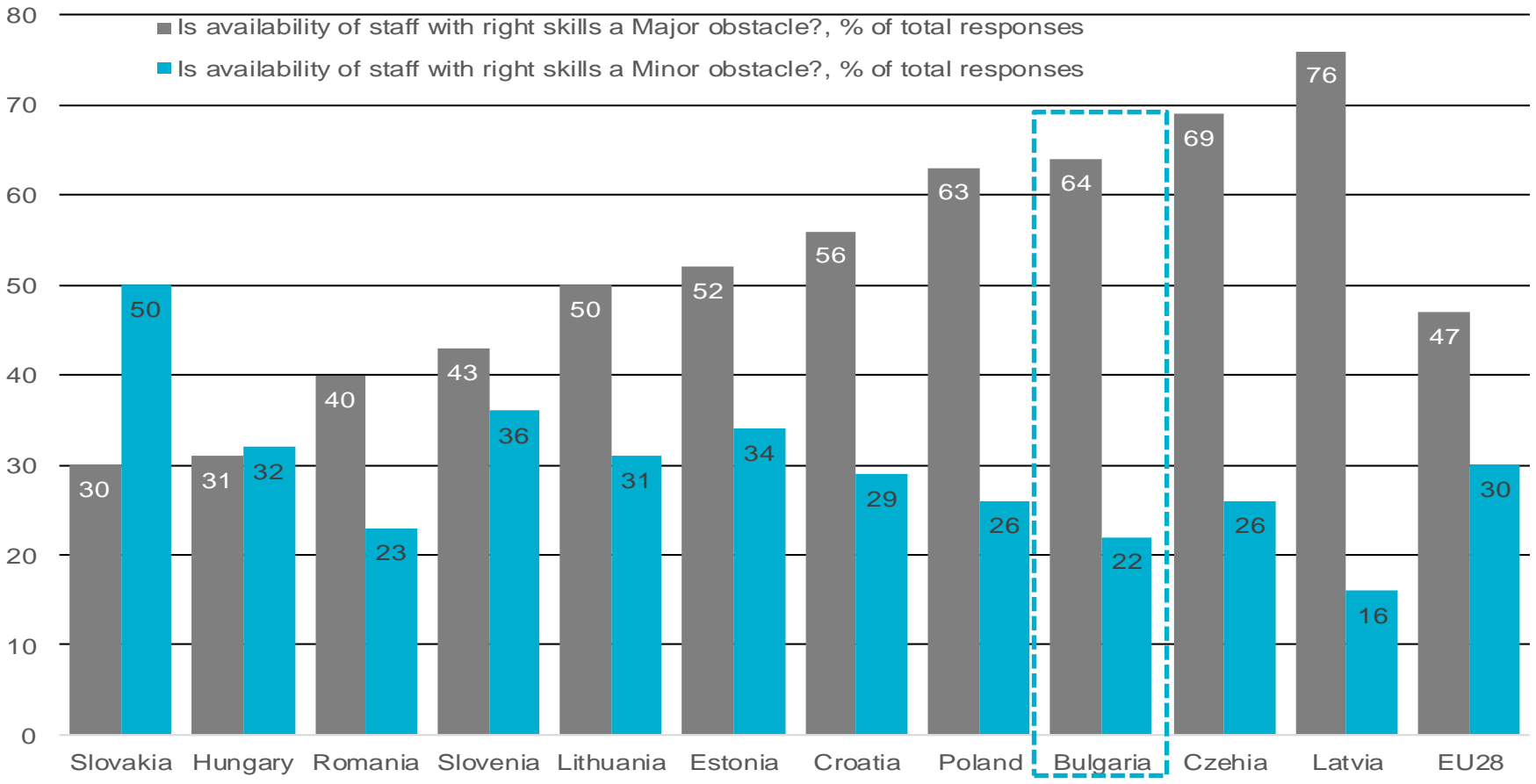Hungary: 2000 = 18, 2008 = 9, 2018 = 64

Source: Eurostat, UniCredit Research
Note: Data based on the joint harmonised EU construction monthly survey – Question: What main factors are currently limiting your building activity? 1) none; 2) insufficient demand; 3) weather conditions; 4) shortage of labour force; 5) shortage of material and/or equipment; 7) financial constraints; 8) other factors.

Labour shortages in Bulgaria are a major obstacle for expansion according to 64% of companies which took part in the most recent European Investment Bank (EIB) 2018 survey. Only two countries have higher readings

Labour shortages measured by 2018 EIB survey
(% of reporting companies)

Legend:
- ■ Is availability of staff with right skills a Major obstacle?, % of total responses
- ■ Is availability of staff with right skills a Minor obstacle?, % of total responses

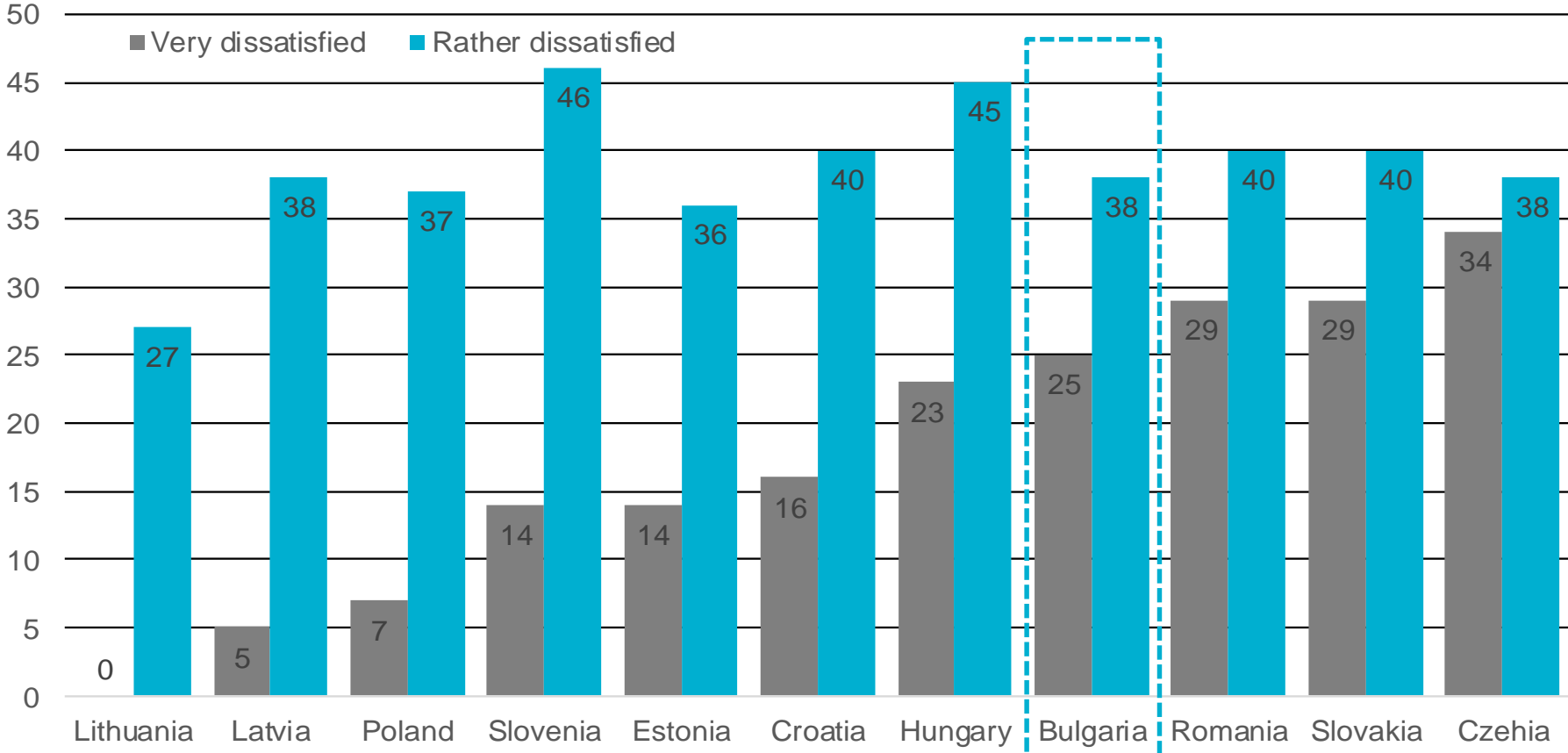| Country	Major obstacle	Minor obstacle
Slovakia	30	50
Hungary	31	32
Romania	40	23
Slovenia	43	36
Lithuania	50	31
Estonia	52	34
Croatia	56	29
Poland	63	26
Bulgaria	64	22
Czehia	69	26
Latvia	76	16
EU28	47	30

Source: Eurostat, UniCredit Research

38% of German companies operating in Bulgaria are very dissatisfied with the availability of labour with a proper qualification and skills, according to the most recent survey in 2019

Labour shortages measured by 2019 AHK Bulgarien (German-Bulgarian Chamber of Industry and Commerce) survey, (% of reporting companies)


Legend:
- ■ Very dissatisfied
- ■ Rather dissatisfied

Country	Very dissatisfied	Rather dissatisfied
Lithuania	0	27
Latvia	5	38
Poland	7	37
Slovenia	14	46
Estonia	14	36
Croatia	16	40
Hungary	23	45
Bulgaria	25	38
Romania	29	40
Slovakia	29	40
Czehia	34	38

Alternative way to measure labor shortages is to look at Potential additional labour employment. Last year this indicator in Bulgaria reached its lowest level ever

Bulgaria: Potential additional labour employment
(% of employed)

Legend: ■ Unemployed ■ Inactive persons □ Potential additional jobs
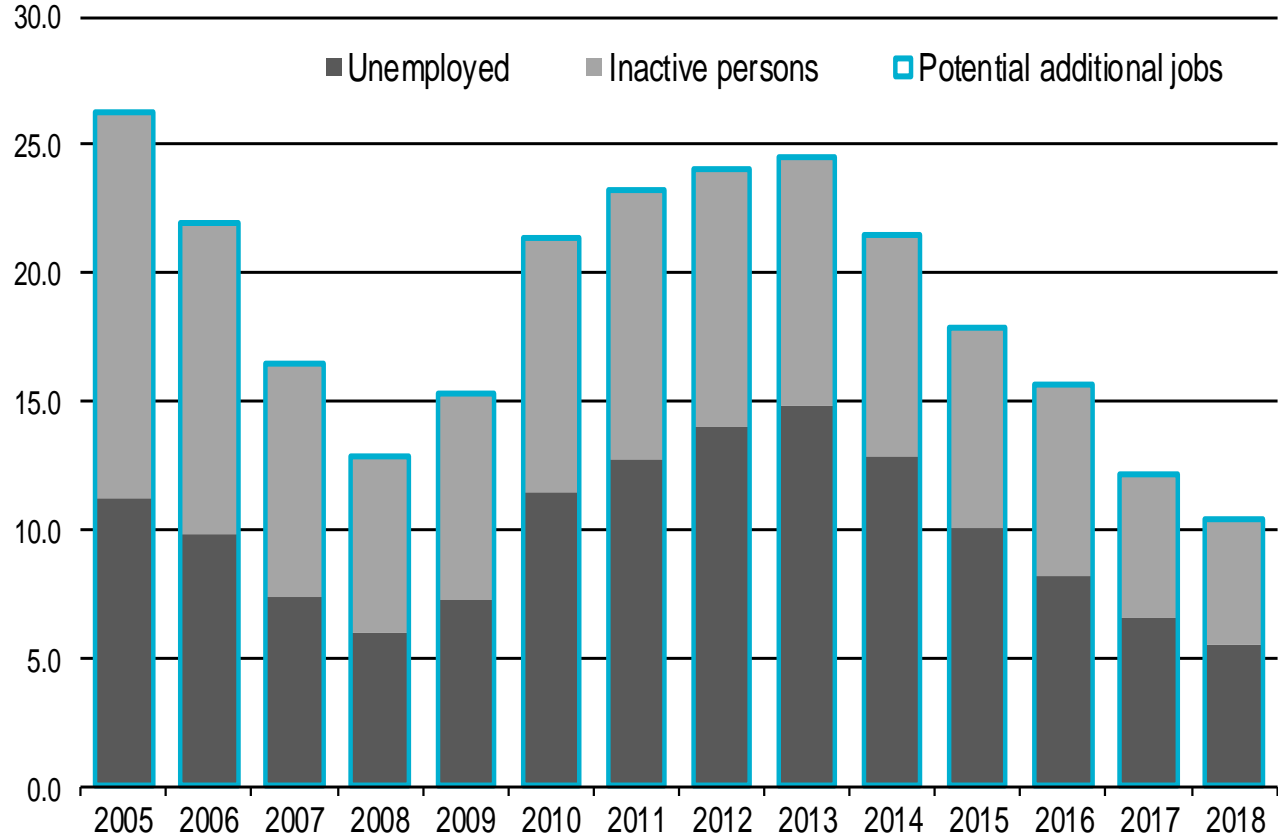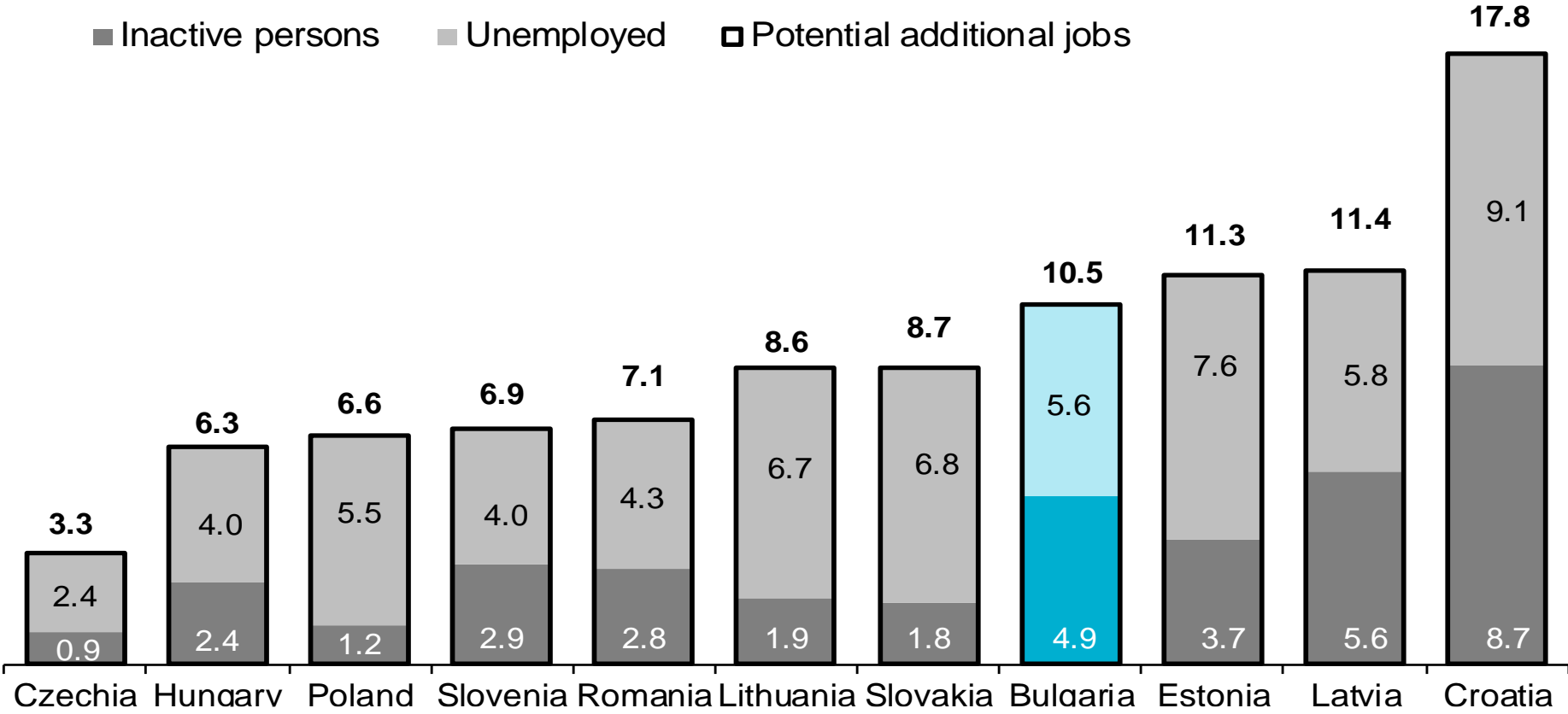
Methodological note:

The data is based on EU Labour Force Survey. The potential additional jobs is the sum of **unemployed** and **inactive persons**.

The latter consists of two subgroups: persons who are available to work but don't seek it (including so called discouraged job seekers), and persons who seek work but are not immediately available to start working (some of these are students in the last year of their studies which are already sending job applications).
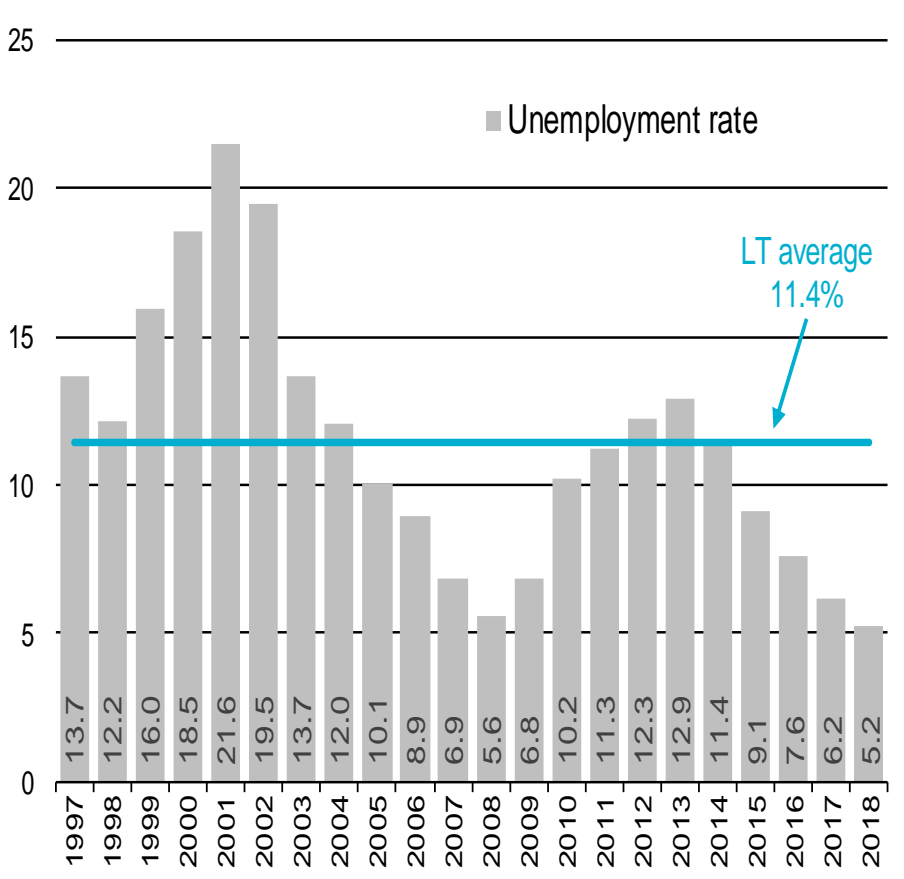
Source: Eurostat, UniCredit Bulbank

Bulgaria is the fourth largest in CEE. This indicates the presence of some unutilized (free) labour resources in Bulgaria, along with Estonia, Latvia and Croatia

CEE: Potential additional labour employment
(% of employed population)

Legend: ■ Inactive persons ■ Unemployed □ Potential additional jobs

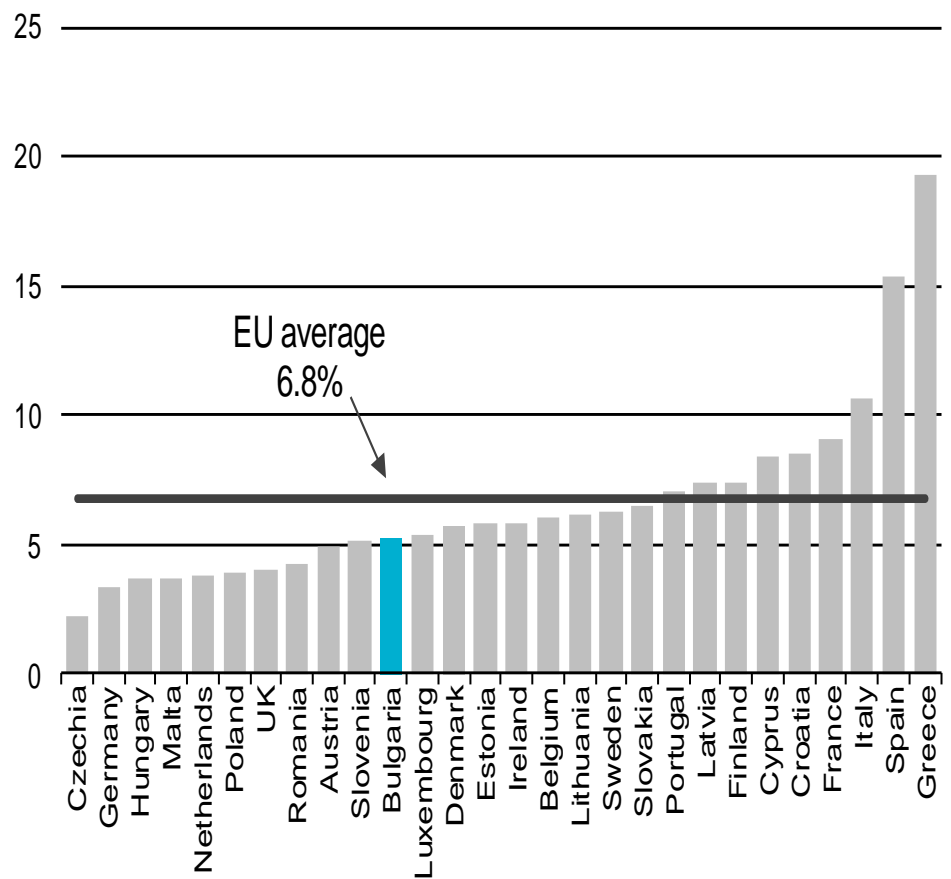| Country	Total	Unemployed/Potential	Inactive
Czechia	3.3	2.4	0.9
Hungary	6.3	4.0	2.4
Poland	6.6	5.5	1.2
Slovenia	6.9	4.0	2.9
Romania	7.1	4.3	2.8
Lithuania	8.6	6.7	1.9
Slovakia	8.7	6.8	1.8
Bulgaria	10.5	5.6	4.9
Estonia	11.3	7.6	3.7
Latvia	11.4	5.8	5.6
Croatia	17.8	9.1	8.7

Source: Eurostat, UniCredit Bulbank

Bulgarian economy reached full employment (unemployment rate below the 5% the mark) for the first time only very recently - in the last quarter of 2018

Bulgaria: Unemployment rate (1997 – 2018, in %)

Legend: ■ Unemployment rate

LT average 11.4%

Values (1997–2018): 13.7, 12.2, 16.0, 18.5, 21.6, 19.5, 13.7, 12.0, 10.1, 8.9, 6.9, 5.6, 6.8, 10.2, 11.3, 12.3, 12.9, 11.4, 9.1, 7.6, 6.2, 5.2

EU: Unemployment rate (2018, in %)

EU average 6.8%

Countries: Czechia, Germany, Hungary, Malta, Netherlands, Poland, UK, Romania, Austria, Slovenia, Bulgaria, Luxembourg, Denmark, Estonia, Ireland, Belgium, Lithuania, Sweden, Slovakia, Portugal, Latvia, Finland, Cyprus, Croatia, France, Italy, Spain, Greece

Source: Eurostat, UniCredit Bulbank

Key conclusions from Labour shortage (total economy perspective) section

In the manufacturing sector 44% of managers in Bulgaria argue that there are labor shortages, according to the most recent available in 1Q2019. Labour shortages have become the number one factor constraining future business expansion in manufacturing around two years ago in 2Q2017, while prior to that point the number one constraining factor was insufficient demand. Business survey data from the CEE region show that there are two countries where labour shortages are higher than in Bulgaria (HU and PL) one is on par with Bulgaria (CZ) while in the remaining seven these are smaller.

In the construction sector 41% of managers in Bulgaria argue that there are labor shortages, according to the most recent available in 1Q2019. Labour shortages has become the number one factor constraining future business expansion in construction around two years ago in 1Q2017, while prior to that point number one constraining factor was financial constraints. Business survey data from the CEE region show that Bulgaria is in the middle of the pack: there are four countries which report higher labour shortages than in Bulgaria (HU, PL, EE, HR) one county is at par with Bulgaria (SL) while in the remaining five labor shortages in construction sector are smaller than in Bulgaria (RO, LV, SK, LT and CZ).

Most recent surveys conducted by EIB and German chamber of commerce show more or less similar results.

Bulgaria reached full employment in 4Q2018, which is important because labour shortages should occur only after unemployment rate fall below the natural rate of unemployment. Also importantly, the remaining pool of free labour resources in Bulgaria, measured by the potential additional labour indicator, are one of the highest in the CEE region (fourth highest out of total of eleven CEE countries). Vacant jobs in Bulgaria (relative to total job numbers) are also small compared with most other CEE countries.

These paint a mixed picture. It would be fair to say that there are labour shortages in Bulgaria in the mid of 2019, but this is a relatively recent phenomenon. Applying strictly the definition in the beginning of this section, labour shortages (on the level of the economy as a whole) have occurred for the first time only in 4Q18, or less than an year ago.

Importantly, labor market is not a homogeneous one. Therefore, we should not expect labor shortages to occur simultaneously in all sectors of the economy and in all labour market segments. It is thus very likely that there were sectors where labor shortages may had existed well before unemployment rate fell below the 5% benchmark in 4Q18. A lot of evidence suggests that one such sector in Bulgaria is the financial and insurance services (FIS) sector.

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1 Introduction

2 Labor shortages (total economy perspective)

3 **Skills mismatch**

4 Labor shortages (banking sector perspective)

5 Implications for UCB strategy

Skill mismatch: DEFINITIONS

Skill mismatch is defined as the mismatch for a certain worker between his/her current skills and the required skills for his/her job. This is the widely used definition of skill mismatch (OECD).

There is no commonly accepted approach to measuring skills mismatches.
Two indicators are currently being used experimentally by Eurostat: (1) Over-qualification rate (vertical skills mismatch). This indicator aims at understanding how many high-skilled persons (meaning persons who have completed tertiary education level based on the ISCED*classification) are employed in occupations (based on the ISCO classification) that do not require tertiary education; (2) Job mismatch by field of education (horizontal skills mismatch) This indicator aims at understanding how many employed persons are working in occupations (based on the ISCO classification) that do not correspond to the field of education they have attended (based on the ISCED-F classification).

Skill mismatch can have adverse effects at different levels**.
Individual level: It is found that skill mismatch has a strong negative effect on job motivation, satisfaction and earning among ovequalificated workers. Therefore, skill mismatch is expected to lead to higher turnover costs as less-satisfied mismatched workers are more likely to search for more suitable jobs.
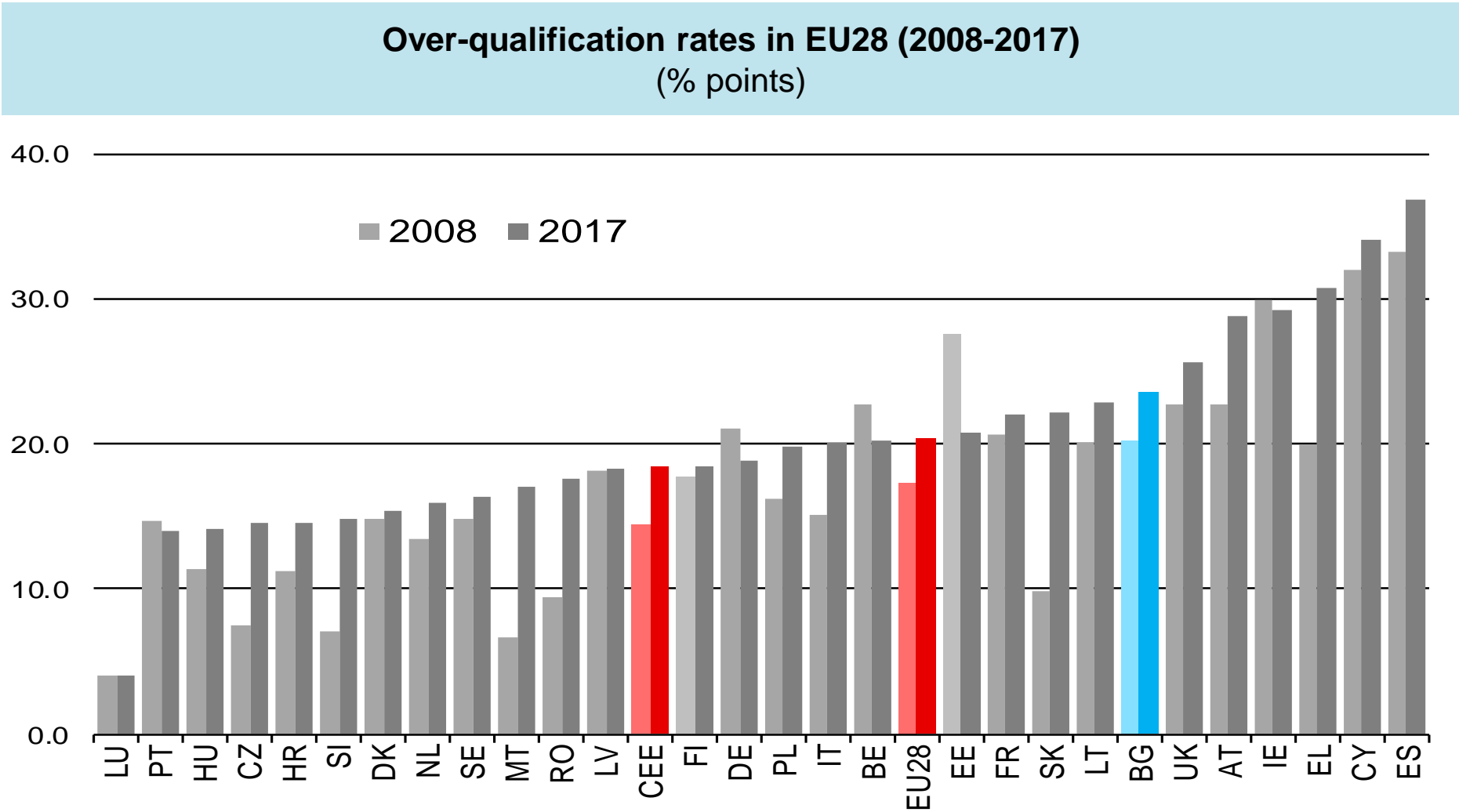Firm and country level: The allocative efficiency theory is based on the idea that highly productive and less productive firms coexist and draw from a common pool of skilled workers. Low productivity firms tend to have a high share of mismatched workers and thus trap (labour) resources. Therefore, high productivity firms have more trouble to attract this skilled labour force, resulting in an overall (on the country level) productivity loss. The individual and country effects exacerbate when labour shortages increase.

In 2017, Bulgaria had the highest rate of over-qualification in CEE. In CEE, CZ is on the other extreme. This can be interpreted as poor use of available resources in Bulgaria
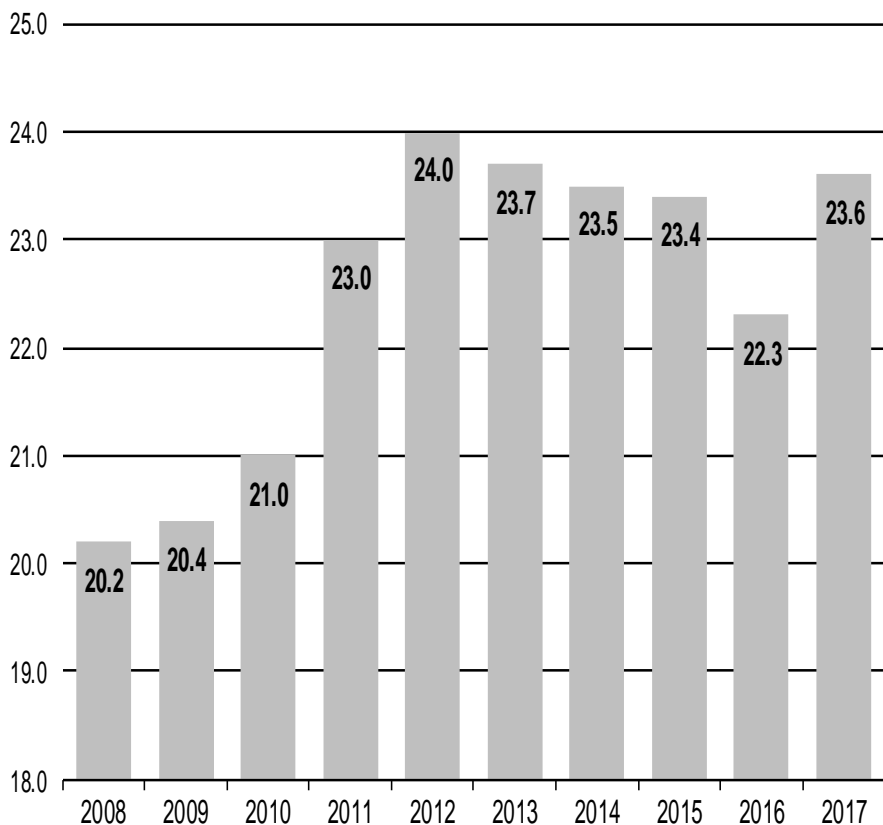
Over-qualification rates in EU28 (2008-2017)
(% points)

Legend: 2008 (light gray), 2017 (dark gray)

Countries (x-axis): LU, PT, HU, CZ, HR, SI, DK, NL, SE, MT, RO, LV, CEE, FI, DE, PL, IT, BE, EU28, EE, FR, SK, LT, BG, UK, AT, IE, EL, CY, ES
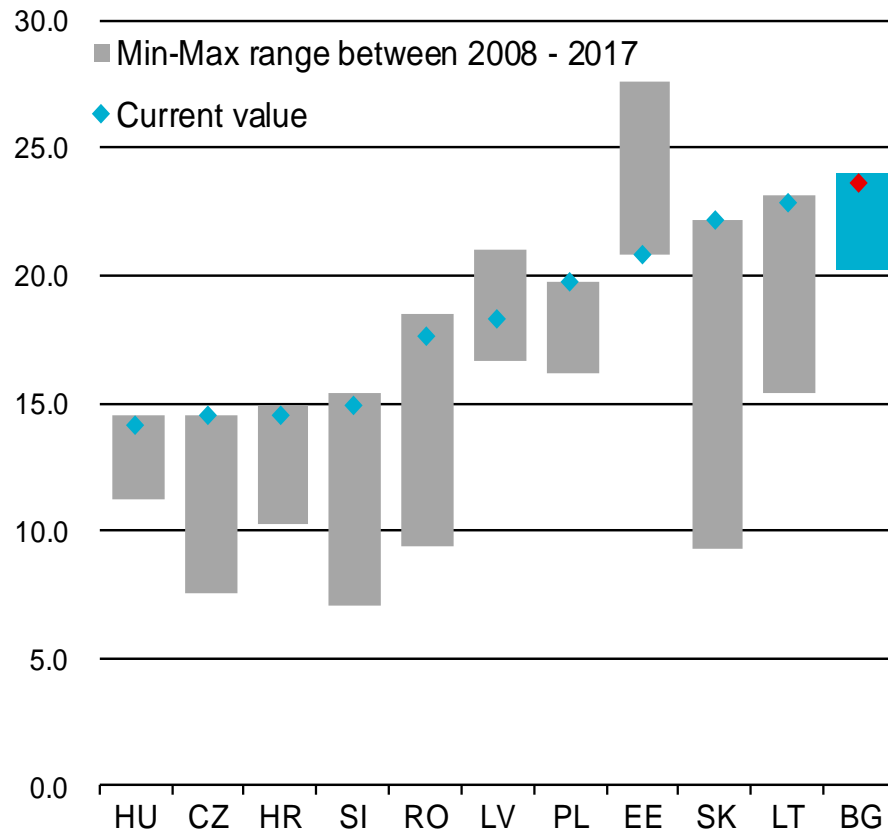
Over-qualification rate has been on a rise in CEE, including Bulgaria. This indicates a large share of less productive companies and high share of trapped labour resources

Over-qualification rates in Bulgaria
(2008-2017, % points)

Over-qualification rates in CEE
(2008-2017, % points)

■ Min-Max range between 2008 - 2017
◆ Current value

Source: Eurostat
*Over-qualification rate (vertical skills mismatch) - This indicator aims at understanding how many high-skilled persons (meaning persons who have completed tertiary education level based on the ISCED classification) are employed in occupations (based on the ISCO classification) that do not require tertiary education. Data are broken down by economic activities (based on the NACE classification).

Jobs mismatches by field of education in Bulgaria are smaller than in CEE and EU28. This suggests that the "output" of Bulgarian education does not differ so much from business requirements (when this measure is used) as in other countries in EU

Horizontal skills mismatch rates in EU28 (2014-2017)
(Age group 25-34, Tertiary education ISCED 2011 5-8)
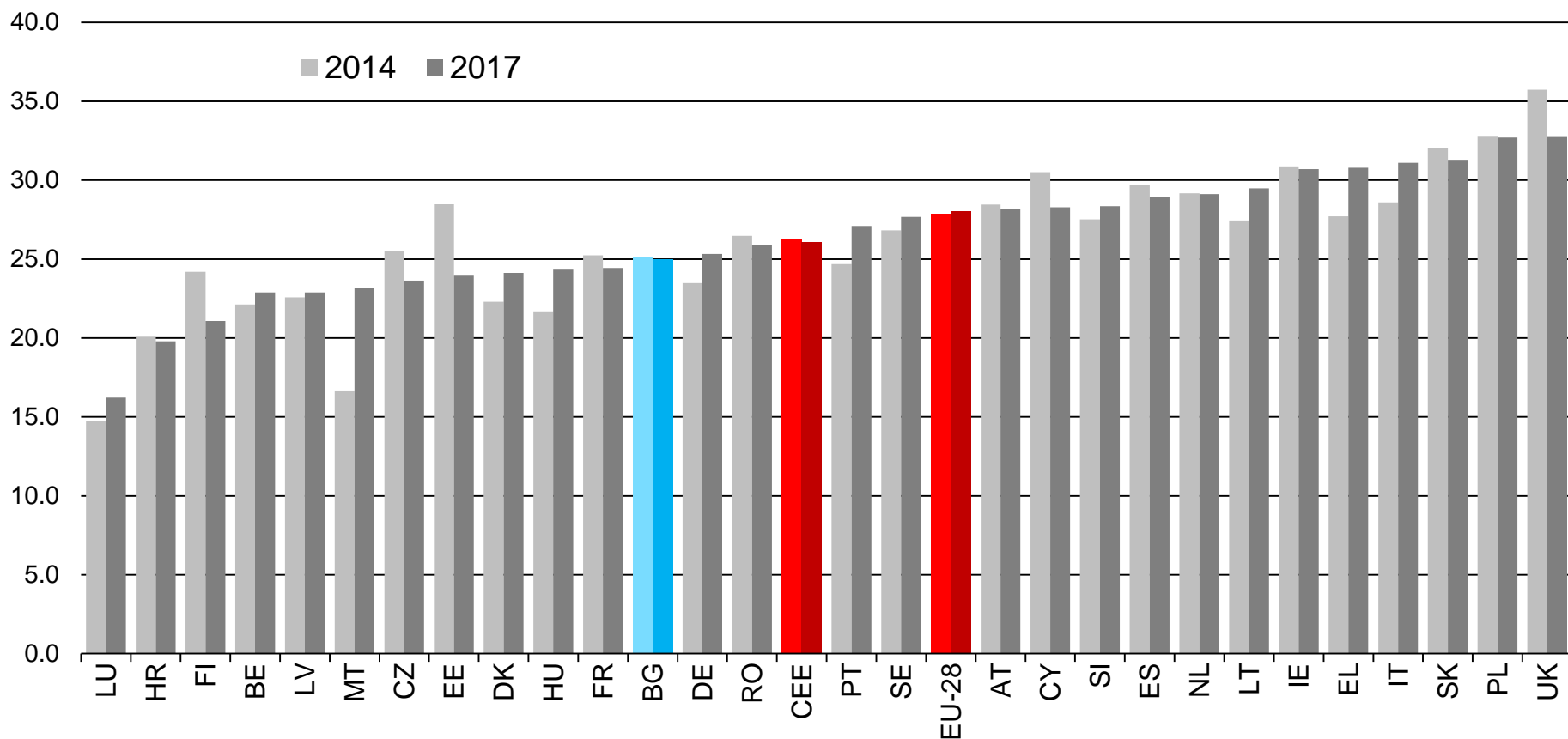
Source: Eurostat

This indicator aims at understanding how many employed persons are working in occupations (based on the ISCO classification) that do not correspond to the field of education they have attended (based on the ISCED-F classification).

Long-term data for Horizontal skills mismatches is not yet available, but the current one indicates that the country is positioned midway between the CEE

Horizontal skills mismatch rates in **Bulgaria** (2014-2017, age group 25-34, % points)

Year	Value
2014	25.2
2015	30.0
2016	27.7
2017	25.0

Horizontal skills mismatch rates in CEE (2014-2017, age group 25-34, Tertiary education)

- Min-Max range between 2014- 2017
- Current value

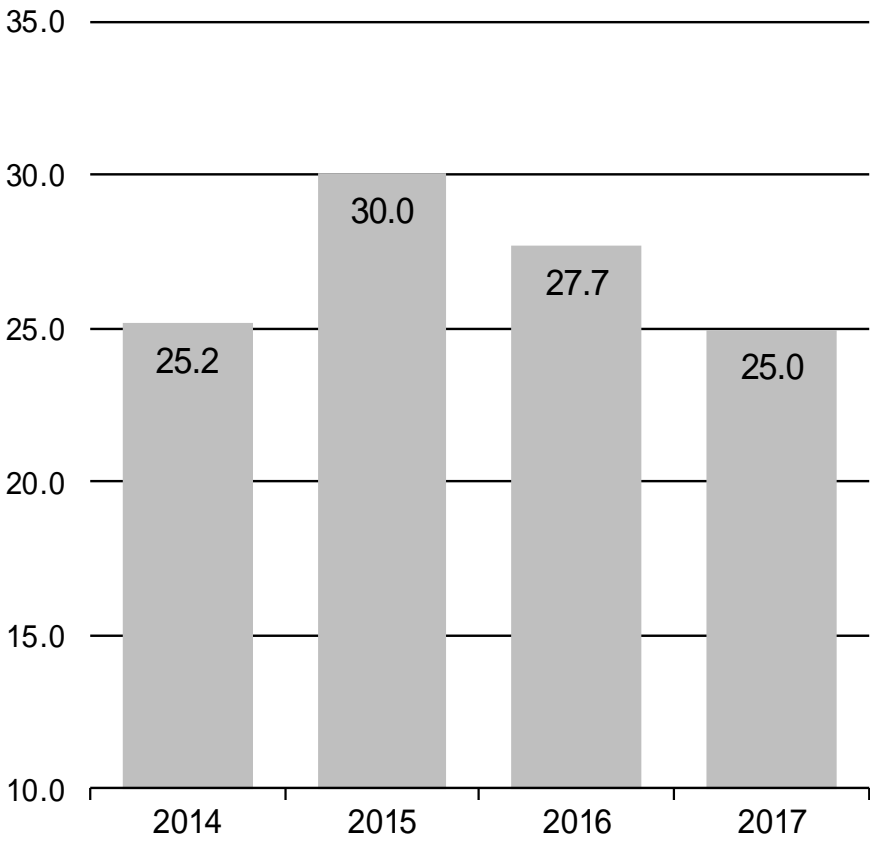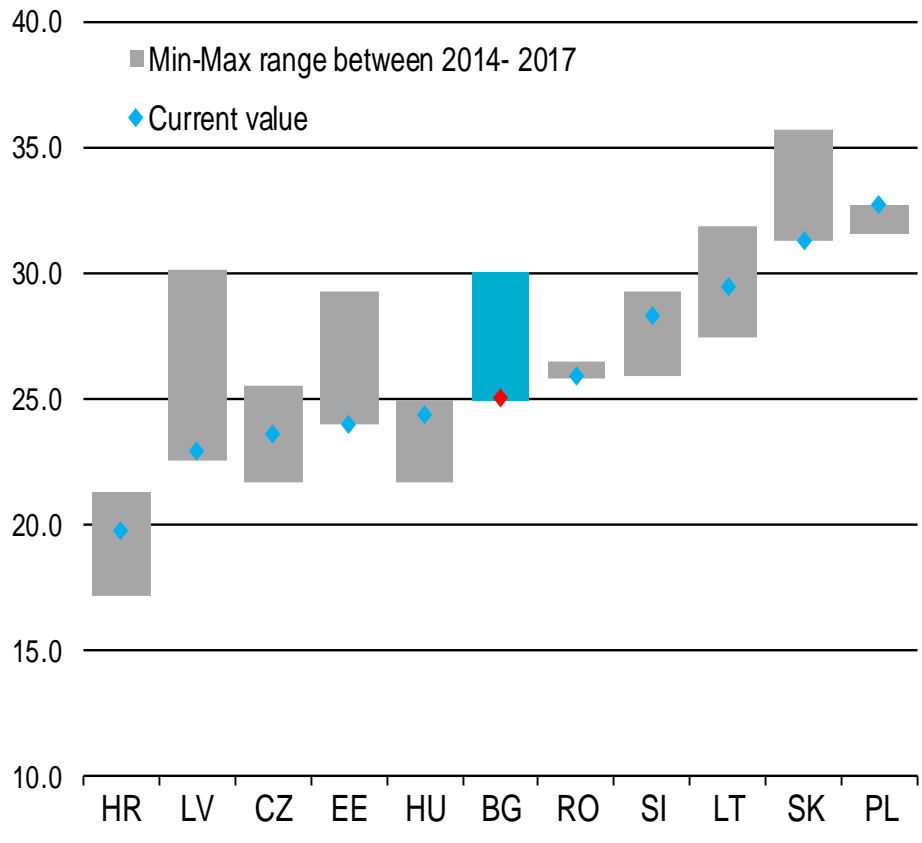Countries: HR, LV, CZ, EE, HU, BG, RO, SI, LT, SK, PL

Source: Eurostat

21 This indicator aims at understanding how many employed persons are working in occupations (based on the ISCO classification) that do not correspond to the field of education they have attended (based on the ISCED-F classification). Data are broken down by field of education.

When looking at the Social sciences, business and law, which is exactly the field of education corresponding to the FIS sector's needs, it seems that young people in Bulgaria find jobs in relatively close connection to their filed of education

Horizontal skills mismatch rates in Social sciences, business, law education field across EU28 (2014-2017)
(Age group 25-34, Tertiary education degree in Social sciences, business, law)
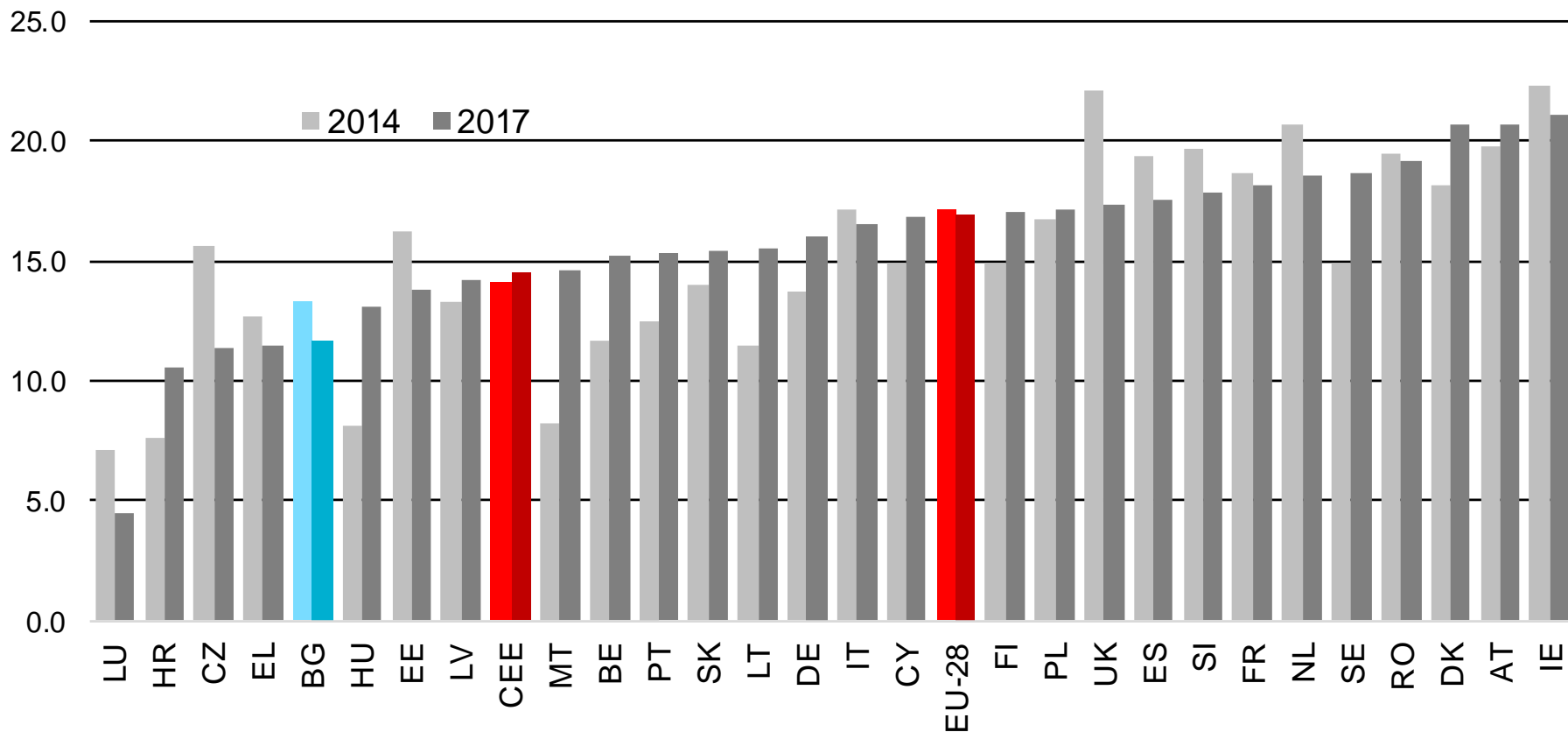
Source: Eurostat

This indicator aims at understanding how many employed persons are working in occupations (based on the ISCO classification) that do not correspond to the field of education they have attended (based on the ISCED-F classification).

Spikes in 2015 and 2016 indicate possible problems with data quality (not surprising given the experimental status of this indicator). For most CEE countries horizontal skills mismatches (for this field of education) currently are close to their lowest levels

Horizontal skills mismatch rates in Social sciences, business, law education field in Bulgaria (2014-2017, age group 25-34, % points)

Horizontal skills mismatch rates in CEE (2014-2017, age group 25-34, Tertiary education degree in Social sciences, business, law)
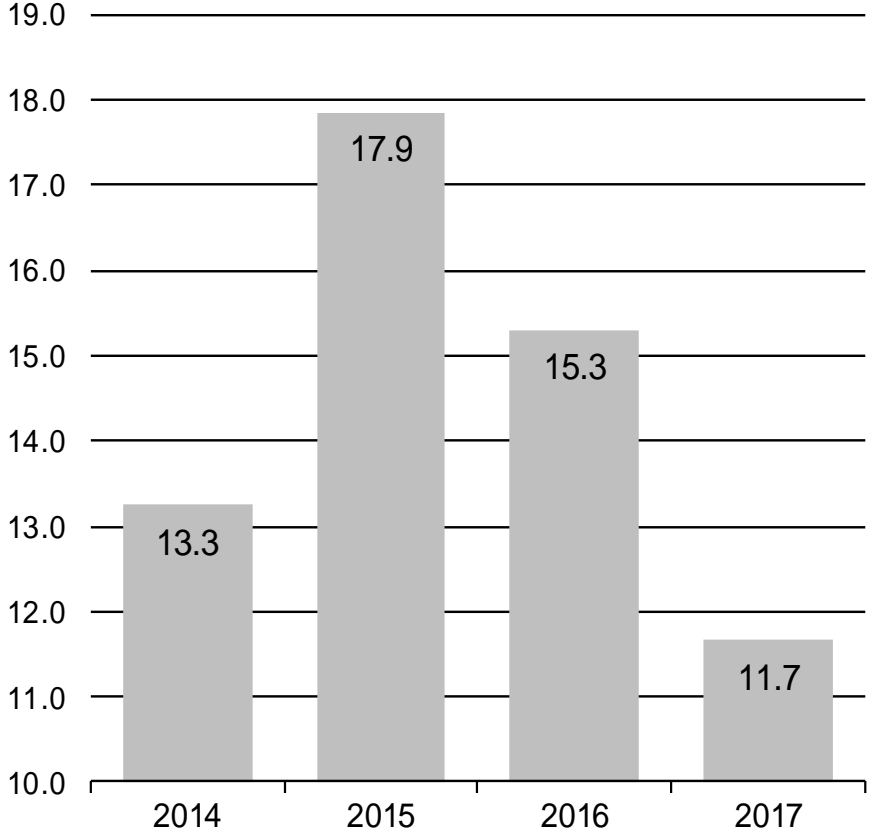

Source: Eurostat

This indicator aims at understanding how many employed persons are working in occupations (based on the ISCO classification) that do not correspond to the field of education they have attended (based on the ISCED-F classification)
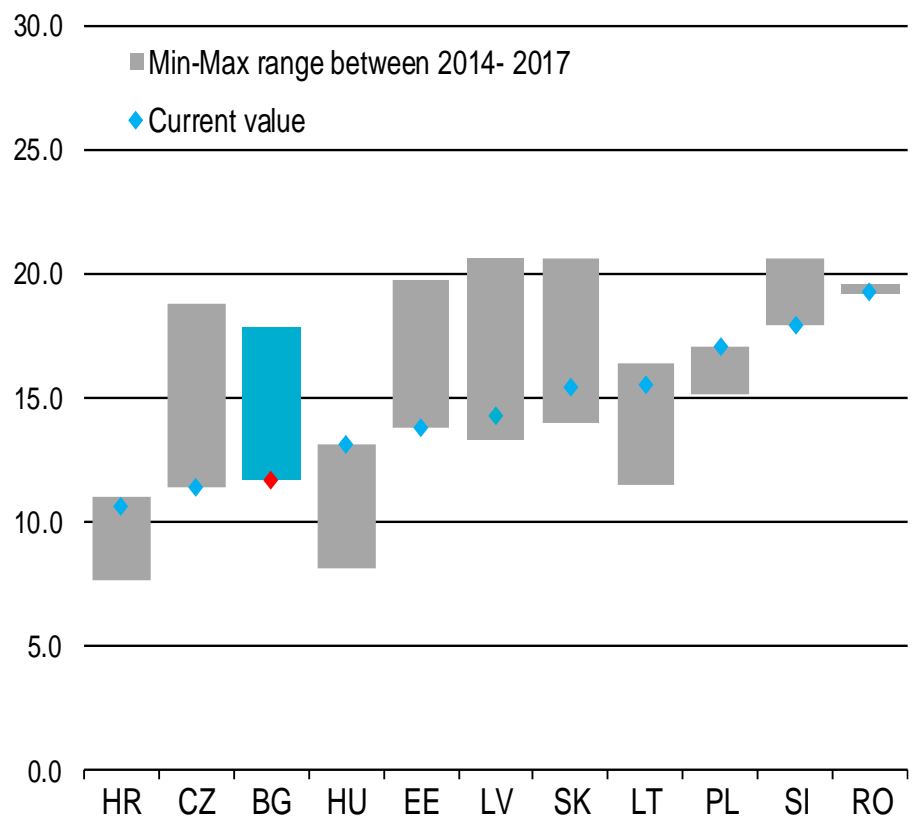
Key conclusions and interpretation of results from skill mismatches section

The skills mismatch indicators are used experimentally and their interpretation may not be so easy at this point of time. The relationship between overqualification, jobs and skills is not unidirectional.

While university graduates' lack of skills might lead them to occupy a lower-skilled job, it could also be that the economy is not in a position to offer anything other than low-skilled jobs (for example because of global pressure or low economic activity or jobs specialization which is hard to change despite government's efforts) and thus has fewer opportunities for using these skilled workers. Given that we don't have cross-sectional nature of the data (about people in vertical and horizontal mismatches), it is difficult to formally identify a meaningful cause-and-effect relationship.

Although it is not methodologically clear, the indicators are useful for conducting analyzes and cross country comparisons. It looks like young people in Bulgaria find jobs in relative close connection to their field in education (compared to CEE and EU28), including particularly those in social sciences, business and law field of education. This is very positive because shows relatively small number of horizontally mismatched workers in Bulgaria and particularly in the FIS sector, where horizontal skills mismatches are smaller than in the economy's average

At the same time, businesses in Bulgaria are sometimes not so open to hire people without tertiary education even though this is not required for certain activities and jobs. This transpires from the relatively high share of vertically mismatched workers in Bulgaria, which, on the positive side, indicates significant room of improvement as regards the utilization of already existing labour resources.

A large amount of literature is aimed at detecting which people are more prone to be mismatched. The existing evidence* suggest that the probability of being over-skilled is larger for young people than older people. This can be due to the fact that young people have no or little work experience and thus start with temporary and/or low demanding jobs. On the opposite, older people can become under-skilled over the course of their working career due to the gradual obsolescence of skills.

*McGowan, A. and Dan A. (2015) "SKILL MISMATCH AND PUBLIC POLICY IN OECD COUNTRIES", OECD Economics Department Working Papers No. 1210
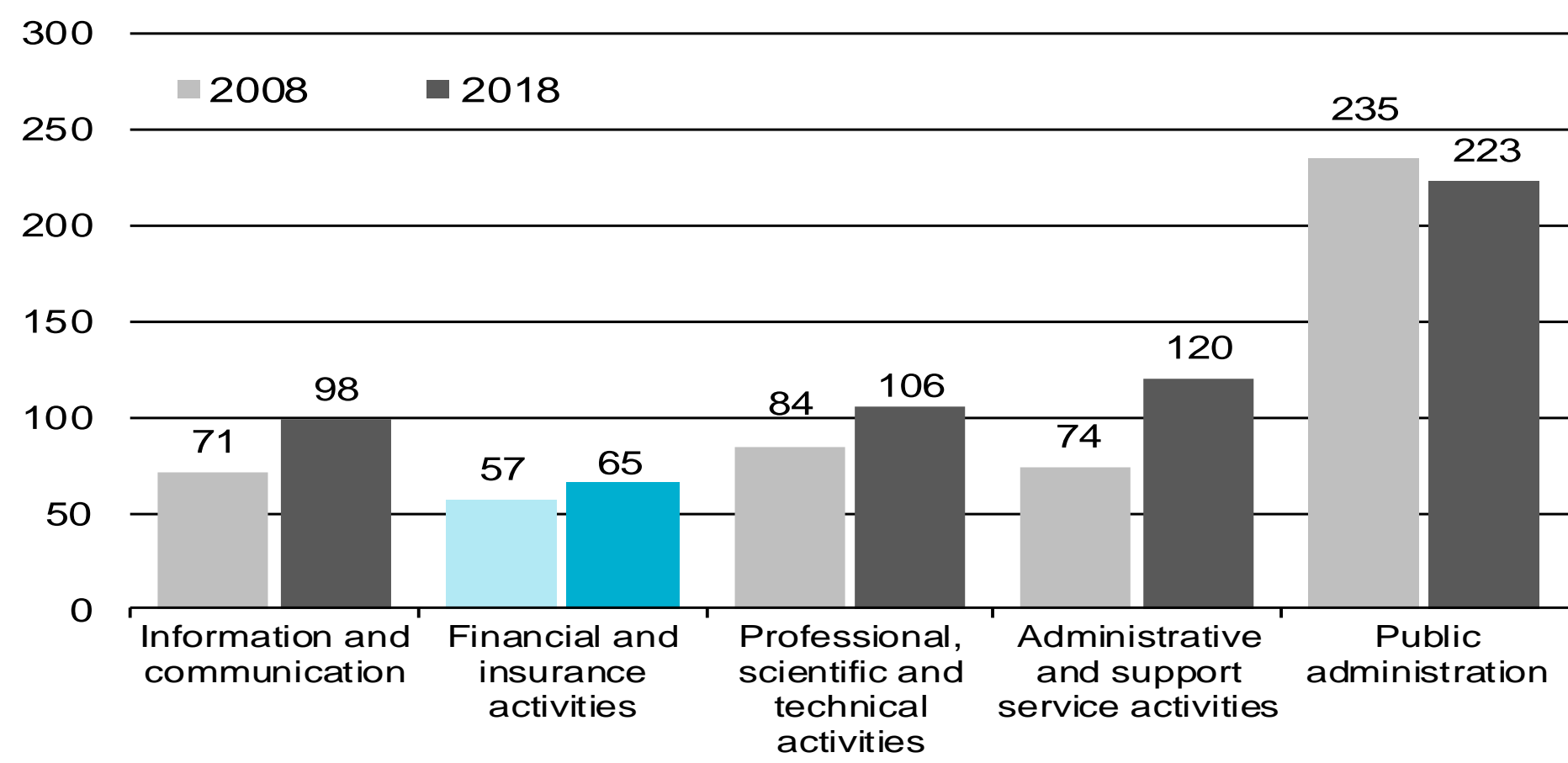
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The number of jobs in the Financial and Insurance sector (FIS) has increased. But the same is valid for all sectors (apart from public administration) which use workers with a similar education and skills profile as in the FIS. All these signal increased demand

Number of employed by sectors using same labour as FIS sector (thousands persons)

Legend: 2008, 2018

Sector	2008	2018
Information and communication	71	98
Financial and insurance activities	57	65
Professional, scientific and technical activities	84	106
Administrative and support service activities	74	120
Public administration	235	223

Source: NSI, UniCredit Bulbank
Professional, scientific and technical – include Legal and Accounting activities; Activities of head offices; Management consultancy; Architectural and engineering activities; Scientific research and development; Advertising and market research.
Administrative and support services – include Rental and Leasing activities; Employment activities; Travel agency; Security and investigation activities; Services to buildings and landscape activities; Office administrative, office support and other business support activities (Activities of call centers)

The larger the city the lower the unemployment rate is today. As FIS is overrepresented in the large cities, it faces different (higher) unemployment than economy's average. This also signals higher demand conditions for FIS sector than in the economy's average labour market

Unemployment rate by regions (age 15-64) (% points)

Legend: ■ Min-Max range (2003-2018) ● Current

Regions (left to right): Total, Sofia*, Sofia cap, Stara Zagora, Haskovo, Kardzhali, Kyustendil, Plovdiv, Varna, Gabrovo, Pazardzhik, Blagoevgrad, Ruse, Burgas, V. Tarnovo, Pernik, Pleven, Yambol, Dobrich, Lovech, Sliven, Vratsa, Smolyan, Razgrad, Silistra, Targovishte, Shumen, Montana, Vidin
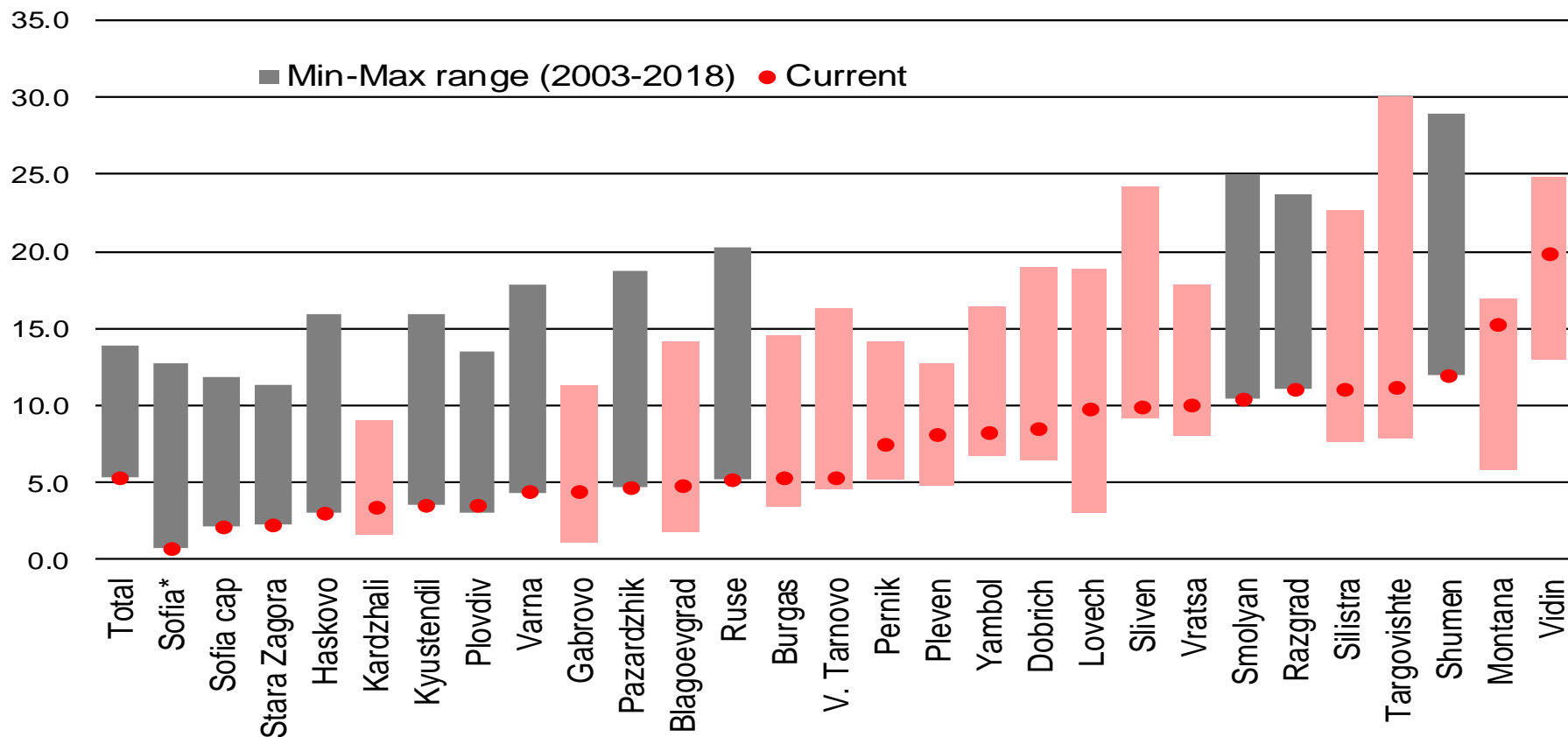
Source: NSI
*NSI note: The result is with high degree of uncertainty
The light red bars show the regions where 2018 is not a record year (the lowest rate accounted)

85% of job holders in the FIS sector have tertiary education. However, unemployment rates by educational attainment vary greatly. As FIS sector mostly uses tertiary education graduates it faces tighter labor market conditions than the economy's average

Unemployment rate by educational attainment (age 15-64) (% points)

Legend:
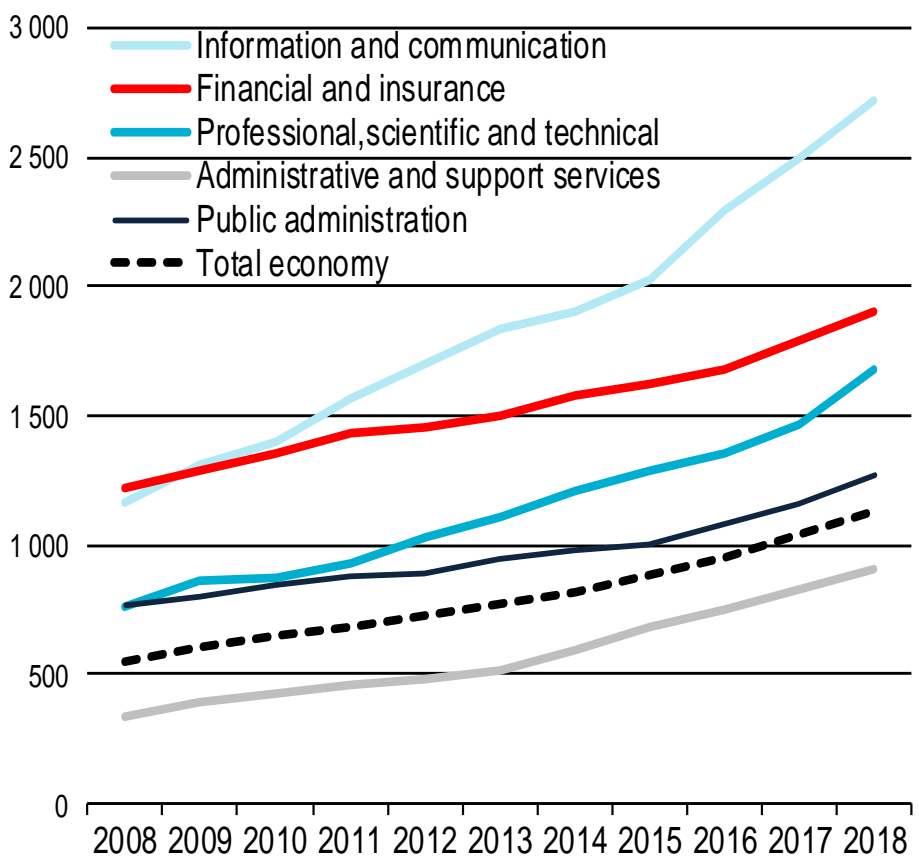- Total (blue bars)
- Tertiary education (black line)
- Secondary education (red line)
- Primary education (gray line)
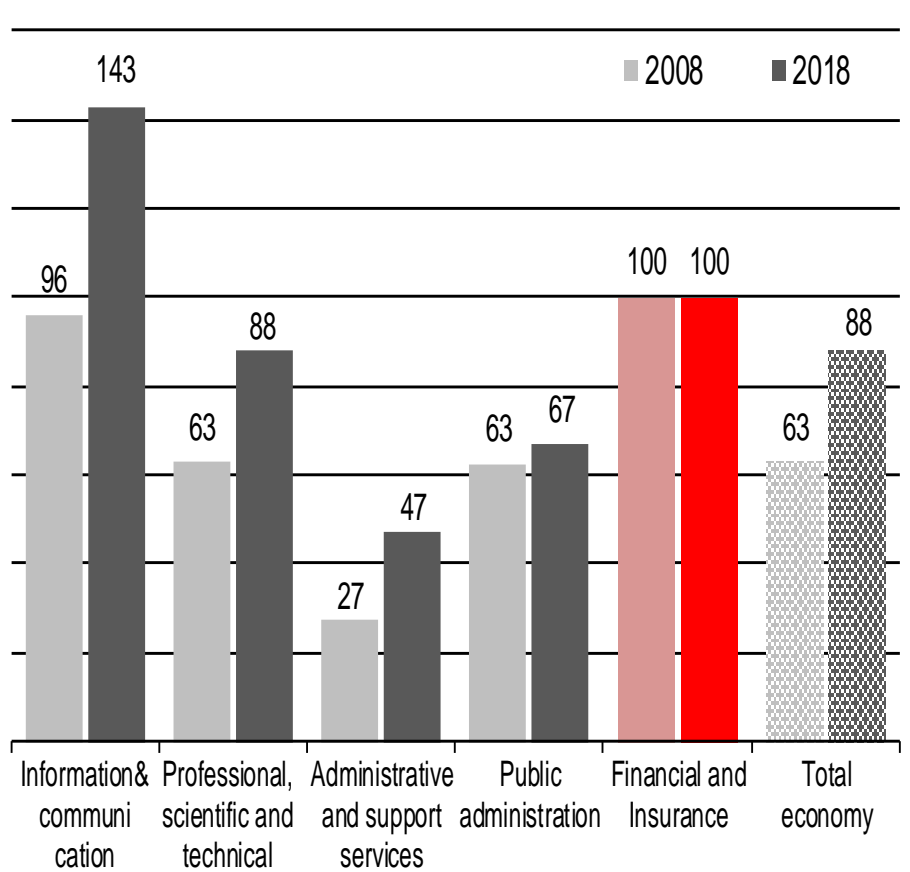
Years: 2003–2018

Source: NSI

28
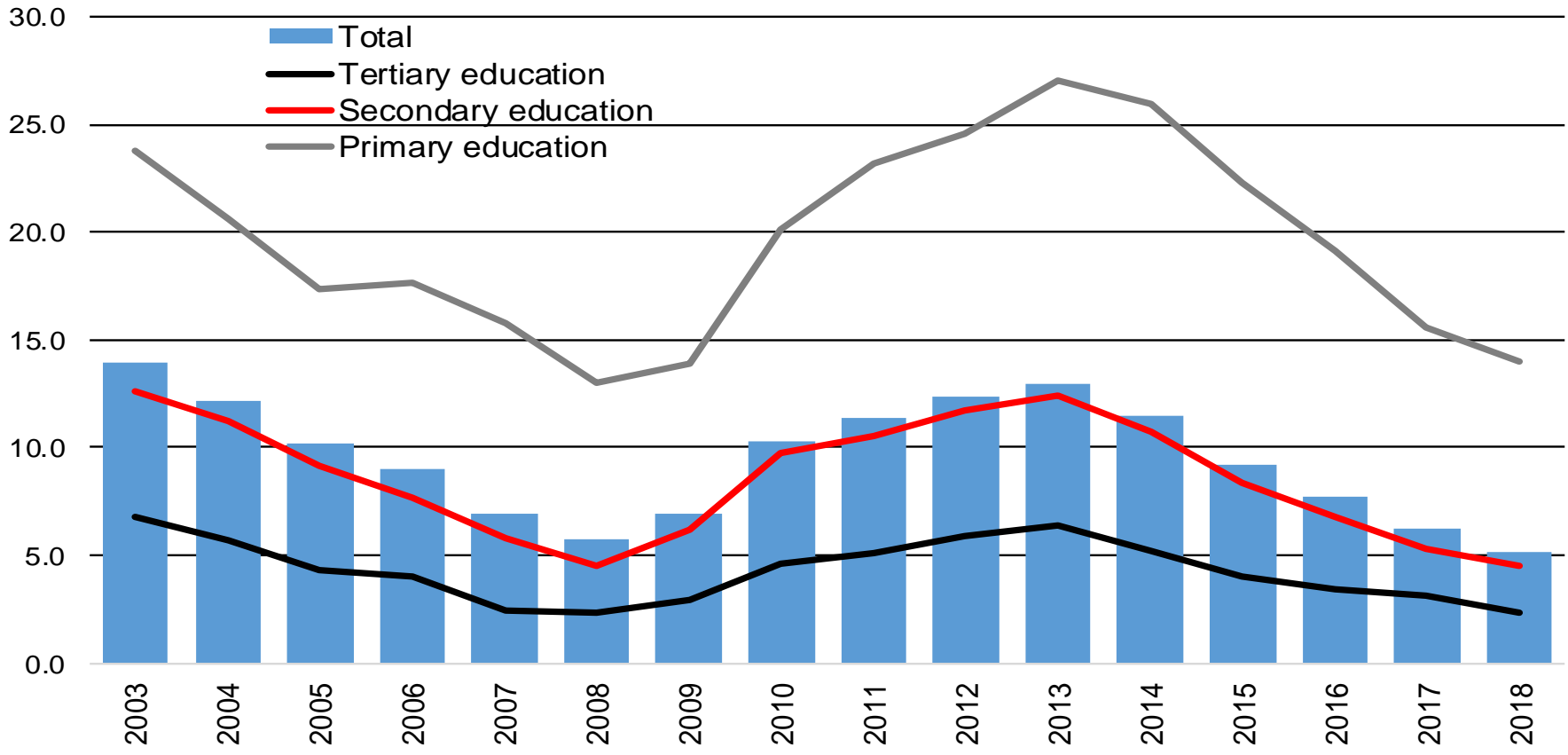
Significant shifts in the relative wages took place in the past decade. Wage growth in the FIS sector was weaker than in the rest of the economy. This refers not only to the total economy, but also to the all four sectors using labour with similar education and skills profile

Average monthly wage (in BGN)

Legend:
- Information and communication
- Financial and insurance
- Professional,scientific and technical
- Administrative and support services
- Public administration
- Total economy

X-axis: 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

Average wage by sectors to average wage for Financial and Insurance sector (in %)

Legend: 2008, 2018

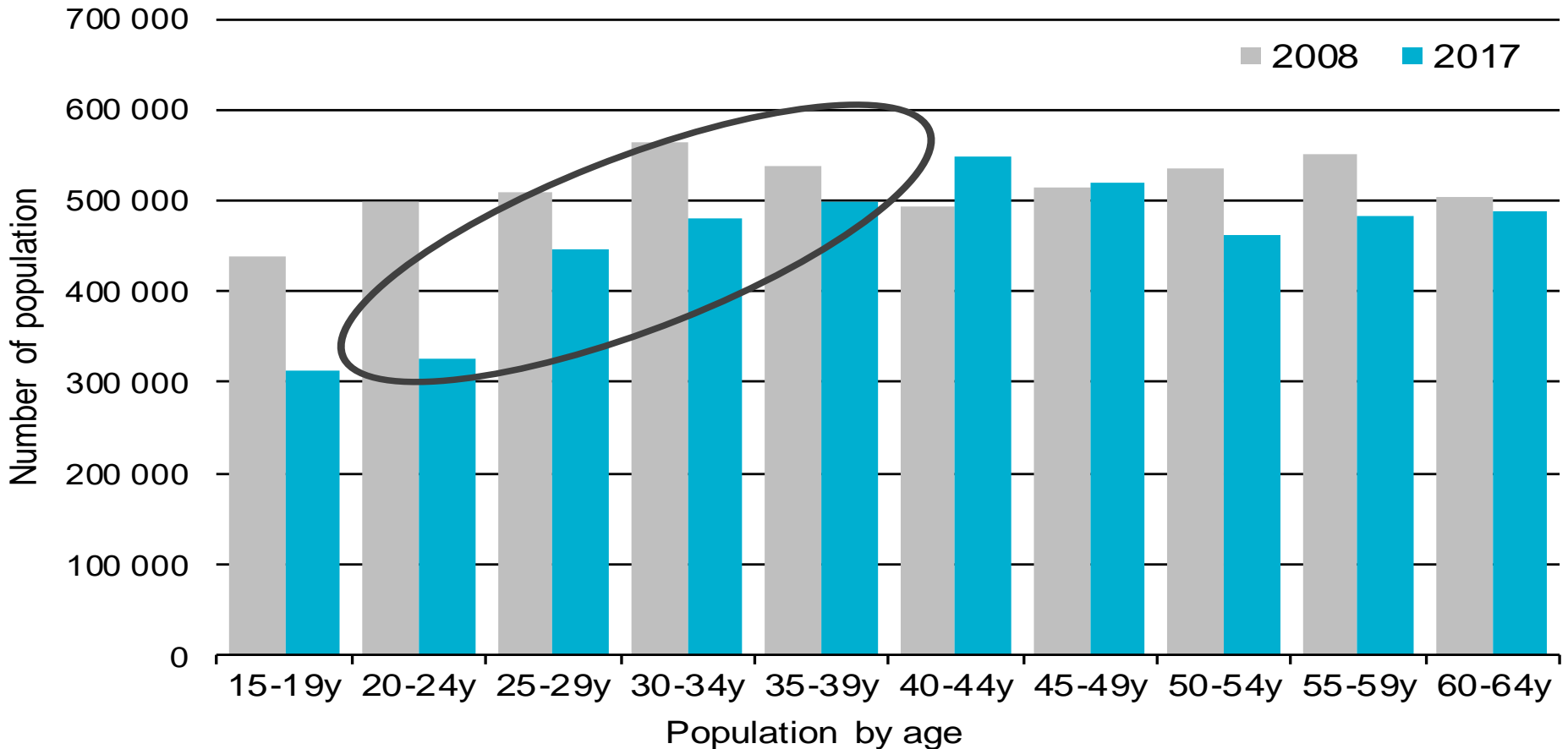| Sector	2008	2018
Information& communication	96	143
Professional, scientific and technical	63	88
Administrative and support services	27	47
Public administration	63	67
Financial and Insurance	100	100
Total economy	63	88

Source: NSI, UniCredit Bulbank
Professional, scientific and technical – include Legal and Accounting activities; Activities of head offices; Management consultancy; Architectural and engineering activities; Scientific research and development; Advertising and market research. Administrative and support services – include Rental and Leasing activities; Employment activities; Travel agency; Security and investigation activities; Services to buildings and landscape activities; Office administrative, office support and other business support activities (Activities of call centers)

Working age population was 0.6 mn down in the past decade. The drop was disproportionally concentrated in the younger cohorts (0.5 mn or more of 80% was in the 15 – 39Ys age bracket)

Bulgaria: Population in working age (thousands)
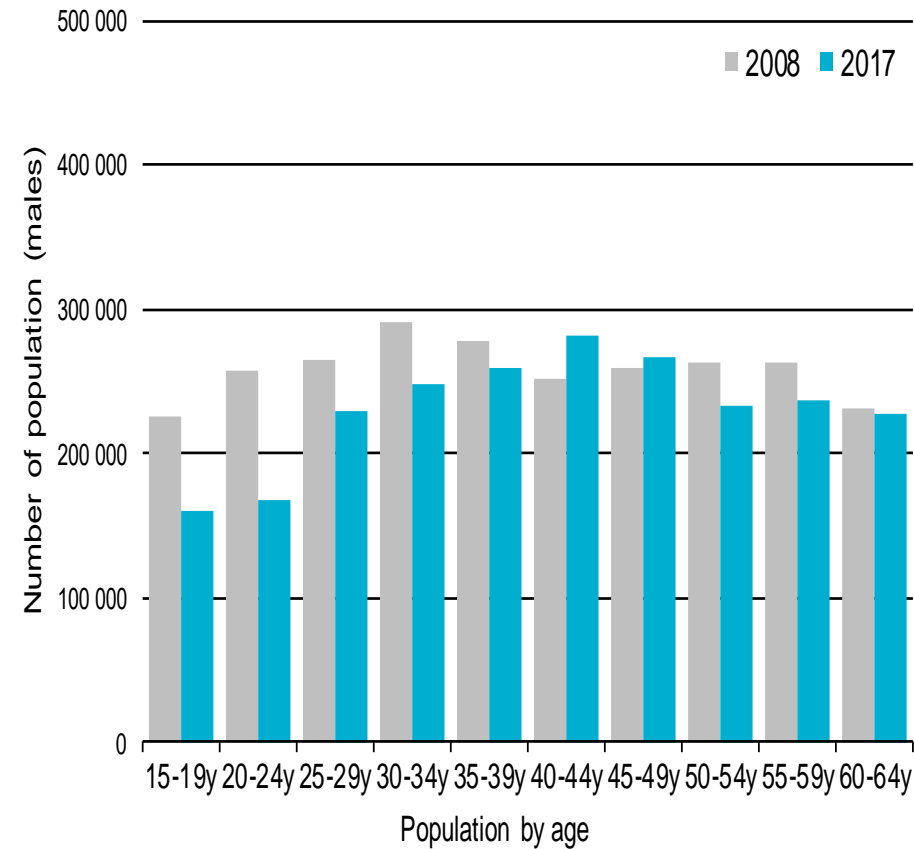

Legend: 2008, 2017

Y-axis: Number of population — 0, 100 000, 200 000, 300 000, 400 000, 500 000, 600 000, 700 000

X-axis (Population by age): 15-19y, 20-24y, 25-29y, 30-34y, 35-39y, 40-44y, 45-49y, 50-54y, 55-59y, 60-64y

Importantly, the decline in the working age population in the past decade (from 2008 to 2017) have equally affected both male and female populations

Males in working age
(thousands)

2008 2017

Number of population (males)

500 000
400 000
300 000
200 000
100 000
0

15-19y 20-24y 25-29y 30-34y 35-39y 40-44y 45-49y 50-54y 55-59y 60-64y

Population by age

Females in working age
(thousands)

2008 2017

Number of population (females)

500 000
400 000
300 000
200 000
100 000
0

15-19y 20-24y 25-29y 30-34y 35-39y 40-44y 45-49y 50-54y 55-59y 60-64y

Population by age

Source: Eurostat, UniCredit Research
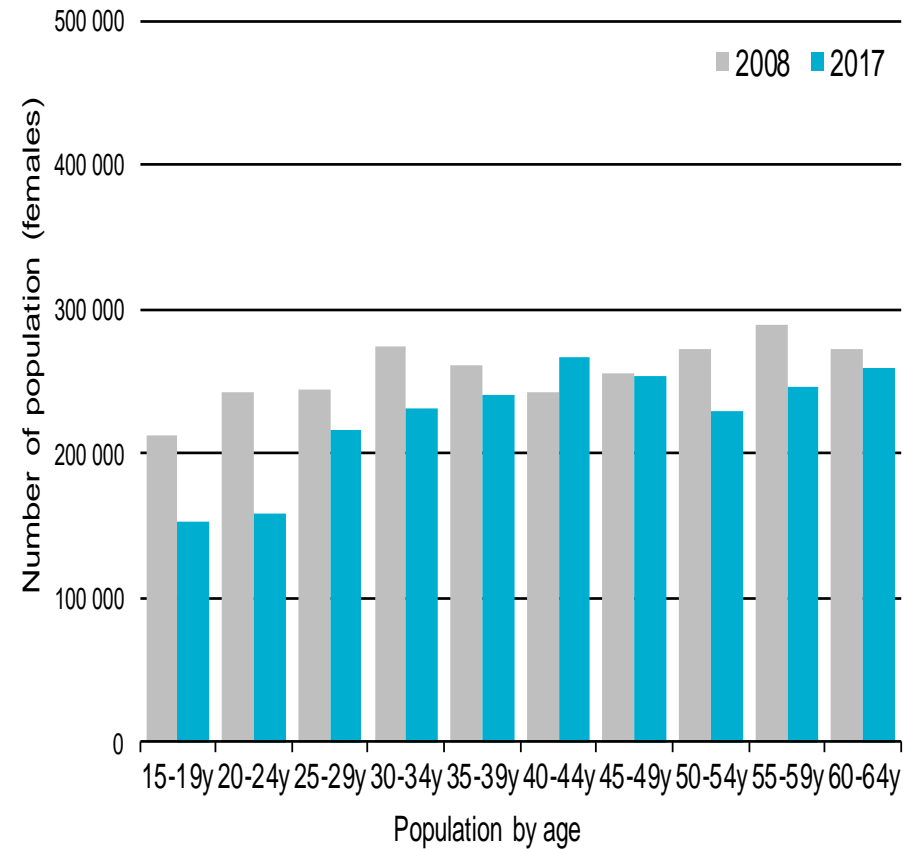
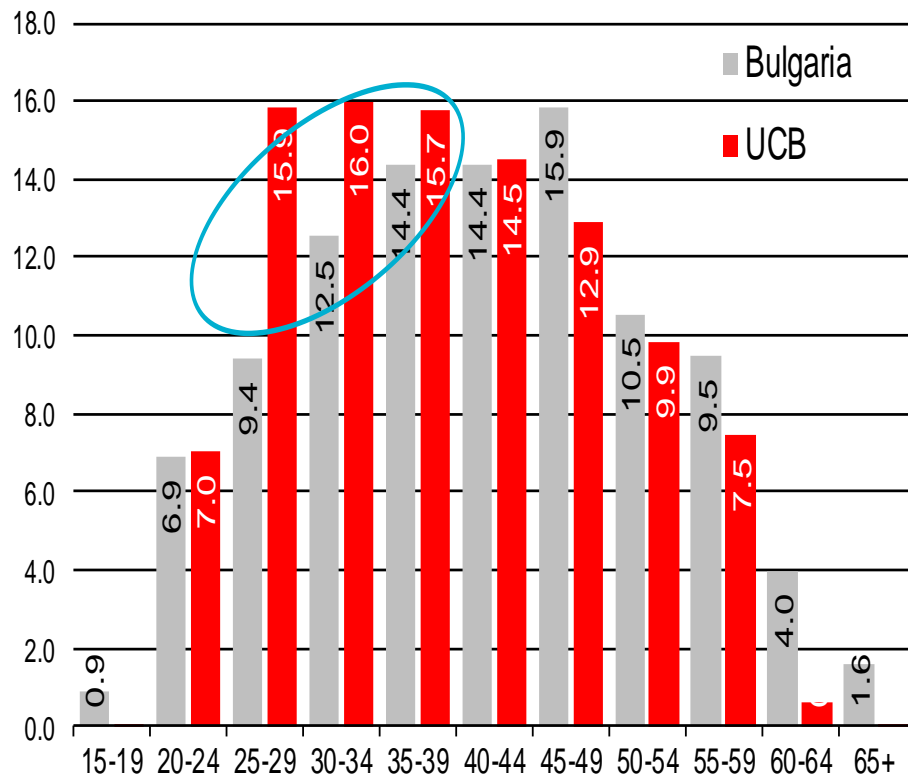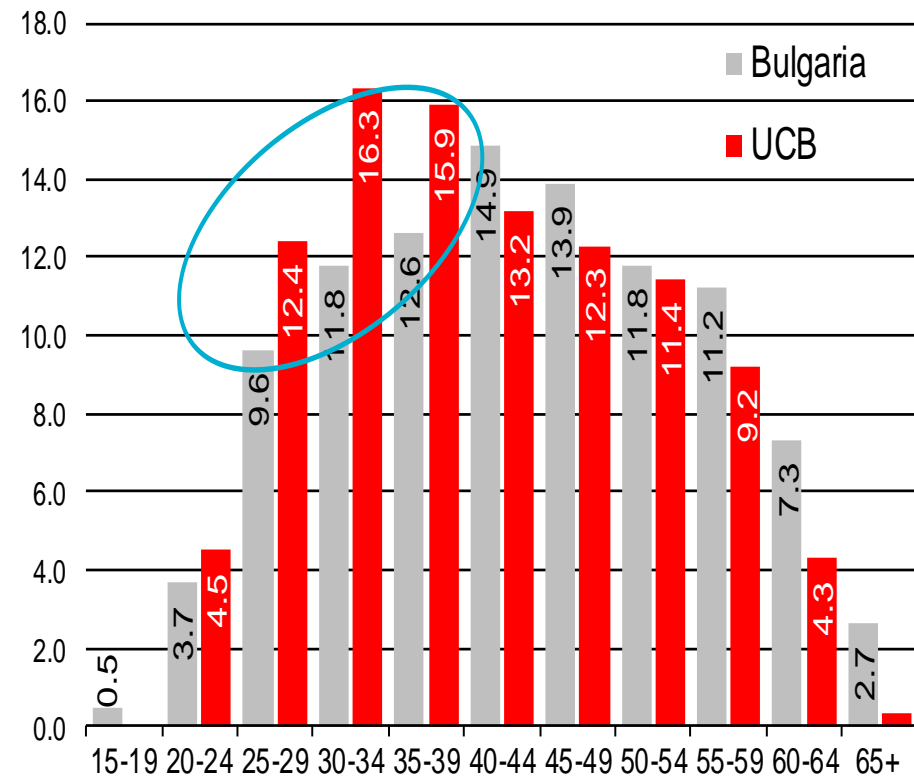# UCB uses more young laborers than total economy. In 2008, RS of employees aged (20 - 39) is 55% in UCB vs 43% in the economy. In 2018, UCB's RS is 49% vs 38% in the economy. But it is exactly younger cohorts, where supply of working age population has posted the sharpest drop

Total employed, relative share by age group, 2008 (% total employed)

Legend: Bulgaria, UCB

Age group	Bulgaria	UCB
15-19	0.9	
20-24	6.9	7.0
25-29	9.4	15.9
30-34	12.5	16.0
35-39	14.4	15.7
40-44	14.4	14.5
45-49	15.9	12.9
50-54	10.5	9.9
55-59	9.5	7.5
60-64	4.0	
65+	1.6	

Total employed, relative share by age group, 2018 (% total employed)

Legend: Bulgaria, UCB

Age group	Bulgaria	UCB
15-19	0.5	
20-24	3.7	4.5
25-29	9.6	12.4
30-34	11.8	16.3
35-39	12.6	15.9
40-44	14.9	13.2
45-49	13.9	12.3
50-54	11.8	11.4
55-59	11.2	9.2
60-64	7.3	4.3
65+	2.7	

Source: Eurostat, UniCredit Research
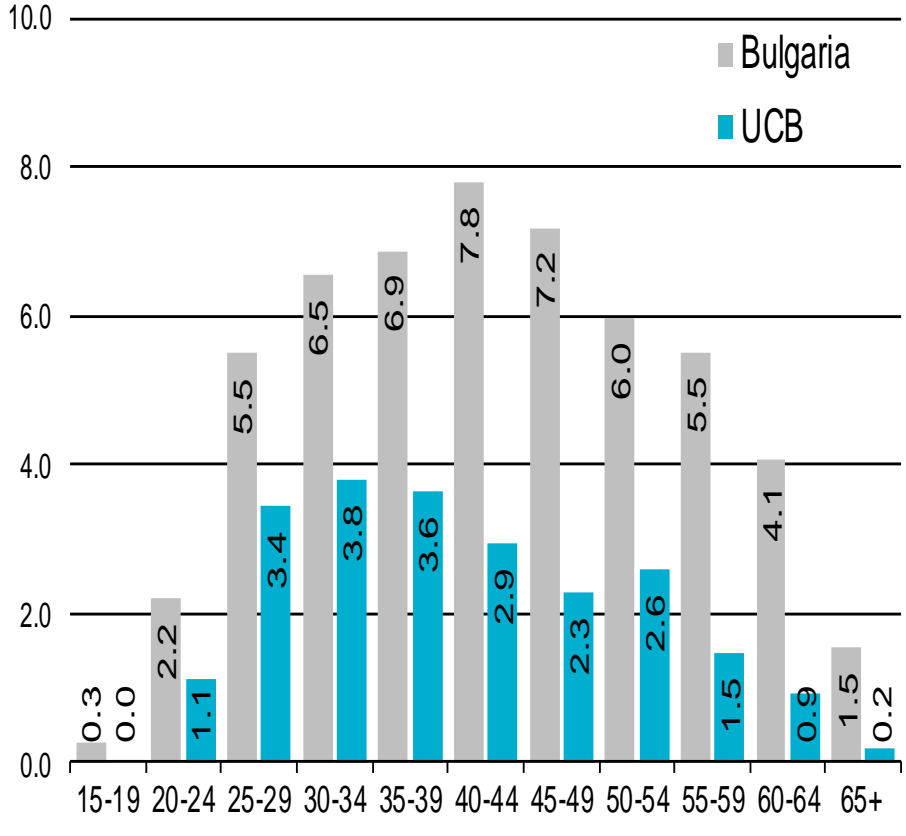
The importance of male population in UCB personnel is smaller (cumulatively 22.1% in 2008 and 22.4% in 2018) than in the rest of the economy (53% in 2008 and 54% in 2018)

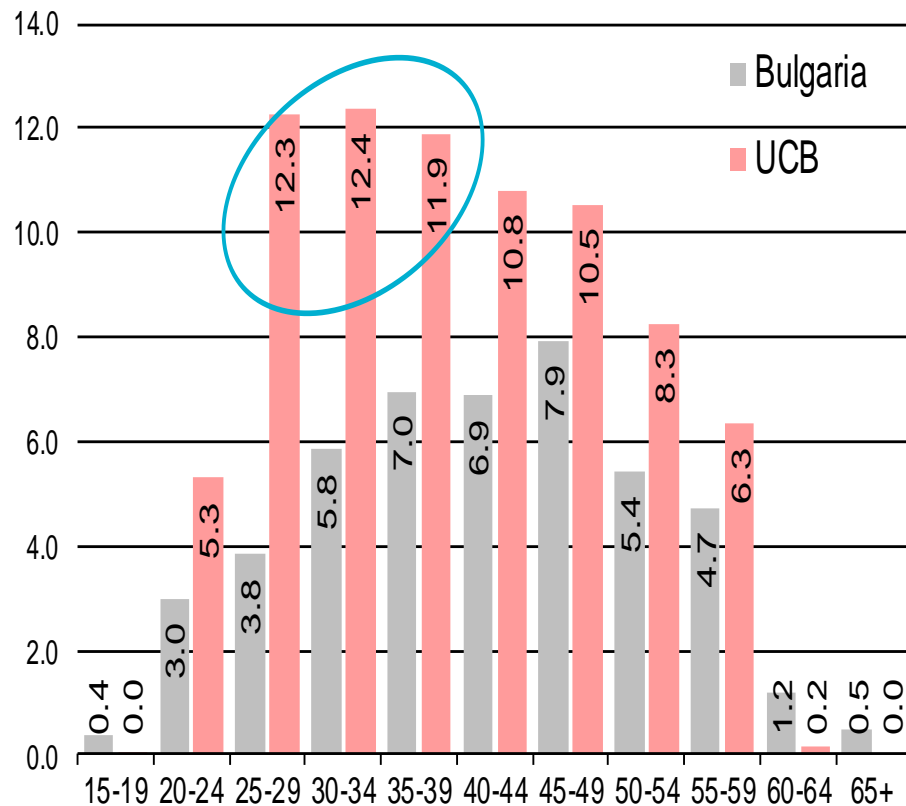## Males employed, relative share by age group, 2008 (% total employed)

Legend: Bulgaria, UCB

Age group	Bulgaria	UCB
15-19	0.6	0.0
20-24	3.9	1.7
25-29	5.6	3.6
30-34	6.7	3.6
35-39	7.4	3.9
40-44	7.5	3.7
45-49	7.9	2.4
50-54	5.1	1.6
55-59	4.7	1.1
60-64	2.8	0.4
65+	1.1	0.0

Males employed, relative share by age group, 2018 (% total employed)

Legend: Bulgaria, UCB

| Age group	Bulgaria	UCB
15-19	0.3	0.0
20-24	2.2	1.1
25-29	5.5	3.4
30-34	6.5	3.8
35-39	6.9	3.6
40-44	7.8	2.9
45-49	7.2	2.3
50-54	6.0	2.6
55-59	5.5	1.5
60-64	4.1	0.9
65+	1.5	0.2

Source: Eurostat, UniCredit Research

Females dominate UCB's staff structure (78% of total in 2008 and 77% in 2018). Importantly, females from younger cohorts are those with the highest weight (42% of UCB's employees in 2008 are females up to 39Ys of age vs 20% in the total economy versus 37% and 17% in 2018)

## Females employed, relative share by age group, 2008 (% total employed)

Females employed, relative share by age group, 2018 (% total employed)

Source: Eurostat, UniCredit Research
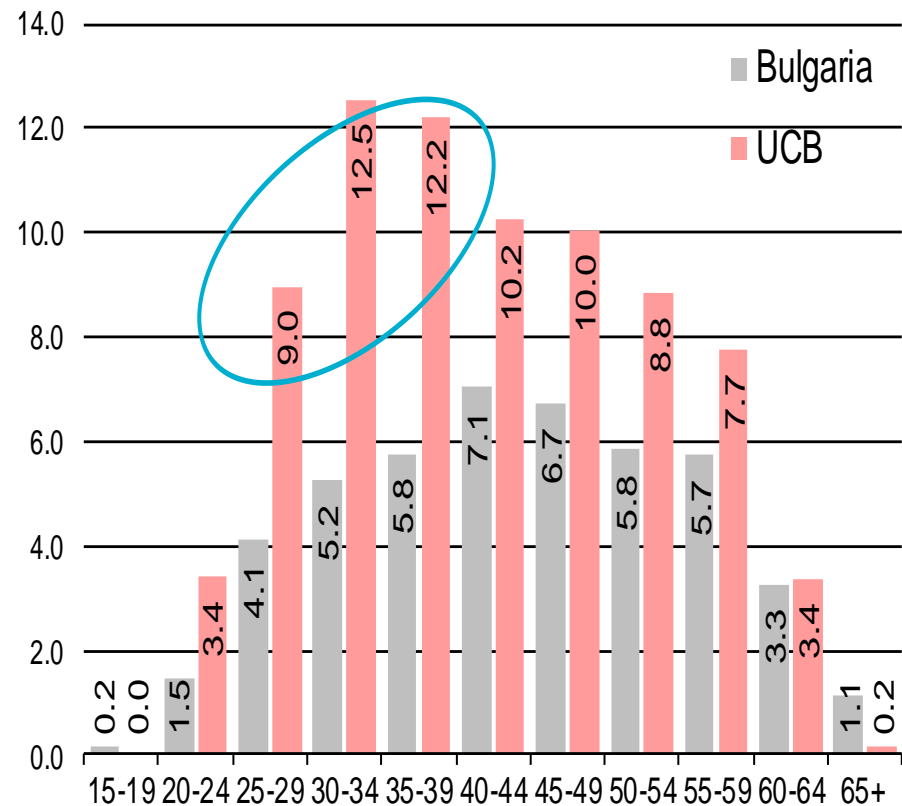
Supply of university graduates with a proper qualification for the FIS also fell. For the past 10Ys (2008 – 2018) the total number of students was 12% down (from 260K to 230K), but those in BA, Mathematics and Statistics declined disproportionally more - 30% (from 69K to 48K)

Number of students and RS of students in BA, Mathematics and Statistics

Source: NSI, UniCredit Bulbank
BA – Business and Administration
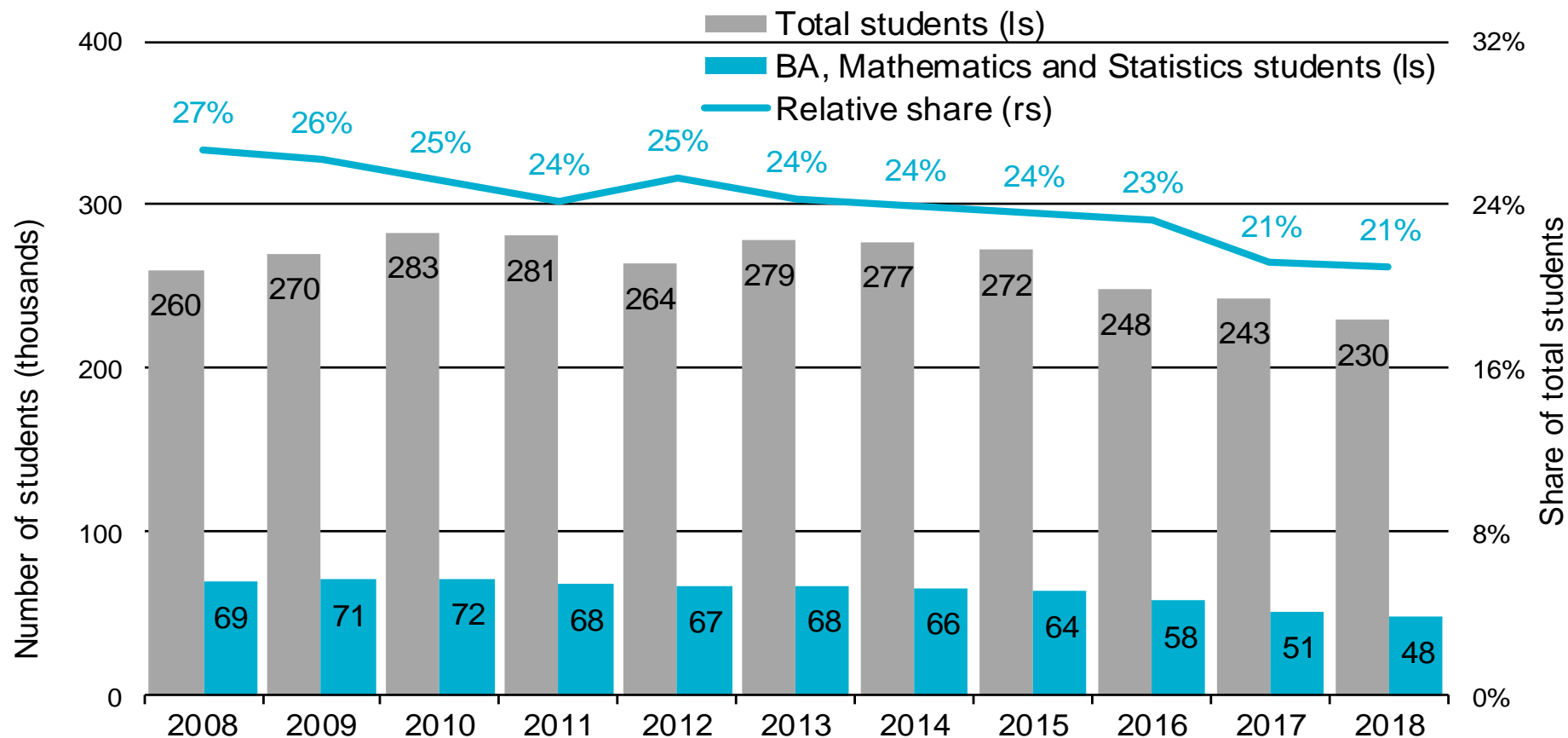
Companies in the FIS sector face more pronounced labor shortages than in the economy as a whole. This reflects a combination of both supply and demand side related factors

On the demand side: Demand for employees with education and skills profile utilized in the FIS sector has increased. There are at least two indicators which support this.

First, the job numbers in the FIS sector have increased in absolute terms (from 57K in 2008 to 65K in 2018) and in relative terms (RS of financial and insurance employees from total employment in the country increased from 1.7% in 2008 to 2.1% in 2018).

And second, demand in the other sectors (such as business services outsourcing as well as communication sector and public administration sector to a certain degree) which use employees with similar education and skills profile as in the FIS sector has also increased. The employees in these sectors (which represent direct competitors for companies from FIS sector) were up in both absolute terms (from 464K in 2008 to 547K in 2018) and in relative terms (from 13.8% RS of total employees in the economy in 2008 to 17.3% in 2018 respectively).

On the supply side: FIS sector uses mostly young female workers up to 39Ys of age. But this is exactly the age cohort, where the drop in the population numbers was most significant in the past decade. Therefore, FIS sector (and UCB in particular) feel the pinch of decreasing working age population in much larger proportions than Bulgarian economy as a whole. Importantly, the supply of university graduates with a proper education for FIS sector's needs also declined in the past decade, negatively affecting market conditions for this specific category of workers.

Several sector specific factors have also contributed to the labour shortages occurrence in FIS

But not only differences in the age structure of labour between the FIS sector, on the one hand, and the economy as whole, on the other hand, can explain why competitive pressure which banks and other financial services companies face is higher than the economy as a whole.

Differences in the geographical allocation of FIS sector employees (mostly in large cities where labor market conditions are tighter) and in the educational status (as FIS sector uses university graduates where labor market conditions are tighter) are also relevant factors which help to explain why competitive pressure on FIS is stronger when compared to the economy's average.

The marked shift in relative wages that took place in the past decade also played a role. Wage growth in the FIS sector was weaker when compared with the rest of the economy (in response relative wages in the FIS declined when compared with the average wage in the economy in the past decade). Importantly, wage growth in the FIS sector was also weaker than the pace of wage expansion in the sectors using employees with similar education and skills profile (such as business services outsourcing as well as public administration and communication sectors to a certain degree). In response, competition for the type of workers/employees which banks and other financial institutions utilize has increased additionally.

All of the above is important because it suggests that the negative implications from Bulgaria's shrinking and aging population will be disproportionally higher in the FIS sector (and UCB in particular) than in the economy as a whole.
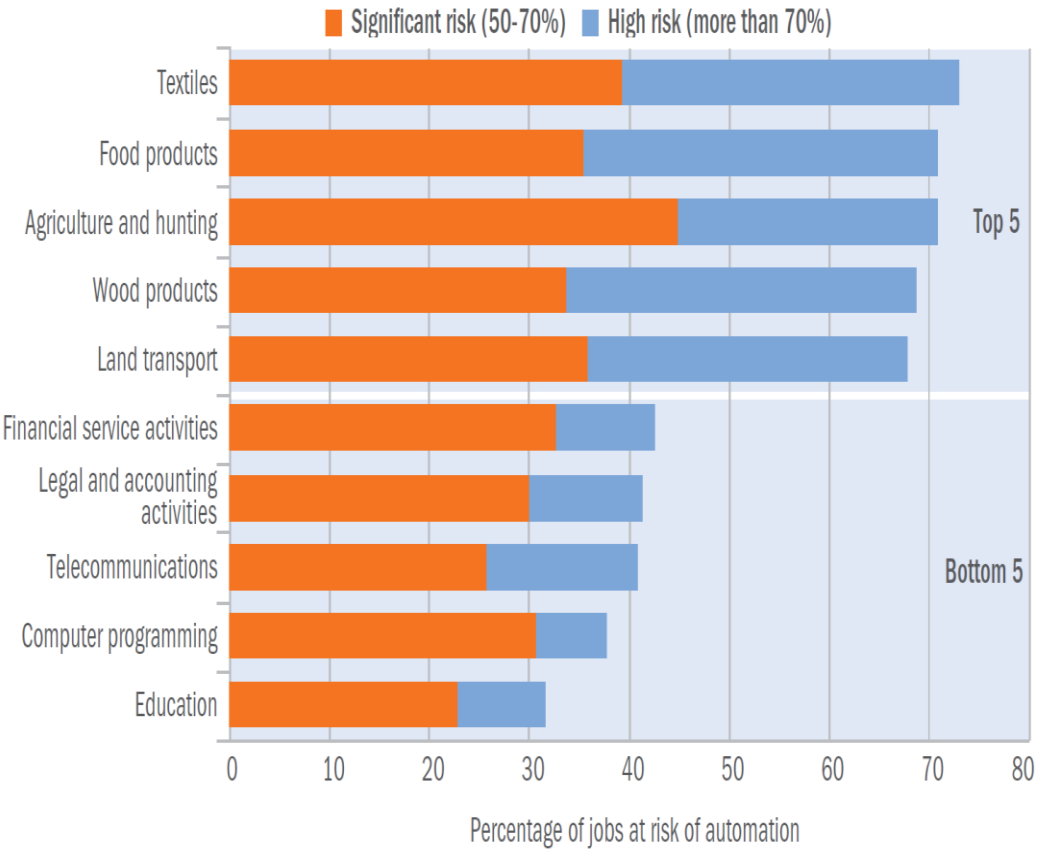
Agenda

1 Introduction

2 Labor shortages (total economy perspective)

3 Skills mismatch

4 Labor shortages (banking sector perspective)

5 **Implications for UCB strategy**

One possible response to the labour shortage challenge is automation. But researchers* found that financial services activities are among the five less likely industries to be affected by automation (out of total of 99 separate industries/sector of the economy studied)

Industries expected to be most and least affected by automation

Legend: ■ Significant risk (50-70%) ■ High risk (more than 70%)

Chart — Percentage of jobs at risk of automation (x-axis 0 to 80):

Industry	Group
Textiles	Top 5
Food products	Top 5
Agriculture and hunting	Top 5
Wood products	Top 5
Land transport	Top 5
Financial service activities	Bottom 5
Legal and accounting activities	Bottom 5
Telecommunications	Bottom 5
Computer programming	Bottom 5
Education	Bottom 5

A job is considered to be **at risk of being automated** if most of the tasks involved could be performed or could be performed by state-of-the-art computer-controlled equipment based on the availability of big data needed to complete such tasks.

More generally, automation is expected to affect **primary-sector jobs** (agriculture and manufacturing), while **services sectors jobs** are likely to be less affected. This is the main reason why it is believed that automation shifts labour from sectors with low productivity toward sectors with higher productivity.

Occupations that involve large shares of **repetitive manual actions** in an **unfavorable working environment**, where for example heat and noise are high or quality of air is poor are among the primary targets for automation.

Occupations that require **significant analytical skills** as well as high levels of **social interaction** (such as managers, professionals and senior officials) are among those least likely to be automated.
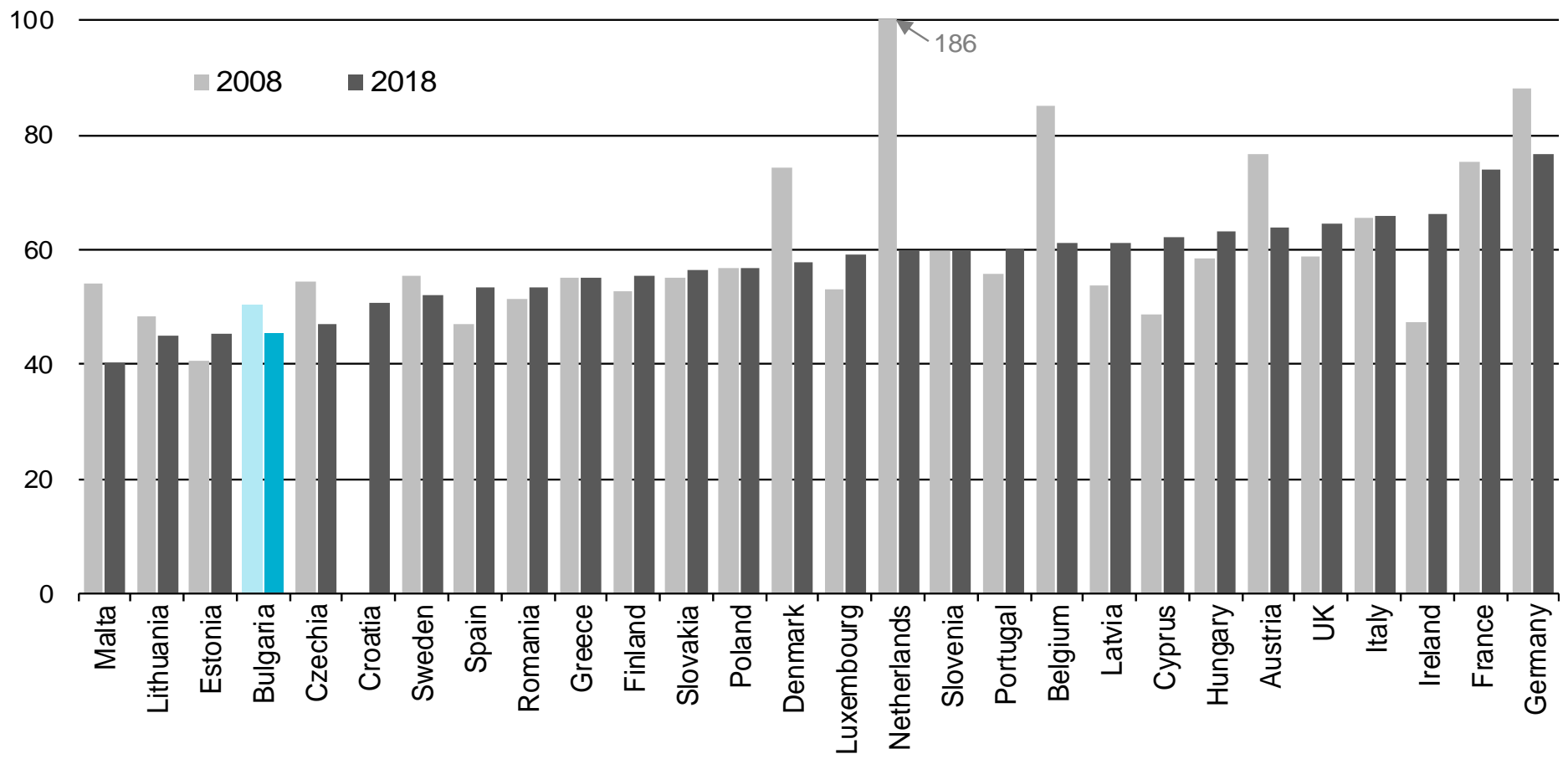
Source: Nedelkoska and Quintini (2018) and authors' calculations.

Note: Based on two-digit ISIC classification (rev. 4). Jobs are at high risk of automation if at least 70 per cent of the tasks involved are at risk of being automated. Jobs are at significant risk of automation if between 50 and 70 per cent of tasks are at risk of being automated.

With C/I ratio of around 45% there is sufficient room to shift to a somewhat stronger wage growth, one which could help attract the best talents (for the categories of personnel where this is necessary) as well as to reduce turnover in those categories where turnover is too high

Cost-to-Income ratio in EU countries (2008 and 2018, %)

Legend: 2008, 2018

Countries (left to right): Malta, Lithuania, Estonia, Bulgaria, Czechia, Croatia, Sweden, Spain, Romania, Greece, Finland, Slovakia, Poland, Denmark, Luxembourg, Netherlands, Slovenia, Portugal, Belgium, Latvia, Cyprus, Hungary, Austria, UK, Italy, Ireland, France, Germany

Netherlands 2008 annotation: 186

Source: ECB, UniCredit Bulbank

Key conclusions and interpretations from Implications for UCB's strategy section

To forecast that demand for employees used in the FIS sector will increase is a no brainer. The main reason for this is not the FIS itself, as this sector is likely to continue losing jobs, but other services sectors, using workers with the same qualifications and skills profile (which are drawing from the same pool of labour), and which would need more labour to expand. To find such labour, in the context of the rapidly shrinking working age population, would be difficult.

The good news is that the FIS and the well established players in the sector, such as UCB, in particular, have a very strong starting position to face labour shortage challenge. With C/I ratio of around 50% for the banking sector on a consolidated level and less than 40% in UCB, there is sufficient room to shift to a somewhat stronger wage growth policy in the future (selective increase in wage for some workers categories is warranted not across the board increase in wage), one which could help attract the best talents (for the categories of personnel where this remains a necessity) as well as to reduce turnover in some categories of personnel (such as in the retail segment where it is above 25% annually and threatens to undermine supply of cost efficient customer services) to more tolerable levels.

Another option, is to undertake a comprehensive review of the working processes in UCB (particularly those where advancement in technology can play a larger role) and consider the possibilities to simplify some of them to the extent where the corresponding jobs can be offered to people without university degree. Put differently, this means to reorganize working processes in a way where old jobs are destroyed and new jobs are created, aiming at reducing the share of jobs which require university degree.

We need to increase our attention to the mismatched workers issue. To a start we should quantify the share of vertically and horizontally mismatched workers, and identify specific actions to reduce their relevance.

One final option to examine is automation. Automation can have some role but smaller than in other sectors, because fewer jobs in FIS sector are likely to be automated than in other economic sectors.

THANK YOU FOR YOUR ATTENTION!

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