

Causes and effects of the mismatch between demand and supply on the Romanian labour market¹

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The increasing mismatch between demand and supply on the labour market has become a main concern of economists and policy makers all over Europe. In Romania, despite around a half a million people being unemployed, employers complain about the difficulties they face to fill up job vacancies, and labour shortage is considered an obstacle in the development of certain economic sectors. The objective of our paper is to identify the causes and effects of the labour market mismatch in Romania. Based on statistical data, we compare the evolution of the main labour market indicators in the Romanian development regions, as well as the Romanian averages to other European Union countries, pointing out similarities and differences which may have implications on wages and on internal and external labour migration flows. Our results show that labour shortage in Romania is caused by qualitative mismatch: skills mismatch, unattractive wages and increasing qualification requirements across all types and levels of occupation. But, in time, labour shortage can become also quantitative, because of aging and emigration.

Keywords: labour market mismatch, unemployment, job vacancy, wages, human capital, Romania.

JEL codes: E24, J21, J23.

Introduction

By getting aligned with the European trends, Romanian companies find it increasingly difficult to fill up job vacancies. Labour shortage has been reported in several sectors and it has been considered a major obstacle to economic growth. The demand for manpower is the highest in manufacturing, administrative and support services, hotels and restaurants, as well as in construction.

¹ The research this article is based on has been carried out with the support of the Pallas Athéné Domus Concordiae (PADOC) Foundation.

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Despite the growing demand for labour, the unemployment rate did not decrease significantly and a large share of the population is economically inactive. Wages are slowly increasing, but are still much lower than the EU average. As a result of the low living standards, many Romanians have decided to work abroad, at first seasonal work, but after entering into the EU labour market, the number of those working in permanent jobs increased.

The objective of the present paper is to identify the causes and effects of the labour market mismatch in Romania, guided by the following research questions:

- What is behind the labour shortage complaints of Romanian companies?
- Can we demonstrate labour shortage by using the available official statistics?
- What are the future perspectives for the Romanian labour market?

We start our paper with an overview of the theoretical concepts and considerations, based on which we will outline the conceptual framework of the paper. We present the recent evolutions on the Romanian labour market by using statistical data, and we summarize future perspectives based on a secondary analysis of recent studies.

Theoretical background

The neoclassical model assumes that labour markets are flexible and wages clear the market, the economy operates at full employment, and labour is paid its marginal product (Briones 2006). In reality, labour markets are imperfect, limited markets, jobs and workers are heterogeneous (and thus cannot be replaced unlimitedly by each other), employers and employees do not always behave in a rational manner and follow the criteria of optimization. Capital and labour are not unlimitedly interchangeable, labour market information is costly and imperfect, labour market actors react with delay to the changes on the market, and there are several barriers (geographic, institutional and sociological) to labour mobility (McConnell–Brue 1986; László 1996; Sparreboom–Powell 2009).

Employment represents the cross-section between labour supply and labour demand. Labour demand is derived from product demand; therefore, its immediate determinants are the labour's marginal productivity and the value (price) of its output (McConnell–Brue 1986). Labour demand is structured by occupations (Tímár 1996b) and it relates to the characteristics of jobs, such as skill and educational demands, employment stability, and wages (Bauder 2001).

Labour demand, being a derived demand, is influenced by several factors, such as: economic growth or decline, the demand for goods and services, the structure of the economy by economic branches, the number and size of enterprises, the prices of other resources, the labour costs, the legal and institutional regulations, the adaptive strategies and future expectations of employers, as well as the expanding employment in the public sector (McConnell–Brue 1986; Dávid–Fülöp 2008; László 1996; Schneider–Burger 2005; Pavelescu 2007; Preston–Jefferson 2009; Cedefop 2016).

Labour supply is defined by different authors in slightly different ways as “the work capacity which an individual or a group is ready to use at a certain moment in time” (Pavelescu 2007. 5), a “potential workforce, represented by the population of a country” (Otiman 1999. 69), or “the sum of individual willingness for work present on the labour market” (Tímár 1996a. 684). Labour supply has many dimensions: the size and demographic composition of the population, the activity rate (the percentage of the working-age population which is actually working or seeking work), the quality of the labour force (education, abilities and skills), the occupational preferences, the attitude towards work and risk, as well as location (McConnell–Brue 1986; Lipsey–Harbury 1992). Authors identified several determinants of labour supply, such as wage rates, non-wage income, preferences for work versus leisure, non-wage aspects of the job, number of qualified suppliers, demographic changes, employment policies, the tax-benefit system, the existing occupational structure, the employees’ income-earning strategies, the educational system and policies (McConnell–Brue 1986; Tímár 1996a; Schneider–Burger 2005; Dávid–Fülöp 2008). Factors that can encourage labour market participation include: rising life expectancy, changes in statutory retirement age, the availability of childcare facilities, and education attainment, while the increases in the average age of the population, the availability of generous public packages of social benefits and disability insurances, the existence of high unemployment, the structure of the nuclear family unit, the absence of policies to reconcile work and family life negatively affect participation rates (Cedefop 2016).

In market economy labour demand is higher than employment, as there are always unfilled jobs on the labour market (due to frictions and structural differences between demand and supply) (Tímár 1996b). Total job opportunities are the sum of newly created jobs (expansion demand) and job opportunities arising because

of the need to replace people who either go on to other jobs or leave the labour market, for example due to retirement (replacement demand). Often, replacement demand provides more job opportunities than expansion demand, which means that there will still be job opportunities even if the overall level of employment falls (Cedefop 2015).

Labour demand can also be lower than labour supply, leading to unemployment. Frictional unemployment occurs because “at any moment not all active job searchers have yet found or accepted employment and not all employers will have yet filled their job vacancies” (McConnell–Brue 1986. 496), while “structural unemployment results from a mismatch between the skills needed for available jobs and the skills possessed by those seeking employment” (McConnell–Brue 1986. 517). Frictional unemployment of 3-6% is considered acceptable and manageable, and does not lead to big social tensions (László 1996). Involuntary, demand-deficient unemployment arises when declines in the aggregate demand for goods and services cause a deficiency in the aggregate demand for labour, because wage rates tend to be inflexible downward (for a variety of reasons, including the presence of explicit and implicit contracts), and thus demand and supply cannot equilibrate (László 1996; McConnell–Brue 1986). The inability of people to leave unemployment for employment causes the long-term unemployment (Terrel–Boeri 2002).

Labour shortage occurs when labour demand exceeds labour supply. Barnow et al. (2013. 3) defined labour shortage as “a sustained market disequilibrium between supply and demand in which the quantity of workers demanded exceeds the supply available and willing to work at a particular wage and working conditions, at a particular place and point in time”.

We can differentiate between quantitative labour shortages and qualitative labour shortages (European Parliament 2015). In case of a quantitative labour shortage, labour demand is larger than labour supply, which can result from the increase in the demand for labour generated by economic growth (increased demand for the goods or services) or a decrease in the supply of labour, due to a particular market, which can also create a labour shortage (Barnow et al. 2013; European Parliament 2015). In case of a qualitative labour shortage, there is simultaneously a large share of unfilled vacancies and a high unemployment rate, caused by qualitative discrepancies between supply and demand. A high level of unemployment and, in parallel, persistent unfilled job vacancies show a mismatch

between labour supply and labour demand; the reasons for a mismatch can be that the educational level and skills of job-seekers do not correspond with the profiles sought on the labour market, or the lack of geographic mobility (Zimmer 2012; McGowan–Andrews 2015; European Parliament 2015). There is significant variation across countries and industries in the degree of both qualification and skill mismatch (OECD 2013). In case of a skill mismatch, employers may also decide to hire under-qualified/under-skilled or over-qualified/over-skilled workers (European Parliament 2015). On average, qualification mismatch is more common than skill mismatch and being over-qualified/over-skilled is more common than being under-qualified/under-skilled (McGowan–Andrews 2015).

Schneider and Burger (2005) consider that the most important factor for matching demand and supply are the wage level, the endowment of human capital, as well as regional aspects. According to Desjardins and Rubenson (2011) labour demand characteristics are more important than labour supply characteristics in explaining earnings differentials: skills matter for earnings only if they are required by the job. Van der Velde and Wever (2005) pointed out that mobility can level off disequilibria between demand and supply, as workers from an area with an oversupply will move to an area with a lack of workers, where wages are higher.

Competitive theories of wage determination (e.g. the human capital model) suggest that wages are primarily determined by market forces and reflect the relative value or productivity of individuals, while non-competitive explanations (e.g. the institutionalist view of the labour market) point to different or additional determinants such as: the level of aggregate demand, the bargaining power of employers, unions and wage setting institutions (Preston–Jefferson 2009; McConnell–Brue 1986). Labour market institutions introduce rigidities in the labour market, which may be partly responsible for the lack of recovery of employment and the rising share of long-term unemployment, and have an impact on the composition of the labour force and employment (Riboud et al. 2002).

Labour force-attraction areas are such local regions where employees and managers can change jobs without being forced to move from their homes (Lengyel 2000). In contrast to the view that a series of predominantly local, internally segmented labour markets are nested in regional and national structures, Weller (2008. 2220) has described “an array of interdependent occupational labour

markets, each with a distinctive scale of operation and geographical reach”, and argues that the “socio-spatial scales at which these labour markets operate were actively produced through social processes and constantly reconfigured with the changing strategies of capital in relation to labour and regulation”. McQuaid (2006) pointed out that those with high levels of human capital or high skills are more willing to commute long distances as rewards are relatively high, than the less skilled (and lower paid), who are more likely to face both skill and frictional mismatch or other barriers to getting a job match and it points out the importance of transport, job search and job support infrastructure.

Research methodology

To build up the conceptual framework of our paper (Figure 1), we adopted the differentiation between quantitative and qualitative labour shortages proposed by the study *Labour market shortages in the European Union* (European Parliament 2015), and then we grouped the possible causes of labour shortage mentioned by several sources, accordingly.

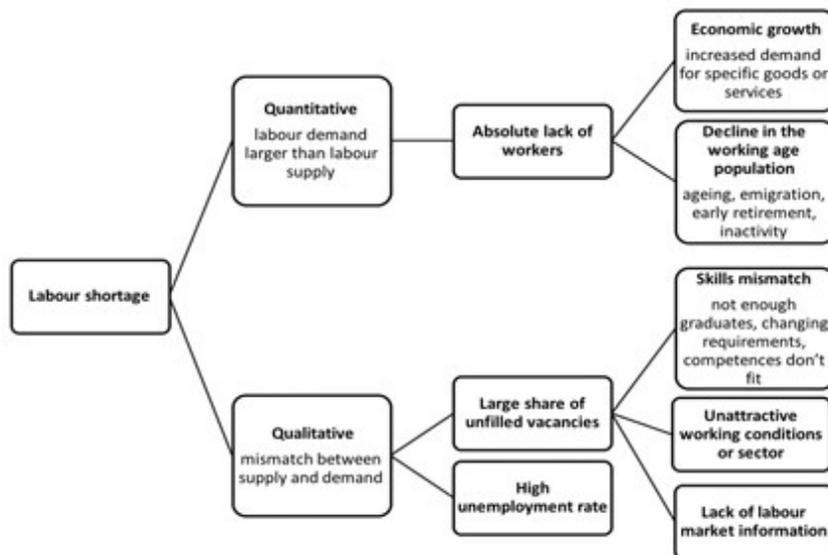
Based on statistical data, we study which of these causes can be detected on the Romanian labour market. The period covered for studying the dynamics of the Romanian labour market indicators is 2006-2015/2016, depending on the availability of statistical data in the databases of Eurostat and the Romanian National Institute of Statistics.

The evolution of total employment, employment rates and job vacancy rates⁴ reflects the trends of labour demand. As labour demand is strongly related to the performance of the economy, we give an overview of the evolution of the gross domestic product (GDP) growth rates and of the gross value added (GVA) by activities, pointing out which economic sectors are mostly affected by the labour shortage.

In order to understand labour supply we analyse, besides the employment, the evolution of unemployment, and of the working-age population size and education. In Romania, there are two available indicators that measure unemployment: the unemployment rate calculated based on the International Labour Organization (ILO) methodology and the registered unemployment rate, determined by the National Employment Agency (NEA). The difference between the two rates is

⁴ Job vacancy rate measures the percentage of vacant posts (newly created, unoccupied or about to become vacant), as compared to the total number of occupied and unoccupied posts.

that the first measure includes the unemployed persons who actively sought a job in the past four weeks, whereas the second takes into account people registered in the NEA records.



Source: authors' own design based on Zimmer (2012); Barnow et al. (2013); European Parliament (2015); Cedefop (2016); McGowan–Andrews (2015)

Figure 1. Causes of labour shortage – conceptual framework of the paper

The relationship between the unemployment rate and the job vacancy rate is illustrated with a Beveridge curve. First described by William Beveridge in 1958, the curve has been widely examined in the economic literature and found its most famous application in the search and matching model of Blanchard and Diamond (1989). The Beveridge curve is widely used to describe the cyclical state of the labour market and the efficiency of the labour market in terms of matching unemployed workers to job vacancies. It delivers essential information about the labour market tightness and the impact of shocks on the efficiency of labour market matching. When the job matching process is functioning well, the Beveridge curve shows a negative relationship between unemployment rate and job vacancies (Zimmer 2012). The curve is tracing the evolution of the economy from expansionary phases (with lower unemployment and higher

vacancies) to contractions in activity (with higher unemployment and lower vacancies) (Bova et al. 2016). Therefore, movements along the Beveridge curve have typically been interpreted as reflecting cyclical labour market dynamics, whereas shifts in the Beveridge curve as changes in matching efficiency or structural changes in the unemployment-vacancy relationship, and thus the labour market as a whole (Bonthuis et al. 2013). A labour market in which vacant jobs are filled quickly will generally exhibit flatter curves and curves which are closer to the origin.

In our paper, we analyse the Beveridge curve in Romania's labour market over the period 2006-2016, focusing in particular on its development since the onset of the global financial crisis and try to explain its deviations from the pre-crisis pattern. Our analysis of the Beveridge curve is based on annual data referring to unemployment rates for the 15-74 years old and job vacancy rates from the Eurostat (2017) online database.

Being referred to in literature as the main reason for qualitative labour shortage, we address the problem of qualification mismatch, which is measured by using mismatch indices at national and regional levels. By following a methodology used by Estevão and Tsounta (2011) and Zimmer (2012), we have calculated the qualification mismatch indexes for Romania and its regions, which reveal the imbalances between the structures of labour supply and demand broken down by educational levels. Estevão and Tsounta (2011) calculated the skill-mismatch indexes for the USA, but for Romania only statistical data related to educational levels are available, thus we had decided to calculate the qualification-mismatch indexes instead of the skill-mismatch indexes. The approach adopted to measure the extent of the qualification mismatch consists in comparing the relative share of each type of qualification in the labour supply and demand respectively. The formula used is the following (Zimmer 2012):

$$M_{it} = \sum_{j=1}^3 (S_{ijt} - D_{ijt})^2$$

where M_{it} is the qualification mismatch index for educational level j in region i at time t , S_{ijt} is labour supply (population aged 25-64 years⁵) with educational level j in region i at time t , and D_{ijt} is labour demand (employed population aged 25-64 years) with educational level j in region i at time t .

⁵ We have chosen the age group 25-64 years instead of the 15-64 years, because many people in the age group 15-24 years are still in education.

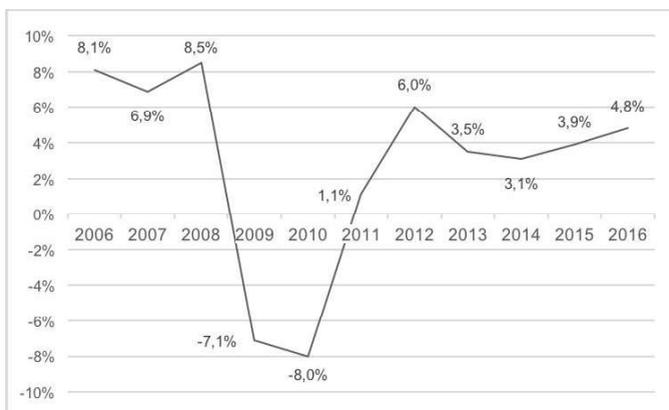
In theory, the most reliable measure of employer demand would be that of job vacancies by level of qualification required (Zimmer 2012), but statistical data for this indicator are unavailable in Romania, therefore we used employment as an indicator for labour demand.

According to Estevão and Tsounta (2011), skill-mismatch indexes can be used to identify regions which are facing difficulties in employing their skill base and to determine whether surges in the mismatch indexes are cyclical or structural. The question of geographic mismatch is addressed by analysing the dispersion of employment and unemployment rates in the various Romanian regions.

Results

The evolution of the Romanian labour market in the period 2006-2016

The first three years of the studied period (2006-2008) were characterized by economic growth in Romania (see Figure 2), but the global financial and economic crisis had a severe negative impact in the period 2009-2010 and the GDP growth rate fell sharply from 8.5% in 2008 to -7.1% in 2009. In 2011 a slow recovery started, followed by positive evolutions of the GDP.

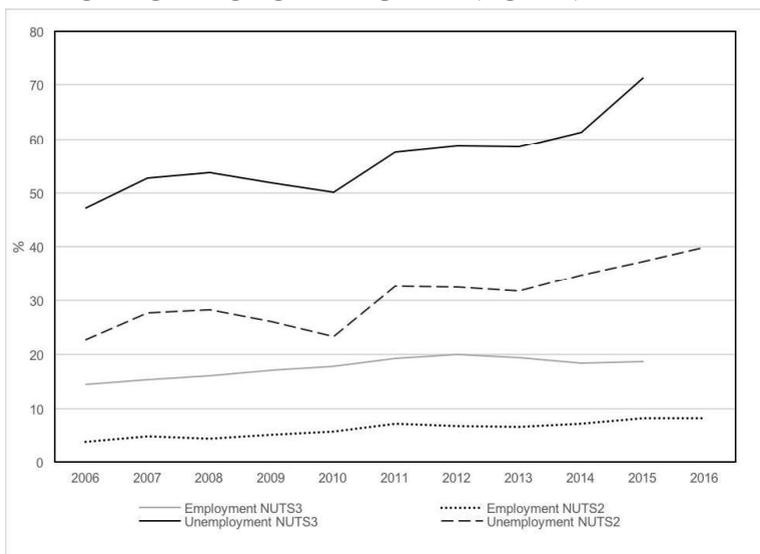


Source: authors' own design based on Eurostat (2017) data

Figure 2. Real GDP growth rates in Romania (%) in the period 2006-2016

Recent economic trends in Romania are favourable: in 2016 an economic growth of 4.8% was registered (Eurostat 2017), mainly due to the increase of private consumption, determined by salary increases and fiscal relaxation measures, which improved the population's purchase power (Government of Romania 2017).

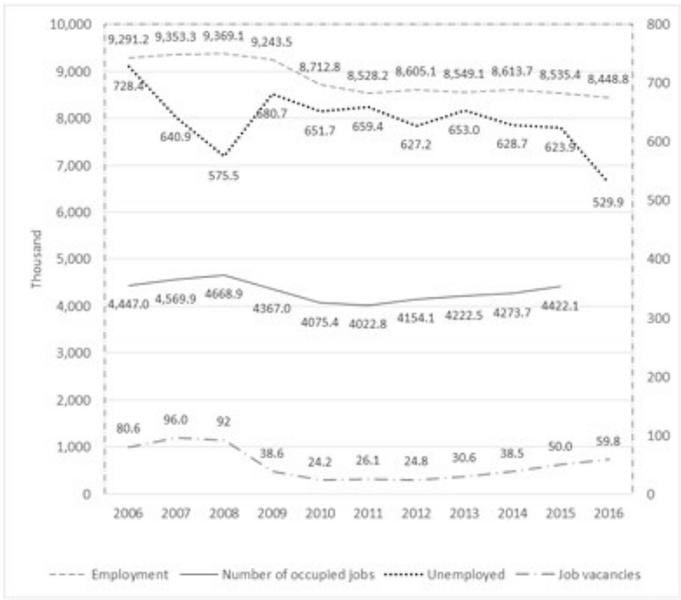
The employment rates fluctuated around 60% in Romania and its regions during the studied period, the national average lagging behind the average of the 28 countries of the European Union (EU28) by around five percentage points (Eurostat 2017). Since 2011 the employment rates have increased in most Romanian regions, and in 2016 the national indicator reached 61.6% (compared to the EU28 average of 66.6%), but the regional values were placed in a quite large interval from 56.5% in the South-East region to 69.0% in the North-East region, leading to a growing regional dispersion (Figure 3).



Source: authors' own design based on Eurostat (2017) data

Figure 3. Evolution of the dispersion of regional employment and unemployment rates among Romanian regions (2006-2016)

In the period of economic growth (2006-2008) the number of occupied jobs was increasing, the job vacancy rate was set at a relatively high level and the unemployment rate was decreasing, but after the financial crisis hit Romania, the number of jobs and vacancies sharply dropped and the number of unemployed increased (Figure 4). After 2012, the number of employees and job vacancies started to grow, but neither reached the before-crisis levels. The number of unfilled job vacancies is much lower than the number of unemployed, so we cannot speak about an absolute lack of workers, or a quantitative labour shortage on the Romanian labour market.



Source: authors' own design based on Eurostat (2017) and NIS (2017) data

Figure 4. Evolution of total employment, unemployment, number of occupied jobs and job vacancies in Romania in the period 2006-2016

The analysis of labour market developments after the crisis outbreak shows that the strong contraction in the economic activity (aggregate GDP decrease by almost 8 percent during 2009-2010) was initially reflected by higher short-term (less than one year) unemployment (1.20-1.25 percentage points above 2008 levels), which mostly affected the youth and people with a low education level, according to Eurostat (2017) and NIS (2017) data. The worrying fact about this evolution is that some of these people retained the unemployed status even after the economy resumed positive growth rates. The unemployment rate is considered to be a lagging indicator. During economic downturns, usually it takes several months before the unemployment rate begins to rise. Once the economy starts to pick up again, employers usually remain cautious about hiring new staff and it may take several months before unemployment rates start to fall.

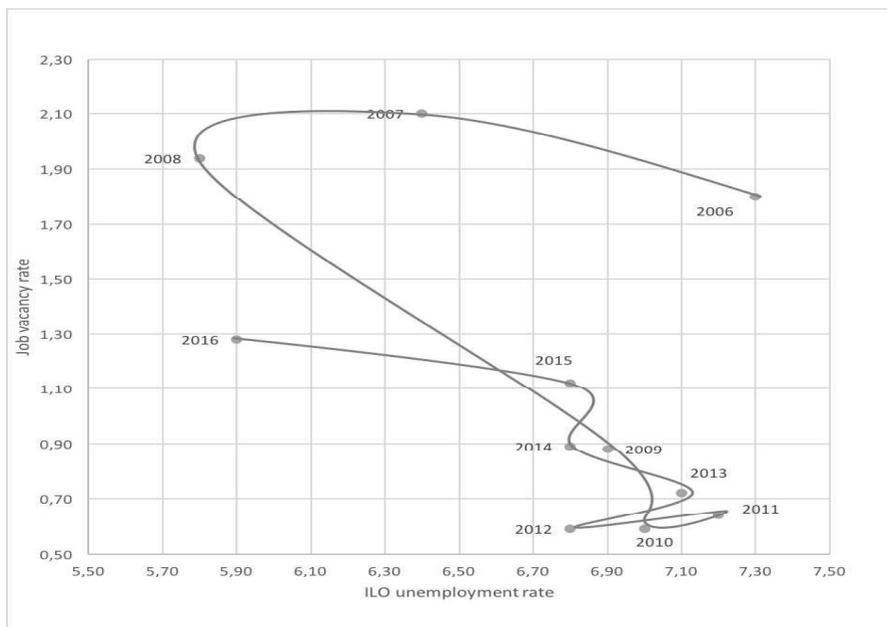
In the period between 2010 and 2016, the ILO unemployment rate remained relatively stable hovering around 7% (Eurostat 2017). However, the registered unemployment rate dropped sharply by about two percentage points, due to the new

legislation, which became effective as of 2011 and provided for unemployment benefits to be cut off in case of the jobseekers' refusal of a job offer consistent with their training or education (Iordache et al. 2016).

The deterioration of job matching on the Romanian labour market

In the period 2006-2008 the Beveridge curve for Romania (Figure 5) shows a negative relationship between unemployment rate and job vacancies, demonstrating an increasingly efficient job matching process.

From 2006 the Beveridge curve shifted to the left, this process being accelerated from the mid of 2007 due to overheating and labour migration, which resulted in the reduction of the short-term unemployment rate to a minimum of 3.25% in 2007 and to the increase of the job vacancy rate to a maximum of 2.1% in 2008 (Eurostat 2017).



Source: authors' own design based on Eurostat (2017) data

Figure 5. Beveridge curve for Romania (2006-2016)

The movements along the Beveridge curve during 2009-2010 reflect the influence of the recession. The vacancy rate dropped to 0.59% in 2010 and the unemployment rate increased to 7%, the two indicators recording opposite

development. The crisis led to large employment losses, especially in constructions and industry (the sectors with the largest shares of unskilled workers), where total employment in 2011 reached only 88.3% and 88.5% respectively of their 2008 values (NIS 2017). Consequently, it seems clear that the major forces driving the large outward shifts in Romania's Beveridge curve are the large declines seen in these sectors.

Since the employment recovery started in 2011, the curve has seen multiple outward shifts. In the period 2010-2015 the unemployment rate hovered around 7% while vacancies kept rising, which hints to a possible deterioration of job matching and may reflect large structural changes in the Romanian labour market. These changes manifest themselves as shifts in the Beveridge curve and may stem from a wide range of factors, including those reflecting an increased mismatch between the attributes of the unemployed and the available vacancies (for instance, due to skill, sectoral or locational mismatches), and those reflecting broader institutional features of the national labour markets (such as the generosity of the unemployment insurance system, the impact of employment protection legislation, etc.).

The after-crisis job recovery was slow because the process was impeded by a high mismatch between the skills required by companies and those offered by potential candidates. This was due primarily to the low level of transferability of workers' skills from construction⁶ to other sectors.

The mismatch between required and offered qualifications and skills is due also to the development of more competitive sectors such as the automotive industry and the IT&C services, where specific skills are required. Therefore, the demand for skilled workers (programmers, engineers) increased (total employment in the ITC sector in 2015 was 41.7% higher than in 2008), in a context of growing difficulties in finding qualified staff. Moreover, this discrepancy is also visible in the case of people with a medium educational level. Thus, companies in food and light industries (accounting for around a quarter of the manufacturing sector), as well as in accommodation and food services, encountered more pronounced difficulties in finding appropriately skilled workers (Iordache et al. 2015). As a result, the economy experienced a jobless recovery, with the output reverting to its pre-crisis level in 2014 and only half of the jobs lost being regained.

⁶Gross value added (GVA) in the construction sector shrank by 30% after 2008, and in 2016 has still not reached the level of output from which the collapse began in 2009 (NIS 2017).

More frictions on the labour market generally lead to higher long-term unemployment, which is harder to deal with in the absence of active policies. The effects of the recession were reflected by a steep increase in the short-term unemployment, which was only partially reversed as the economy picked up, resulting in higher long-term unemployment. Between 2011 and 2015 the share of long-term unemployment in active population increased by 25%, which signals an increase in structural unemployment (NIS 2017). The phenomenon, referred to as “the hysteresis effect” in the literature, is driven by the fact that the longer the period a person seeks a job, the lower the chances to succeed, as a result of both skill depreciation and the change in companies’ requirements concerning the training of candidates. The latter is particularly relevant in the context of the post-crisis economy repositioning on a more competitive structure, oriented towards more technology-intensive sectors.

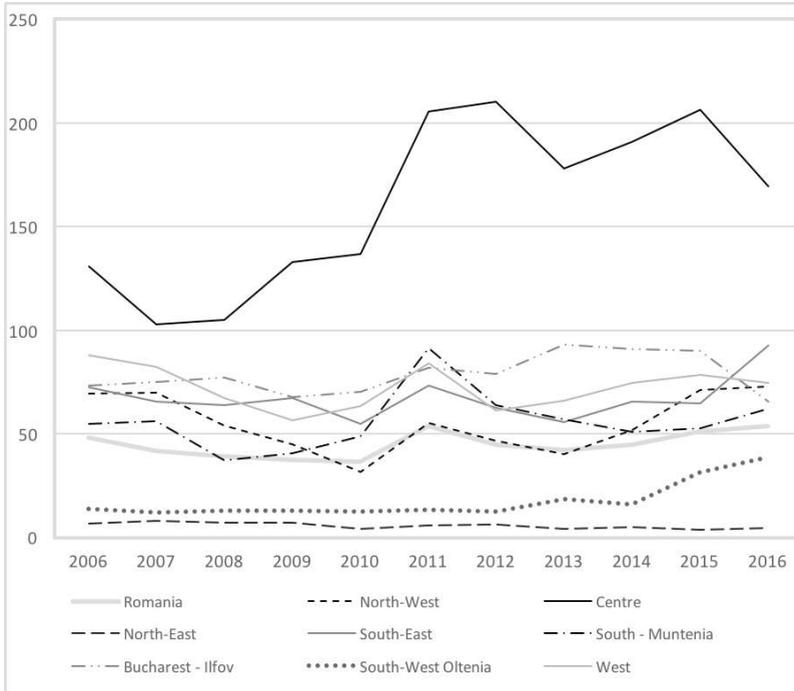
Qualification mismatch and low wages – the main causes of labour market inefficiency

A high level of unemployment and, in parallel, persistent unfilled job vacancies show a qualitative mismatch between labour supply and labour demand, and, according to the literature, the cause is often that the educational level does not correspond to the profiles sought on the labour market. Thus, we have calculated the Qualification Mismatch Indexes (QMI) for Romania and its regions (Figure 6).

We can see that the overall QMI for Romania is much lower than for most of the regions, except for the North-East and South-West Oltenia. These results suggest that in-country migration could improve the labour shortage felt by companies located in regions with high levels of the QMI.

To better understand the nature and extension of qualification mismatch, we also analyse the QMIs related to different educational levels separately (Table 1). We can notice that the QMIs are generally high for the low and high education levels, and are low (except for the Centre region) for the medium education levels. Low education labour supply exceeds demand, while the demand for labour force with tertiary education exceeds supply, both resulting in high QMIs.

Unattractive working conditions, such as low wages, can also be a reason for the large share of unfilled vacancies. The annual net earnings of a single person without children in 2015 was of 5119 Euro in Romania, as compared to the EU



Source: authors' own calculations based on Eurostat (2017) data

Figure 6. The evolution of the QMI in Romania and its regions

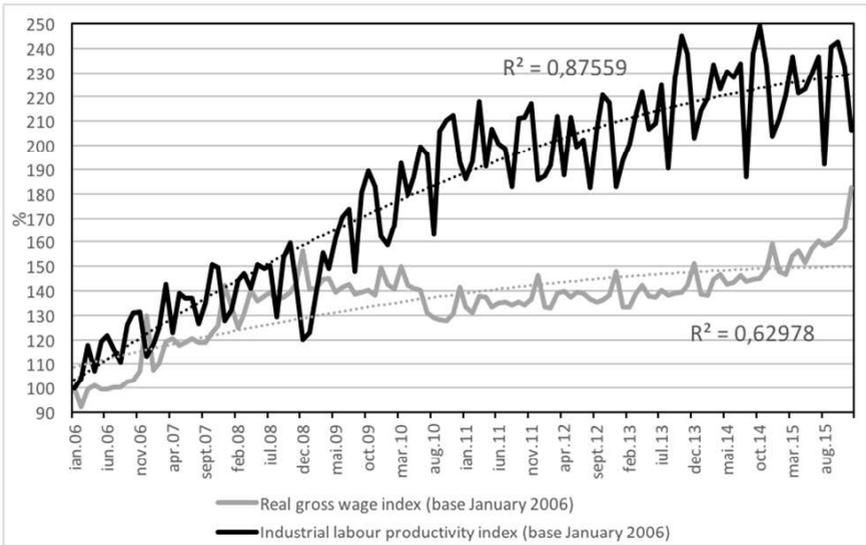
average of 24 162 Euro (Eurostat 2017) and low income is the Romanians' main reason for emigration. According to the World Bank (2016), Romania is among the top 20 emigration countries with 3.4 million emigrants in 2013 (17% of the whole population), over 20% out of them being tertiary educated. They have an important contribution to the national economy as they send yearly around 3.2-3.5 billion US\$ remittances.

Even though companies complain that they cannot attract skilled workers, productivity increase did not lead to a proportional increase of the wages (Figure 7). In about nine years the government doubled the minimum wages, from 138 EUR in the first half of 2008 to 276 EUR in the second half of 2016 (Eurostat 2016), but this increase affected only the lowest wages and did not solve the problem of the emigration of skilled workers and specialists.

Table 1. QMIs in Romania and its regions, by education levels

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Less than primary, primary and lower secondary education (levels 0-2)											
Romania	31.79	26.98	24.19	22.44	22.22	33.80	27.65	24.84	27.43	29.74	31.18
North-West	46.01	46.08	35.38	27.75	19.55	35.98	31.05	25.41	34.46	45.62	47.23
Centre	84.56	68.04	69.99	88.54	90.53	135.55	139.72	118.72	126.86	137.36	111.53
North-East	2.44	0.19	0.51	0.17	0.62	2.28	2.82	1.30	2.21	1.12	1.05
South-East	47.56	42.94	42.85	44.61	36.39	48.46	41.16	35.93	42.90	42.59	61.16
South - Muntenia	35.90	36.51	24.67	27.15	32.34	59.83	41.82	37.91	33.93	33.85	40.80
Bucharest - Ilfov	32.24	28.48	28.48	28.91	29.10	21.87	23.93	24.53	26.32	27.48	16.82
South-West Oltenia	7.90	6.08	3.94	0.77	0.61	2.77	0.07	0.18	0.05	2.96	10.12
West	57.46	54.37	44.37	35.55	42.12	55.81	38.77	43.16	49.28	48.44	45.88
Upper secondary and post-secondary non-tertiary education (levels 3-4)											
Romania	5.74	3.47	1.77	1.27	1.62	2.90	1.93	0.67	1.71	0.86	0.71
North-West	14.79	12.55	5.28	1.84	1.41	7.23	6.46	2.34	7.39	6.15	5.97
Centre	36.48	21.03	19.70	25.91	25.48	42.99	42.60	22.58	25.07	24.25	18.08
North-East	0.24	3.01	1.96	2.63	0.66	0.14	0.03	0.22	0.02	0.28	0.43
South-East	14.81	15.18	11.46	12.31	8.72	10.52	7.40	4.31	6.72	5.49	10.98
South - Muntenia	12.58	14.35	8.27	7.08	9.04	20.05	12.00	8.65	7.40	5.20	5.38
Bucharest - Ilfov	0.46	1.60	2.10	0.62	0.87	6.81	4.75	7.89	5.80	5.34	5.85
South-West Oltenia	0.17	0.00	0.90	3.88	4.03	1.70	5.78	7.83	7.35	7.89	3.15
West	20.15	16.59	7.40	2.95	9.54	12.88	3.59	6.71	15.51	3.19	2.94
Tertiary education (levels 5-8)											
Romania	10.52	11.10	12.89	13.76	12.54	16.91	14.98	16.55	15.43	20.48	21.54
North-West	8.57	11.12	13.25	15.39	10.45	11.70	9.19	12.34	9.93	19.14	19.62
Center	9.89	14.16	15.51	18.66	20.75	26.77	27.89	36.67	39.14	44.82	39.95
North-East	4.17	4.67	4.46	4.11	2.60	3.57	3.44	2.60	2.63	2.23	3.15
South-East	9.91	7.06	9.43	10.11	9.54	13.90	13.65	15.44	15.66	16.58	20.41
South - Muntenia	5.97	5.08	3.99	6.46	7.18	11.27	9.63	10.34	9.64	13.24	15.75
Bucharest - Ilfov	40.27	44.89	46.18	37.90	40.04	53.07	50.02	60.41	58.34	57.05	42.50
South-West Oltenia	5.78	5.88	8.03	8.11	7.76	8.81	6.70	10.42	8.60	20.53	25.41
West	10.18	10.90	15.42	17.91	11.57	15.18	18.77	15.83	9.58	26.78	25.60

Source: authors' own design based on NIS (2017) data



Source: authors' own design based on NIS (2017) data

Figure 7. Wages and labour productivity in Romania, 2006-2015 (base January 2006)

Romania has one of the lowest taxation rates on the income from salaries from the EU (16%), but the shares of total social contributions paid by the employee and employer are of 39.3%, which is over the EU28 average. The fiscal burden for the employees with low salaries is disproportionate and, together with the low level of the salaries, impacts negatively the motivation of these employees to enter the labour market (Government of Romania 2017).

Future trends on the Romanian labour market

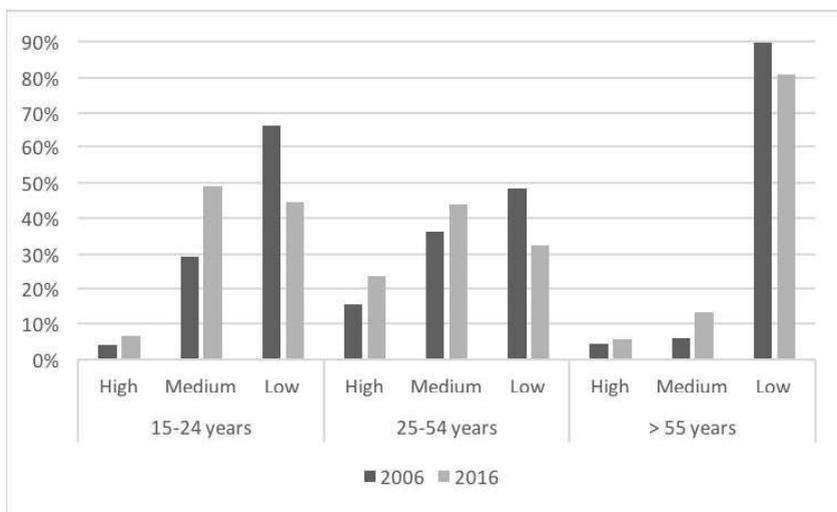
Demographic change is a key challenge for the European, as well as for the Romanian labour markets. Participation rates and the working-age population are expected to decline in most countries, regardless of the economic conditions, and the decline of the working-age population could reduce the labour force to the extent that potential economic growth will be at risk (Cedefop 2016).

The fast aging process will change the ratio between the population at retirement age and the active population, which will lead to major changes in the age structure and to negative implications on the labour market (Government of Romania 2017).

By studying the age structure of the employed population in the period 2006-2016, we can observe that the proportion of the younger age groups (15-34 years) in the employed population decreased, while the proportion of the older age groups (44-49 years) increased (NIS 2017).

The average of standard retirement ages in the European Union is of 64.6 years for men and 63.4 years for women. Romania is close to the European average in the case of the retirement age of men, and follows the recommendation of the European Commission to equalize the retirement age between men and women to 65 years (Government of Romania 2017).

Population aging has also an impact on the replacement rate⁷. In order to calculate the replacement rates for the period 2006-2016, we considered that the 15-24 years old enter and the 55-64 years old leave the labour market. According to these calculations, the evolution of the replacement rate was unfavourable in the studied period, declining from 129.8% to 81.0%.



Source: authors' own design based on NIS (2017) data

Figure 8. Educational level of the employed population, by age groups

Although older, Romania's labour force will become more qualified. In the period 2006-2016 the educational level of the employed population has improved

⁷ The replacement rate is the rate between the population quitting and the population entering the labour market in a given period.

in all age groups (Figure 8). Moreover, Cedefop (2015) forecasts that, by 2020, around 50% of the 30-34 years old and around 39% of the labour force will have high-level qualifications (compared to 26.6% in 2013).

Employment is forecasted to increase slightly, but will remain below its 2008 pre-crisis level. Slow employment growth and an ageing workforce means that until 2025, replacement demand in Romania will provide almost all job opportunities. Owing to high replacement demand, most job opportunities (around 47%) will be for skilled agricultural workers (Cedefop 2015).

According to a study on the job opportunities of graduates (Ciucă 2013), in the period 2016-2020 the demand for staff with higher education will increase by 14%, especially in the fields of ITC, health, business and administration, constructions and engineering. Likewise, the Cedefop (2015) study envisages a significant number of job opportunities requiring high-level qualifications, but it expects the highest employment growth in the distribution and transport sector.

Another study (Cedefop 2016) foresees that, in Romania, labour demand will increase in the services sectors, particularly in hospitality, personal services and financial and business services, and that there will be reductions in the low-qualified employment. The changes in the content of jobs and in work organisation, as well as the increased automation and robotisation, are likely to affect occupational and qualifications structures. Despite the increasing demand for skills, some well-qualified individuals may need to take up jobs that have typically not required such high formal qualifications in the past (Cedefop 2016).

The *Convergence Programme 2017-2020* (Government of Romania 2017) foresees the improvement of the Romanian labour market: an increase of 1% per year of the employment rate, of the total employment (despite of the negative demographic evolutions) and of the total number of hours worked, a labour productivity increase of 4-5% per year, and a yearly 5-6% increase of the compensations per employee. The share of employees in total employment is estimated to increase to 79% in 2020 compared to 75% in 2016 and the unemployment rate will decrease from 5.9% in 2016 to 5.3% in 2020. For the same period, the *Convergence Programme* foresees that the GDP will increase at an annual average pace of 4.8-5.0%, which exceeds the value estimated by the European Commission (3.8% for the interval 2017-2018).

As a first step on the way to reach its targets, at the beginning of 2017 the Government of Romania raised the gross minimum wage from 275 EUR to 319 EUR (Eurostat 2017), as well as the wages of public employees (education, health, local public administration).

To increase the mobility of the workforce, the Government of Romania has adopted three types of non-taxable subsidies for the people who get a job in a different locality than their domicile: the employment premium, the installation premium and the relocation premium. The resumption of activity by the unemployed who do not receive unemployment benefits is stimulated by granting them an activation premium, conditioned on getting full-time employment for at least three months (Government of Romania 2017). The condition of full-time employment is important in the light of a recent analysis of job creation patterns (ILO 2017), which pointed out that part-time and temporary jobs are becoming increasingly prominent, but many workers take on such an employment status involuntarily, because they cannot find any full-time or permanent employment opportunities.

Conclusions

The global financial and economic crisis has deeply marked the Romanian economy with unemployment persisting at relatively high levels even when the economy returned to positive growth rates. The economy experienced a jobless recovery, with the output reverting to its pre-crisis level in 2014, but with only half of the jobs lost being regained. Romania's labour market basically witnessed a reshaping, which meant increasing the importance of highly-skilled employees at the expense of medium- and low-skilled workers.

These developments bring attention to the structural nature of labour market dynamics. The main factor driving the stagnation and even a moderate rise in long-term unemployment since the crisis has been the inability of the labour market to accommodate the inflows of workers made redundant as a result of restructuring, either due to insufficient labour demand and/or to increased mismatches between labour demand and labour supply. The share of long-term unemployed actually increased despite the improvement in overall labour market conditions, most likely because they lack the necessary skills to take the newly created jobs. Long-term unemployment in Romania affects certain groups, such as young people and low-skilled workers more than other groups on the labour market, and especially hits those that work in declining occupations and sectors. Some sectoral rebalancing

will therefore be required, so as to provide the preconditions to absorb displaced workers from permanently downsized sectors.

In 2016 the unemployment rate stayed on a downtrend, reaching new post-crisis lows of 5.6 percent. This development along with the increase in labour demand economy-wide (as reflected by the stepped-up hiring via the National Employment Agency) signals the persistence of tight labour market conditions. However, as the number of unfilled job vacancies is still much lower than the number of unemployed, we cannot speak about an absolute lack of workers or a quantitative labour shortage on the Romanian labour market.

Labour shortage in Romania is caused by qualitative mismatch: skills mismatch, unattractive wages and increasing qualification requirements. If not reversed, the worsening labour mismatch may imply that a higher share of unemployment becomes structural and that a given reduction of the unemployment rate would require a stronger degree of wage adjustment. Policy measures will need to target active labour market programmes focusing on the up-skilling and re-training of low-skilled workers, so as to equip them with the broader transferable skills necessary to allow for sectoral reallocation.

Although not the case right now, quantitative labour shortage will also be an issue in the near future because of aging and emigration. In order to stop/slow down the emigration of young and skilled people wage increases are necessary and expected to catch up with the EU averages.

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