

# SKILLS MISMATCH MEASUREMENT IN MOLDOVA

Report written by Veronica Midari for the European Training Foundation.

The contents of this report are the sole responsibility of the author and do not necessarily reflect the views of the ETF or the EU institutions.

© European Training Foundation, 2019

Reproduction is authorised, provided the source is acknowledged.

## ACKNOWLEDGEMENTS

This report was prepared for the European Training Foundation (ETF) by Veronica Midari, local consultant, with support from Ben Kriechel and Tim Vetter, Economix Research & Consulting. ETF experts Cristina Mereuta, Mircea Badescu, Franca Crestani and Ummuhan Bardak provided suggestions for revision and completion of the analysis and reviewed the final version of the report.

The document was shared with the national public authorities in the fields of education and training, employment and statistics, for comments. The ETF and the research team would like to thank the national institutions for their invaluable assistance and support in the process of country data collection and analysis.

# CONTENTS

ACKNOWLEDGEMENTS .....	3
INTRODUCTION .....	5
<b>1. CONTEXTUAL INFORMATION.....</b>	<b>8</b>
1.1 Demography.....	8
1.2 Economy .....	8
1.3 Education and skills.....	11
1.4 Labour market situation .....	15
1.5 Labour relations.....	19
<b>2. KEY DEVELOPMENTS .....</b>	<b>23</b>
2.1 Labour demand .....	23
2.2 Labour supply.....	23
2.3 School-to-work transition .....	24
2.4 Continuing training and active labour market programmes .....	25
<b>3. METHODOLOGICAL ASPECTS AND DATA SITUATION.....</b>	<b>27</b>
3.1 Methodological considerations of skills mismatch calculation .....	27
3.2 Data sources and availability .....	29
<b>4. INDICATORS OF SKILLS MISMATCH.....</b>	<b>31</b>
4.1 Unemployment rate and unemployed/employed ratios .....	34
4.2 Young people not in employment, education or training .....	36
4.3 Variance of relative unemployment rates.....	37
4.4 Coefficient of variation by skills.....	38
4.5 Relative wages .....	40
4.6 Occupational mismatch .....	41
4.7 Over-education and under-education (empirical method) .....	43
<b>CONCLUSIONS.....</b>	<b>45</b>
<b>ANNEXES.....</b>	<b>49</b>
Annex 1. Aggregation by education level .....	49
Annex 2. Additional figures .....	49
<b>LIST OF ACRONYMS.....</b>	<b>56</b>
<b>LITERATURE.....</b>	<b>57</b>

# INTRODUCTION

The report looks into the incidence of skills mismatches in the Republic of Moldova (hereafter referred to as Moldova). In 2017, the European Training Foundation (ETF) initiated a mismatch measurement project in selected ETF partner countries with a view to showcasing gaps and shortages in skills utilisation on the labour market including aspects of the transition to work. In 2017 four pilot countries were selected: Egypt, Georgia, Morocco and Serbia. The work continued in 2018 with another three: North Macedonia, Montenegro and Moldova.

The project aimed at developing and testing the indicators in a template that allows easy access and updating. Through a combination of international and local expertise, and in close cooperation with national stakeholders, the ETF's objective was also to pilot a methodological approach to measuring skills mismatches adapted to the context of selected countries (transition or developing countries) and ensure as much comparability across countries as possible.

The first phase of the ETF initiative included a definition of a set of indicators and testing them by using existing data from reliable sources. In the second phase, data on key mismatch indicators was gathered depending on feasibility and availability in a given country. Finally, country reports were drafted to present the results of the calculations but also to contextualise and interpret the results within each country's context. A cross-country report complements the country findings and further delves into methodological aspects and assesses the potential to replicate such initiatives in other ETF partner countries.

This analytical exercise may help institutions and partners in the countries to assess the effectiveness of their skills policies. A deeper knowledge of the nature and incidence of the skills mismatch, including a good contextualisation (e.g. socio-economic aspects, labour regulations, job-matching services), would in turn help countries to better target their efforts to match supply to demand via education, training, employment and other policy interventions.

A skills mismatch is mostly measured by proxy in the current project. Education and occupation are proxies for the skills taught and the skills required in a job. The various ways in which the indicators are calculated allow us to identify problems or mismatches, while in itself they rarely enable us to pinpoint the exact nature or cause of the mismatch. Therefore, a skills mismatch in the current context entails a mismatch in the level of education or skills with those required in the position, the so-called vertical mismatch, but it also includes a horizontal mismatch in which the types of skills gained in education do not match the requirements even though the overall education level does match.

In terms of data sources for calculating mismatches, priority was given to reliable (and ideally regular) products, such as labour force surveys (LFS). Other sources were also consulted, namely administrative or survey data on vacancies and employers' needs, tracer studies, school-to-work transition studies, jobseeker databases and sector skills analyses, if available. The main indicator definitions that provide key information on skills mismatches are listed below.

- Over-qualified is the state of being skilled or educated beyond what is necessary for a job.
- Under-qualified is when an applicant/employee does not have the necessary level of education, abilities, qualities, attributes, etc. to perform a particular job or task.
- Skill obsolescence is the 'degree to which professionals lack the up-to-date knowledge or skills necessary to maintain effective performance in their current or future work roles' (Kaufman, 1974).

Using the data set available in the country and in line with the cross-country methodological approach to skills mismatches, seven indicators (or clusters of indicators) are calculated and discussed in this report, namely:

1. unemployment rates by various dimensions, including proportion of unemployed versus employed;
2. young people not in employment, education or training (NEET);
3. variance of relative unemployment rates;
4. coefficient of variation (CVAR) by skills;
5. relative wages;
6. occupational mismatch;
7. over- and under-education.

Chapter 1 provides a quick overview of the main socio-demographic, economy and labour market, education and skills aspects; while Chapter 2 discusses the major trends of skills supply and demand over the last years, including difficulties in school to work transition or upskilling, re-skilling and job placement of adults. Chapter 3 focuses on data situation, in particular issues related to availability, regularity, reliability. It also explains the methodological approach to skills mismatch indicators, including calculation aspects. The results of the skills mismatch calculation are discussed at length in Chapter 4. The final chapter concludes and hints at main avenues for further work and follow up.

In describing and interpreting the indicators, various people who might be interested in the skills mismatch can inform themselves about the methodology with which this mismatch is measured using existing data sources and analysis of the skills mismatch; the report also provides some insights for the country in areas that mismatches might occur on the labour market. All persons generating, interpreting or using labour market information or involved in labour market and/or education policy might be interested in understanding the various ways in which the labour market and skills can be analysed. Finally, proposals on how to further develop indicators, data infrastructure and labour market analysis are provided for the country.

The following state entities are interested in skills mismatch measurements:

- Ministry of Health, Labour and Social Protection and Ministry of Economy and Infrastructure – responsible for employment and economic development policy, and for strengthening the capacity of sector committees for vocational training;
- Ministry of Education, Culture and Research – responsible for the development of the national qualifications framework (NQF), for updating the nomenclatures of vocational training fields, and for the development and approval of curricula for vocational training in accordance with the labour market requirements;
- National Employment Agency (ANOFM) along with the Labour Market Observatory – responsible for the Labour Market Barometer, measurements of labour market demand and supply, and identification of labour market trends for informing the education system;
- sector committees for vocational training – responsible for formulation of labour market needs under occupational standards, and validation of qualification documents that become part of the NQF;

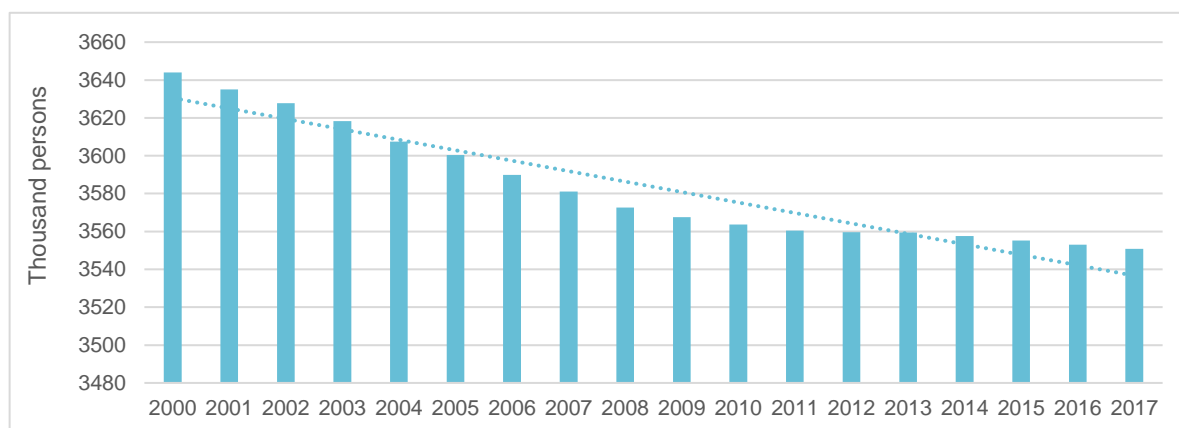
- technical vocational education and higher education institutions – responsible for development of educational products in line with the needs of the labour market, and provision of vocational training services in accordance with the changing trends of skills and labour market needs;
- National Bureau of Statistics (NBS) – responsible for updating the relevant information to reveal in a timely manner the labour market mismatches and to inform the relevant decision-makers;
- research community – responsible for continuing in-depth research on issues such as skills and labour market trends, emerging shortages and forecasting occupational demand and supply.

# 1. CONTEXTUAL INFORMATION

## 1.1 Demography

The official number of the population in Moldova is 3.55 million people according to the National Bureau of Statistics, while there has been a decline in population since 2000. Figure 1.1 depicts the population decline. Life expectancy at birth was 71.2 years in 2017.

**FIGURE 1.1 EVOLUTION OF THE SIZE OF THE STABLE POPULATION, 2000–17 (THOUSANDS)**



Source: Based on NBS data

Two main factors influence the population structure and the constant population decrease over recent years: emigration and ageing. Capturing migration flows is challenging, and other research sources point at a possible overestimation of population in the official statistics. For example, the Population Barometer conducted in 2015 by the Demographic Research Centre indicates an actual population of about 2.9 million, while the International Labour Organisation (ILO), in its 2015 School-to-Work Transition Survey, estimates that around 23% of the total Moldovan population is living abroad. Ageing is also visible through a decline in youth ratios in the total and active population and an increase in dependency rates. In January 2018, there were 676 000 children in Moldova, meaning that every fifth person is under the age of 18.

Such negative demographic phenomena have deep economic and social implications, including a high risk of skills shortages.

## 1.2 Economy

Moldova is a small lower-middle-income economy, with agriculture making up a large share of the economy and employment, and uneven territorial distribution of economic opportunities and growth. For example, Chisinau, the capital city, leads in the creation of gross domestic product (GDP, over 50%). Poverty remains an issue with a GDP per capita of around USD 5 000 in purchasing power parity terms.

Since the 2015 recession, triggered particularly by failures in the financial system, the economy has expanded continuously with real growth rates in GDP ranging from 4.3% in 2016 to 4.5% in 2017 and a projected 3.0% to 3.8% increase in 2018 and for the next five years (IMF, 2018). It seems the GDP growth is driven mostly by strong domestic demand and a positive external environment, at least in



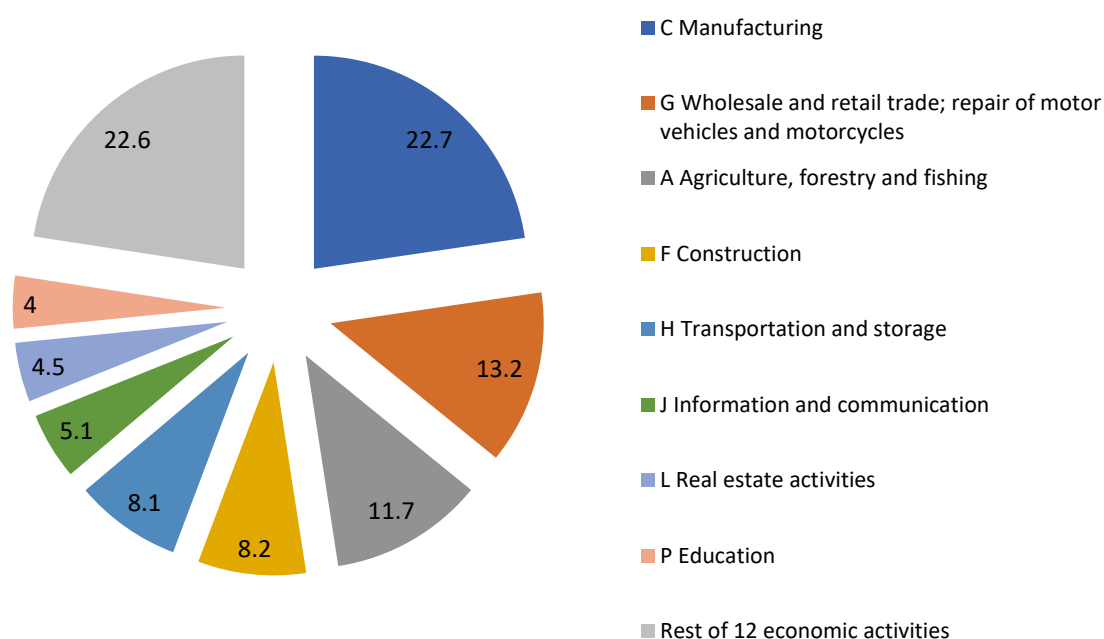
2018. As Moldova is an emigration country, remittances fuel consumption as they account for 25% to 30% of GDP, which is among the highest in the world<sup>1</sup>.

There are two main obstacles towards further growth: on the one hand, the ageing population reduces consumption, which has so far been a strong driver of economic growth, and on the other hand, there is a rather low level of investment, given the lack of private capital, meaning there is nothing to supplement consumption with a more sustainable growth engine.

The main economic activities that generate GDP are manufacturing, trade, agriculture, construction and transportation (see Figures 1.2 and 1.3). Within manufacturing, the food, textile and wood sectors are leading the way, while other higher value added industries are less developed, for example refined petroleum products, chemicals, pharmaceuticals, computer and electronic manufacturing, and electrical and transport equipment.

From 2010 to 2016, the manufacturing sectors' contribution to GDP increased, construction's share remained mostly level, while the contribution of agriculture, forestry and fishing decreased, although these sectors still employed a large proportion of people.

**FIGURE 1.2 CONTRIBUTION OF ECONOMIC ACTIVITIES TO GDP, CURRENT PRICES, 2016 (%)**



Note: Data taken in accordance with the Classification of Activities in the Moldovan Economy Rev. 2

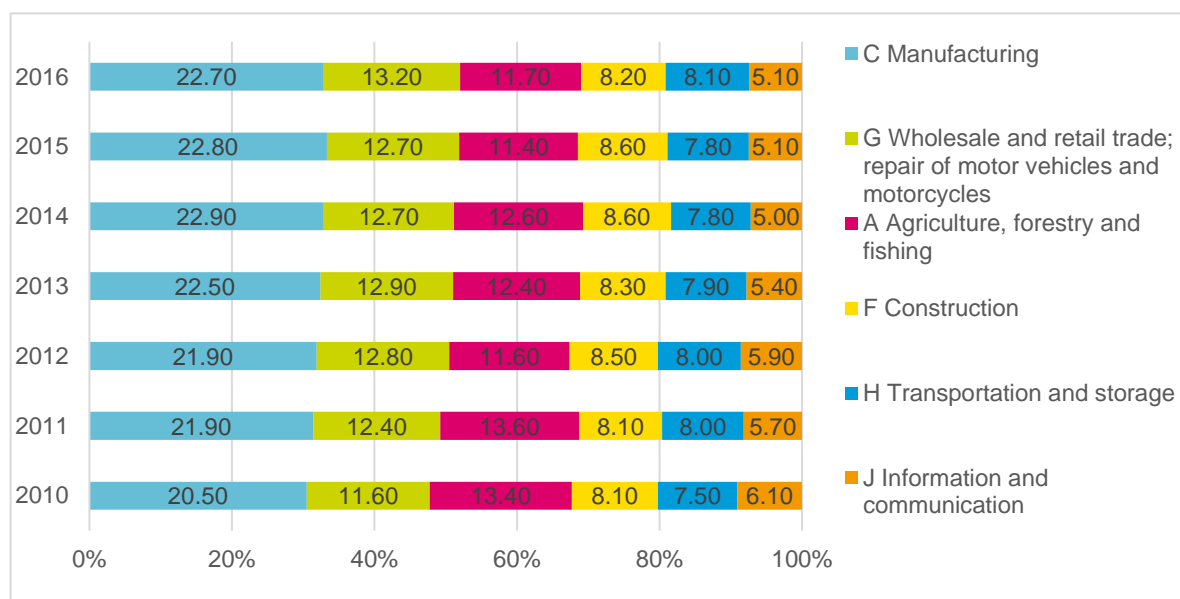
Source: Based on NBS data

As stated above, the manufacturing sector is actually dominated by food products; almost 37% of manufacturing is within the 'manufacture of food products' category. Other categories that have an important share are the textile industry, wine production, and manufacture of other non-metallic mineral products (e.g. glass and concrete).

<sup>1</sup> For more details, see: [www.worldbank.org/en/country/moldova/overview](http://www.worldbank.org/en/country/moldova/overview)

With the support of development partners, Moldova managed to identify the sectors of the economy that have potential for generating more added value: information and communication technology, the textile industry and especially the fashion industry, the wine industry, tourism and affiliated industries (gastronomy, transportation, translation services, etc.) and creative industries like product and industrial design, and graphic design.

**FIGURE 1.3 CONTRIBUTION OF MAIN ECONOMIC ACTIVITIES TO GDP, CURRENT PRICES, 2010–16 (%)**



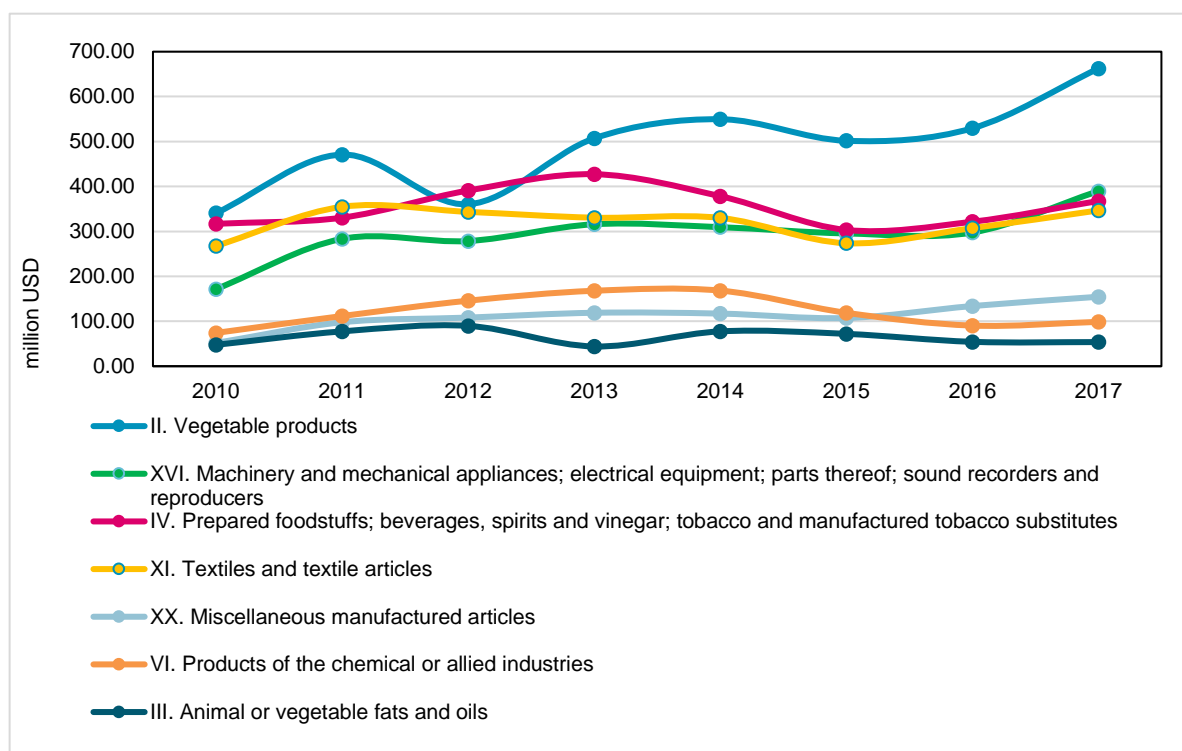
Source: Based on NBS data

Note: Data taken in accordance with the Classification of Activities in the Moldovan Economy Rev. 2

In 2017, foreign trade developed positively, with exports of goods increasing by 18.6% compared to 2016. The main destination of Moldovan exports remains the European Union (EU) with a share of 65.8% in total exports and an increase of 19.9% over the previous year (reaching a historical maximum in absolute terms). The Commonwealth of Independent States countries also receive Moldovan exports, with a share of 19.1% in 2017, which was an increase of 11.8% thanks to partial resumption of exports of plant products to the Russian Federation. For 2018, estimates indicate that total exports of goods and services will grow by about 20% (NBS).

The government's goal of EU integration has resulted in progress towards a market-oriented economy. The country experienced higher than expected economic growth thanks to increased agriculture production, economic policies adopted by the government since 2009, and an EU-Moldova preferential trade system. In 2014, Moldova signed an Association Agreement and a Deep and Comprehensive Free Trade Agreement with the EU, connecting Moldovan products to the world's largest market and allowing better investment conditions.

**FIGURE 1.4 EXTERNAL TRADE (EXPORTS) BY INDICATORS AND SECTORS ACCORDING TO COMMODITY NOMENCLATURE, 2010–17 (MILLION USD)**



Source: Based on NBS data

Economic stabilisation is sought by national authorities to improve the business climate in line with the SME Development Strategy 2012–2020. Moldova ranked 89<sup>th</sup> out of 137 participating countries in the World Economic Forum Global Competitiveness Report 2017–2018. The financial sector is undergoing reforms to enhance financial transparency. A USD 179 million three-year International Monetary Fund programme focused on improving the banking and fiscal environments<sup>2</sup>.

The government has also intensified implementation of reforms, in particular the action plan to upgrade public services, liberalise the economy, develop the financial system to create a favourable investment climate, foster development of small and medium-sized enterprises (SMEs), reform the judiciary and eradicate corruption, improve transport and other physical infrastructure, diversify and promote exports and create new jobs and strengthen social protection.

Continuous economic stabilisation, advancement of key economic reforms, and creation of a rule-based environment for businesses are the country's key goals. External budget support, based on an agreement with the International Monetary Fund, has a high level of conditionality.

### 1.3 Education and skills

The legal framework of Moldova, i.e. the Education Code adopted in 2014, regulates the education system, organised by levels and cycles, in line with International Standard Classification of Education (ISCED-2011).

<sup>2</sup> For more details, see: [www.indexmundi.com/moldova/economy\\_overview.html](http://www.indexmundi.com/moldova/economy_overview.html)

**TABLE 1.1 MOLDOVAN EDUCATION SYSTEM: ISCED CLASSIFICATION**

ISCED level	Education programme
ISCED 8	Higher education, III cycle – Doctoral level
ISCED 7	Higher education, II cycle – Master level
ISCED 6	Higher education, I cycle – Bachelor level
ISCED 5	Non-tertiary post-secondary technical vocational education
ISCED 4	Post-secondary technical vocational education
ISCED 3	Secondary education, II cycle – lyceum education Secondary technical vocational education
ISCED 2	Secondary education, I cycle – gymnasium education
ISCED 1	Primary education
ISCED 0	Early education

Source: Education Code

The mandatory education starts with pre-school education (i.e. preparing year before enrolling in primary education) and finishes with upper secondary education (lyceum stream) or secondary and post-secondary technical vocational education.

A number of specific challenges and priorities relate to different levels of education in Moldova:

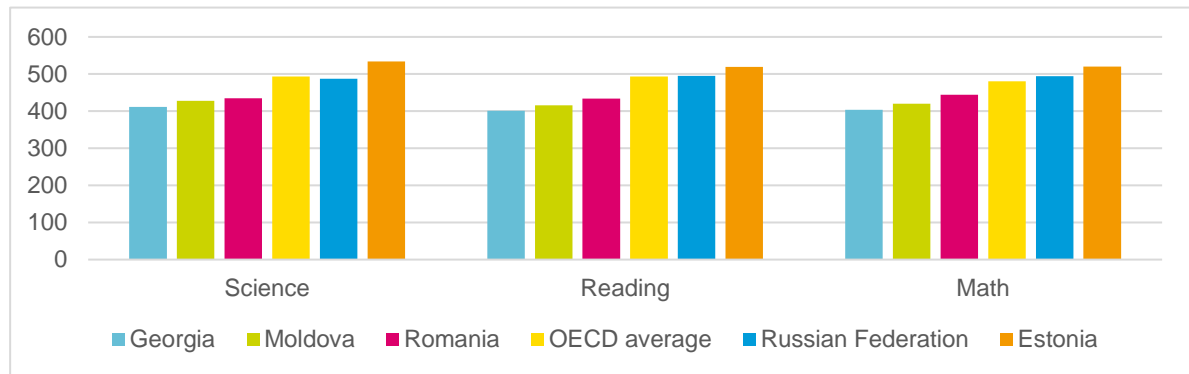
- increase the coverage and quality of the pre-school, primary, lower and upper secondary education;
- impact of population decline on school network and reach the most remote or low-populated areas;
- boost reform process of vocational education and training (VET) provision to strengthen its labour market relevance;
- connect university/higher education system to the European Quality Assurance System, as well as improve quality assurance in upper secondary education (in particular, VET);
- boost provision and participation in lifelong learning programmes.

In terms of funding, the government managed, in spite of financial and economic difficulties in recent years, to keep a stable and relatively high funding allocation to education: 8% of GDP on average, with a decline to 6.4% in 2017. However, these relatively high levels of education expenditure over the past five years are not yet visible in terms of the economic or social impact.

Due to the population decline, in 2013 the national authorities started to rationalise the school network with the aim of creating hub schools, like centres of excellence which cover ISCED 3 and 4. The reform process continues and is rather difficult, with quality of education a sensitive critical area especially in small schools in remote areas. Currently, the Moldova Education Reform Project (PRIM) is being implemented with the support of the World Bank and the government activity programme. It aims to enhance the quality of education and create a more efficient education sector. Through this project, the World Bank provides assistance to the Moldovan government in implementing reforms in the education sector, namely bringing class sizes (number of pupils in a class) to internationally accepted standards; adjusting the existing school network; national implementation of the funding formula per pupil; renovation of hub schools; and provision of training to teaching staff.

Internationally measured performances of pupils (using the Programme for International Student Assessment (PISA)) place Moldova behind the average Organisation for Economic Cooperation and Development (OECD) countries level related to the key skills of reading, mathematics and sciences. Figure 1.5 displays the latest international PISA results, where Moldova scores rather low compared to the OECD average and its regional peers.

**FIGURE 1.5 PISA RESULTS 2015**



Note: Y axis indicates the average scores

Source: Developed by the author based on information from OECD PISA round 2015

The PISA results reveal that key competences developed in primary and lower secondary schools are not as good as they should be. The most serious problem is that key competences form the foundation for the development of professional competences. The inability of the initial education system to develop strong key competences is often attributed to the negative image of the teaching profession, old ways of teaching methods, modest school supplies with insufficient demonstrative and teaching materials, low pace of digitalisation in education, and insufficient funding.

The VET system has been undergoing reforms since 2013 in accordance with the strategy for the development of the VET system for the years 2013–2020. The EU supported the Moldovan government's budget by allocating EUR 25 million to the implementation of the VET strategy in the period 2014 to 2017, including an additional measure (technical assistance) of EUR 3.5 million. The specific objective was to modernise and streamline the VET system with the final goal of increasing the competitiveness of the national economy by training a competent and skilled labour force in line with current and future market demands. Although important systemic changes have happened, there has so far been no real impact on the system.

As stated above, population decline has deeply diminished the number of pupils and students overall, including those enrolled in VET. For example, over the last two decades, the number of students enrolled in secondary and post-secondary vocational education has fallen by almost 53%. In the academic year 2017/18, 30 800 students were enrolled in secondary vocational education, representing a decrease of 6.3% compared to academic year 2016/17 and by 13.3% in comparison to academic year 2009/10. However, the percentage of students in post-secondary vocational education is increasing, reaching 46.6% in academic year 2017/18, 11 percentage points more than in 2010. The highest enrolment rates were in the following profiles: medicine (13.6% of the total enrolled), economics (13.1%), transport (9.4%), services (7.7%), informatics (5.7%), construction (5.0%) and mechanics (4.9%).

Overall, the VET sector is still rather centralised. For example, 94% of students in academic year 2015/16 were studying in state institutions. Recent initiatives have sought an increase in flexibility of the system through the recently created centres of excellence and sector committees, which are seen

as ways to engage the private sector/businesses in VET provision to ensure responsiveness to labour market demand.

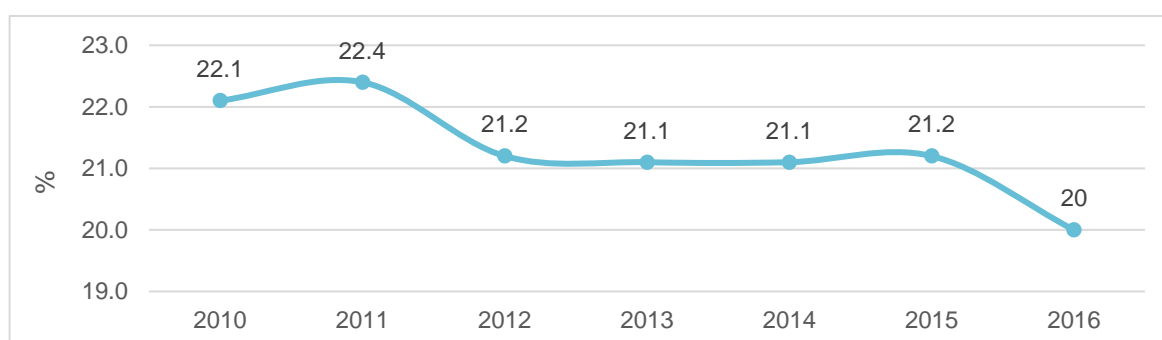
Moldova joined the Bologna Process in May 2005. Since then, the country has been in the process of reforming and modernising the higher education system to align it with European standards. The first changes led to the introduction of the European Credit Transfer System in all higher education institutions. HE adopted the classification with three education cycles, as per ISCED levels 6, 7 and 8. Since November 2014, the national education system has been run according to the Education Code. The priorities set by the code for higher education are university autonomy (financial, academic and organisational); doctoral schools quality assurance and institutional accreditation; and implementation of the joint degree system.

At the end of 2014, an Accreditation Agency was established and started the process of external evaluation of institutions. The methodology used by this entity is close to the European system, since the long-term goal is to become part of the European Accreditation System in Education. It is important to mention that young people with good academic results and mastery of a foreign language prefer to complete their higher education in the EU or United States. In the 2016/17 academic year, HE was organised into 30 education institutions, with 74 700 students, including 62 100 (i.e. over 80%) in public institutions and 12 600 in non-public institutions. The share of students receiving state funding was 41.7% in the 2016/17 academic year, compared to 34.8% in 2010/11. At the beginning of the 2016/17 academic year, there were 210 students and 62 graduates from higher education institutions per 10 000 inhabitants, compared with 303 students and 80 graduates in 2010/11.

As stated before, improving the quality, relevance and efficiency of the education system is a priority for the country in its aims for economic growth and development. A better-educated workforce may lead to higher employment, foster a thriving business environment, and attract investment, which, in turn, will raise living standards and the quality of life for citizens.

The education attainment of the population is rather low overall, though younger generations show slightly better results. For example, early school leaving is still at significant levels (around 20%), though it is on a slowly descending path (see Figure 1.6).

**FIGURE 1.6 EARLY LEAVERS FROM EDUCATION (18–24) (%)**



Source: Developed by author based on NBS data, LFS

Relevance of upper secondary (including VET) and university education is another area in which both government and social partners are active. The adoption of the NQF at the end of 2017 and the commitment to developing professional qualifications and to ensure transparency of qualification and education service providers through the national qualification register are important steps in ensuring a

stronger link between education supply and occupation demand. This activity aims to have a unique view of the professional competences and learning outcomes.

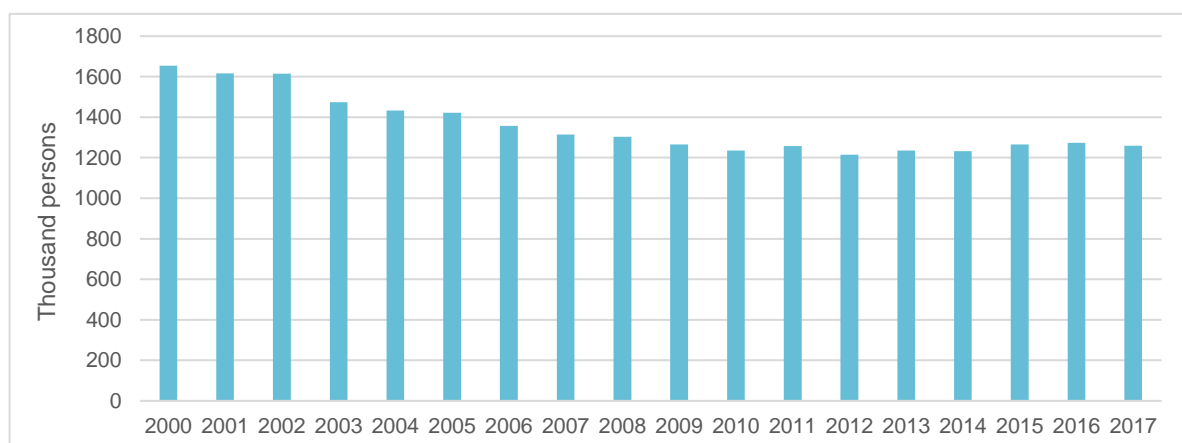
Lifelong learning or continuing training is another important challenge. The figures above show a relatively high incidence of lower levels of education in the general population, and the transition and economic transformation will require continuous adaptation of skill sets to meet new demands. The lifelong learning system is not yet functioning systemically. The Ministry of Education, Culture and Research is currently developing a Lifelong Learning Strategy for professionals from different spheres of economic activity. Lately, with the support of the World Bank, a mapping of existing service providers was carried out. It is envisaged that the lifelong learning system will support the process of requalification and upgrading professional knowledge in the digital economy.

The National Employment Agency provides a number of (re)training courses to jobseekers, while civil society organisations are also engaged in skills development for particular target groups, for example young people, people with disabilities, and other vulnerable groups. The lifelong learning system is still in its early stage of development, particularly regarding actual participation in lifelong learning, and this may affect the capacity to rapidly adjust the workforce to changing skills demand, including addressing skills mismatches.

## 1.4 Labour Market Situation

The latest statistics show that in 2017, the economically active population (employed and unemployed) of Moldova was 1 259 100 persons, with no significant changes compared to 2016 (-1.1%), as shown in Figure 1.7. There were no significant gender disparities of the economically active population: the share of men (50.8%) was slightly higher compared to that of women (49.2%), and the share of economically active persons in rural areas was higher than in urban areas: 53.7% and 46.3% respectively.

**FIGURE 1.7 ACTIVE POPULATION, YEARLY AVERAGE, 2000–17 (THOUSANDS)**



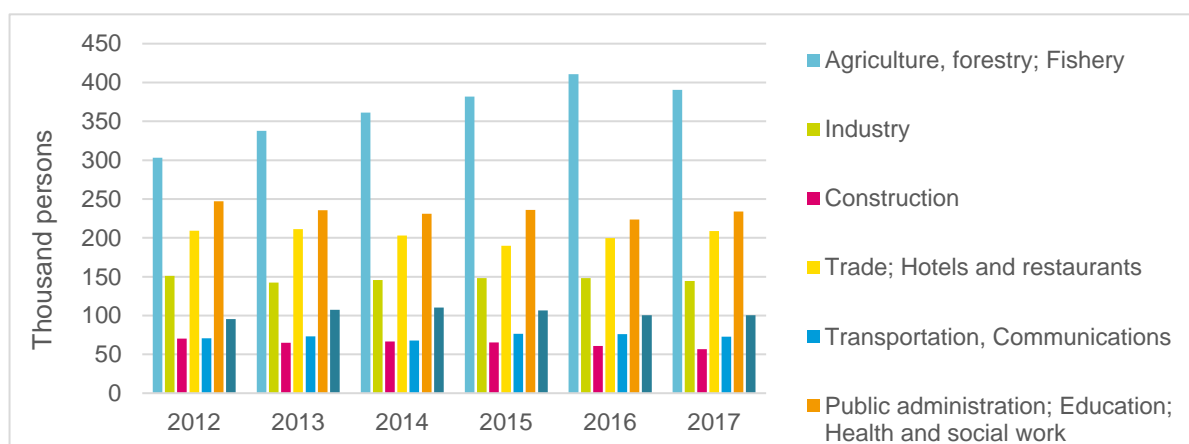
Source: Based on NBS data

Overall, the country has low activity and employment rates, of around 42% and 40% respectively. The low incidence of general unemployment (4.1% in 2017) is attributable to both very low activity rates and significant emigration. It is worth noting that the specific definition of inactivity in the national LFS may distort the overall picture. More specifically, if a household member is absent at the time of the survey because s/he is abroad, the person is recorded as 'inactive'. Therefore, 'Moldovan emigrants

currently working abroad' are considered 'residents' in the LFS and counted both in the inactive and reference population aged 15+. This is a result of official counting of emigrants living abroad (even for more than a year) as permanent residents in Moldova. This group makes up almost one fifth of the working-age population aged 15+. When the LFS results are recalculated excluding this category from the sample, for 2016, the activity rate of those aged 15+ increases from 42.6% to 47.7%, and the employment rate from 40.8% to 45.7% (ETF, 2019).

The largest share of employment is in agriculture, accounting for more than one third of the employed population. At the same time, agriculture is one of the sectors of the economy with the lowest added value and rather high informality, which makes the sector rather unattractive for the younger generations.

**FIGURE 1.8 EMPLOYED POPULATION BY ECONOMIC ACTIVITY, 2012–17 (THOUSANDS)**



Source: Based on NBS data, LFS

From a combined GDP/employment perspective, Moldova is emerging as a service-oriented economy with half of the labour force employed in services, generating 71.4% of GDP, followed by industry, which employs around 17% and contributes 14% to GDP, while one third are employed in agriculture but contributes only 14% to GDP. Such a gap between employment and GDP contribution suggests that it is mainly subsistence agriculture.

According to national data (NBS, 2017), 14.9% of employed people worked in the informal sector in 2017<sup>3</sup>, many of them (43%) being involved in own consumption agriculture activities. The gender disparities in the labour market are not pronounced, e.g. gaps of around 6 percentage points between men and women activity rate, while the gap in employment rate amounted to 5 percentage points in 2017. However, there are huge differences in employment by educational attainment, with a 28.2 percentage point gap between the high- and low-skilled (56% and 27.8% respectively).

In summary, the labour market context is characterised by insufficient and/or poor-quality jobs, low productivity (the lowest in the region), informality and inequality (e.g. low vs higher educated; urban vs rural; young vs adult). Some key labour market statistics are summarised in Table 1.2.

<sup>3</sup> [www.statistica.md/newsview.php?l=ro&idc=168&id=5957](http://www.statistica.md/newsview.php?l=ro&idc=168&id=5957)



**TABLE 1.2 ECONOMIC INDICATORS OF THE LABOUR MARKET, 2017**

Age group	Status	Total			Men			Women		
		Whole country	Urban	Rural	Whole country	Urban	Rural	Whole country	Urban	Rural
Total (15+)	Active	1 259.1	583.5	675.6	640.1	289	351.1	619	294.5	324.5
	Employed	1 207.5	550.1	657.4	609.2	269.5	339.7	598.3	280.5	317.8
	Unemployed	51.6	33.4	18.2	30.9	19.5	11.4	20.7	13.9	6.8
15–24	Active	90.5	39.7	50.8	51.5	20.5	31	39	19.2	19.8
	Employed	79.8	34	45.8	45.8	17.5	28.4	34	16.5	17.5
	Unemployed	10.7	5.7	5	5.6	3	2.7	5.1	2.7	2.4
25–34	Active	318.4	182.6	135.7	172.1	99.6	72.5	146.2	83.1	63.2
	Employed	302.1	171.5	130.6	161.4	92.5	68.9	140.8	79.1	61.7
	Unemployed	16.2	11.1	5.1	10.8	7.1	3.6	5.5	4	1.5
35–44	Active	314.2	150.1	164.1	153.7	76.7	77	160.6	73.4	87.1
	Employed	301.9	142	159.9	146.5	72.2	74.3	155.4	69.8	85.6
	Unemployed	12.4	8.1	4.2	7.2	4.5	2.7	5.2	3.7	1.5
45–54	Active	275.6	111.2	164.4	123.6	42.6	81	152	68.6	83.3
	Employed	267.9	105.8	162.1	120	40.3	79.7	147.9	65.5	82.3
	Unemployed	7.7	5.4	2.3	3.6	2.3	1.3	4.1	3.1	1
55–64	Active	214.2	85.5	128.8	116.7	43.8	73	97.5	41.7	55.8
	Employed	209.7	82.4	127.3	113.1	41.2	71.9	96.6	41.2	55.4
	Unemployed	4.5	3	1.5	3.6	2.5	1.1	0.9	0.5	0.4
65+	Active	46.2	14.4	31.8	22.5	6	16.5	23.7	8.4	15.2
	Employed	46.1	14.3	31.8	22.4	5.9	16.5	23.7	8.4	15.2
	Unemployed	0.1	0.1	–	0.1	0.1	–	–	–	–

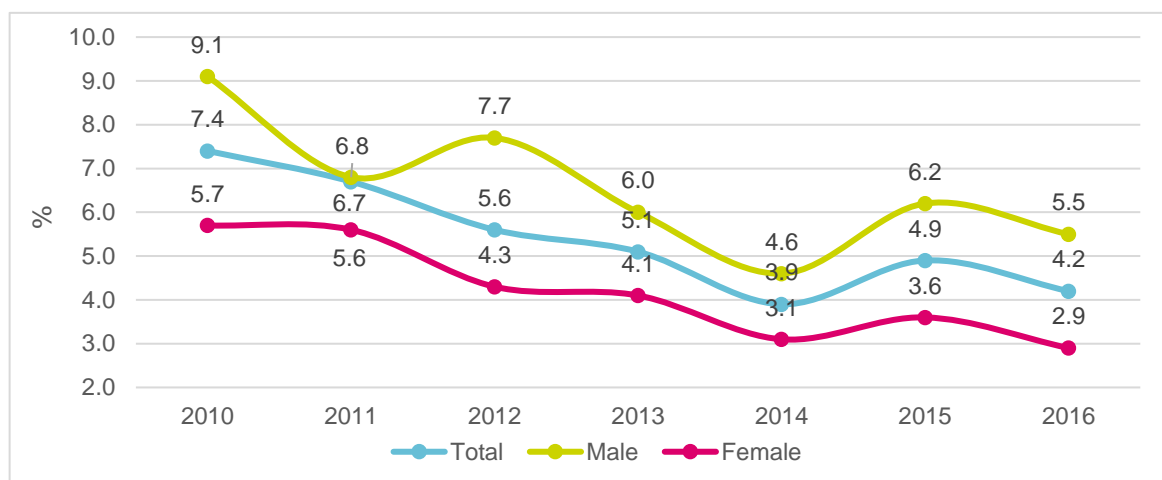
Source: Based on NBS data

The current unemployment rate is low according to LFS figures, mainly due to subsistence agriculture, and propensity for migration, including its impact on inactivity among family members left behind. The youth unemployment rate is relatively high (11.8% in 2017), but it is declining. Though at first glance it may seem to be a positive trend, explanatory factors for the declining numbers are actually shrinking youth population, limited readiness to become active and look for job, preference for a job abroad or reliance on foreign remittances.

Vacancies and matching data as collected by the National Employment Agency show significant imbalances between supply and demand in the labour market. The National Employment Agency has registered a growing number of vacancies that cannot be filled by the available unemployed<sup>4</sup>, suggesting a high incidence of skills mismatch.

<sup>4</sup> There were 45 400 vacancies and 42 100 jobseekers in 2017 according to the Public Employment Service (ANOFM) data.

**FIGURE 1.9 UNEMPLOYMENT RATE, 2010–16 (%)**



Source: Based on NBS data, LFS

Migration propensity is high. Although official figures show that around 300 000 persons have migrated abroad, the unofficial figures estimate a higher number, up to 1 million. The profile of migration has been changing lately, and nowadays young people with good academic results are looking to continue their education abroad, young professionals with good qualifications and some experience search for better-paid jobs, and middle-career professionals in information and communications technology (ICT), medicine, engineering, and economics with quite good experience are also prone to leave. Thus, the country is facing an outflow of highly qualified and relatively young people.

Migration has become a serious phenomenon. At the end of the 1980s, Moldova was expected to have a population of about 4.5 million people in 2016, according to the National Bureau of Statistics, but now there are just over 3.2 million people living in the country. However, according to the Centre for Demographic Research in Chisinau, it is difficult to say exactly what the real population is.

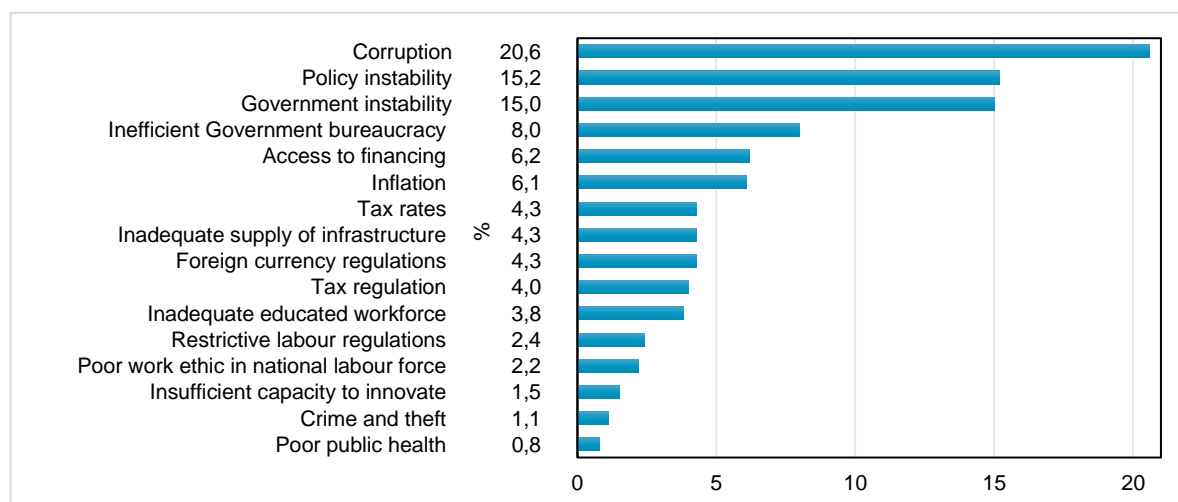
Labour market rigidity and the development of the labour market depends on economic activity in the country. As a result, the government implemented Law No 206/2006 to support SMEs<sup>5</sup>, and in 2013 parliament adopted a different law<sup>6</sup> to enable a one-stop shop for opening businesses to facilitate entrepreneurship and in turn to aid economic development. Supporting SMEs was declared a priority objective by the Ministry of Economy. So far, these activities have not translated into significant increases in entrepreneurial activity. It is important to mention that the most commonly reported difficulties in doing business are corruption and government and policy instability, rather than a lack of financial resources or the tax burden.

Poor economic development and the share of employed people reaching critical levels (40% of the active population, compared to 65% for the EU average) show the need for direct investment in the economy and this is a key objective of the government. At present, the ICT industry and the automotive industry show strong growth in terms of investment expansion. These sectors, it is hoped, should become key sectors for attracting investment. Some steps in this direction have been taken by the government, with working group discussions for the development of the next national development strategy.

<sup>5</sup> [http://lex.justice.md/document\\_rom.php?id=A1FF626A:DAEE01B1](http://lex.justice.md/document_rom.php?id=A1FF626A:DAEE01B1)

<sup>6</sup> <http://lex.justice.md/md/349827/>

**FIGURE 1.10 MOST PROBLEMATIC FACTORS FOR DOING BUSINESS IN MOLDOVA, 2016**



Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5 (least problematic). The score corresponds to the responses weighted according to their rankings.

Source: Developed by authors based on World Economic Forum, Executive Opinion Survey 2016

## 1.5 Labour relations

Labour relations are regulated by the Labour Code, collective labour conventions (at national, territorial, branch and company level) and other special laws (e.g. law on wages). Labour legislation provides employees with minimum guarantees. The main organic law that regulates labour activity is the Labour Code, approved in 2003 with subsequent modifications. The Labour Code regulates all individual and collective relationships, and controls the application of regulations in the field of labour relations, labour jurisdiction, and other related elements<sup>7</sup>. It is important to mention that the Labour Code defends the rights of employees quite well and is considered to be well-adjusted to international best practices. Some employers consider the Labour Code to be too protective of employees, making it too difficult to dismiss underperforming employees.

Legal provision on wages is based on the Constitution of the Republic of Moldova and the Labour Code. According to the Government's Decision No 54/2018 on approving the average monthly salary in the economy projected for the year 2018, the average monthly salary, projected for 2018, is MDL 6 150 or around EUR 300<sup>8</sup>. The minimum wage per month projected for 2018 is MDL 2 380 or EUR 117<sup>9</sup>. This is calculated based on subsistence level by categories of population counted annually by the National Bureau of Statistics. In 2017, the subsistence level was MDL 1 862 or EUR 91.50.

Wage-setting mechanism – Public sector salaries are regulated by the state. The lack of an equilibrium (price) mechanism in the labour market is largely due to employers who are not able to offer a higher salary to employees, even to those with high levels of qualifications. This is due to low productivity within a large part of the economy, and low usage of modern technologies and ICT in general. Salaries in the private sector are determined by companies in relation to the average salary

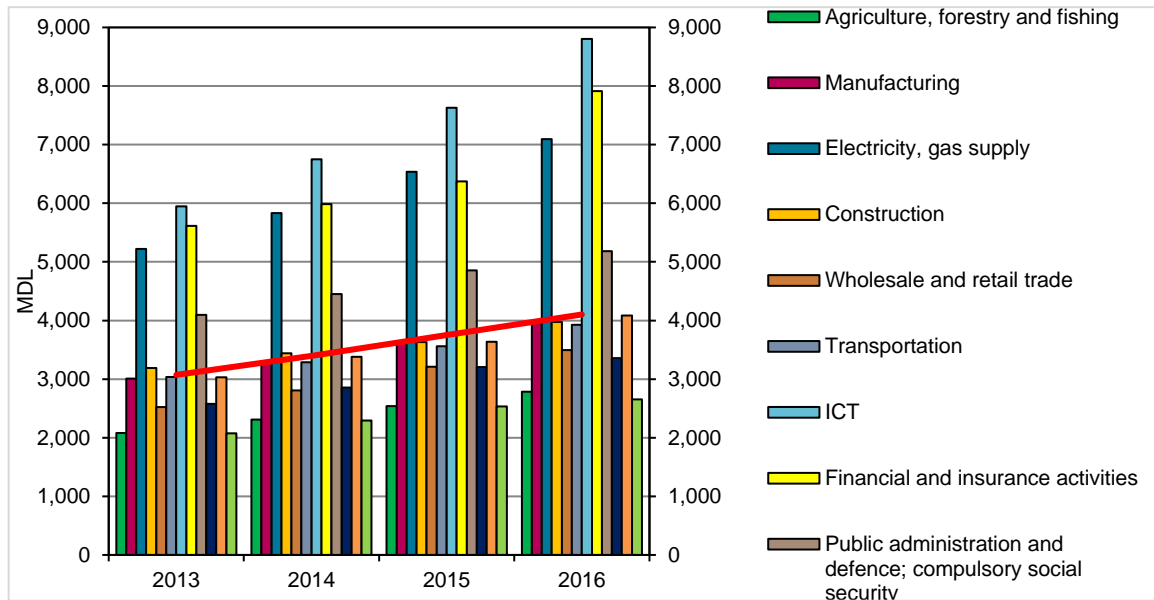
<sup>7</sup> <http://lex.justice.md/md/326757/>

<sup>8</sup> <http://lex.justice.md/viewdoc.php?action=view&view=doc&id=373890&lang=1>

<sup>9</sup> <http://lex.justice.md/md/333943/>

per economy, as stipulated by law. In many cases, this is not a motivating salary for young professionals who are ready to work hard, but find there is limited salary progression.

**FIGURE 1.11 MONTHLY NET AVERAGE EARNINGS BY ECONOMIC ACTIVITIES, 2013–16 (MDL)**



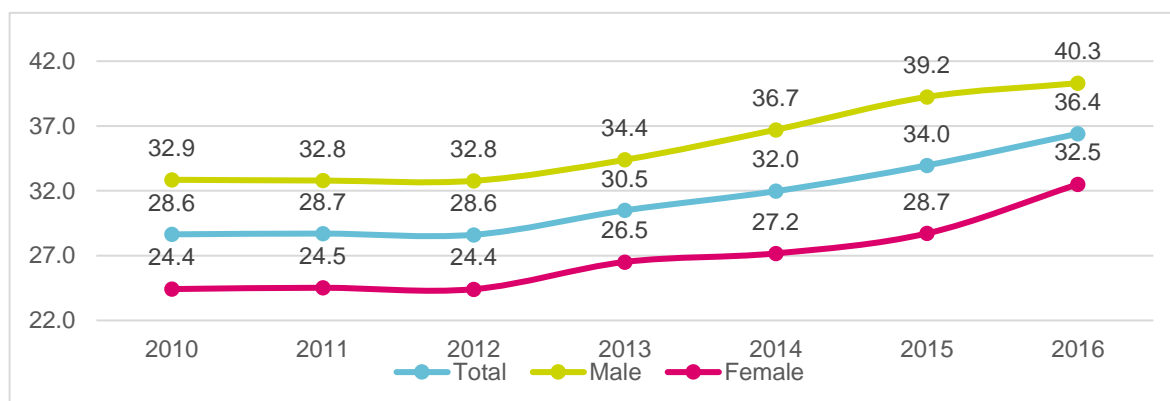
Source: Based on NBS data

In Moldova, good jobs are those that offer a higher salary than the average. Very often, the payment of wage related taxes and social contributions is not very tempting for the majority of the population, since the average salary is rather low compared to minimum consumption. People are inclined to work without social and medical insurance to get a higher salary. This is a reason for side payments (e.g. 'envelope salaries'). The substantial discrepancies between different figures for the shadow economy reported by different analysts are explained by the different approaches in defining the shadow economy and using different evaluation methods.

As the state pension is rather low and is insufficient to sustain a normal living standard, members of the younger generation are not necessarily concerned about making contributions to this as part of the employment benefit packet.

Moldova has a National Development Strategy 'Moldova 2020' that identifies seven priorities for improving the country's economy. The first priority in this strategy is devoted to 'Relevant Studies for Careers' (i.e. relevant education for labour market needs). The main directions within this priority are the optimisation of the network of VET and higher education public institutions, improvement of management, and development of quality of teaching processes via different mechanisms. The last element focused on the development of the NQF, establishment of a national system for quality assurance in education, and implementation of quality management systems within VET and higher education institutions. In 2018, important steps have already been taken at the level of systemic changes and establishment of institutional mechanisms. However, the quality of professional training is still the same. Consequently, more active measures should be implemented in order to redress the situation and to provide the labour market with a quality workforce.

**FIGURE 1.12 INCIDENCE OF VULNERABLE EMPLOYMENT, 2010–16 (%)**



Note: Vulnerable employment is understood here as own-account workers or contributing family workers, in most cases reflecting employment in subsistence agriculture activities. Therefore, the incidence of vulnerable employment consists of own-account and contributing family workers as a proportion of the total employed.  
Source: ETF calculations based on NBS data, LFS

Other pillars of the Moldova 2020 strategy are as follows: better road infrastructure, access to finances, business with clear rules, energy security and efficiency, fair and sustainable pension system, and justice. For all the pillars, the country has implemented some reforms and changes; however, a lot of work needs to be done to achieve a better situation. For all the pillars, a qualified workforce is needed. Currently the government is working on a new strategy: Moldova 2030.

Other important strategic documents include the following:

- The National Regional Development Strategy for 2016 to 2020 – The overall goal of the strategy is balanced and sustainable development provided in all the development regions of the country. There are three specific objectives: (1) to ensure access to quality public services and utilities; (2) to ensure sustainable economic growth in the regions; and (3) to improve governance in regional development. No reports on results of implementation of this strategy are available.
- The National Strategy for Agricultural and Rural Development for 2014 to 2020 – The goal of the strategy is to increase competitiveness of the agri-food sector through extensive restructuring and modernisation and to improve the quality of life and work in rural areas by achieving synergies between agri-food and the natural environment. Workforce numbers in this sector are still high, exports are decreasing, and modernisation is very slow.
- The National Strategy for Development of the Information Society ‘Moldova Digital 2020’ – This strategy was launched with the objective of developing an information society. In 2018, it is acknowledged that the ICT sector has developed at a rapid pace, but digitalisation of the economy and society has not yet occurred.

The capacity of non-ICT sectors to absorb ICT is low. According to the international Networked Readiness Index, Moldova has a low business usage of ICT<sup>10</sup>, getting 3.2 points out of 7. No special measures have so far been taken in relation to this, although the ICT sector itself is dynamically

<sup>10</sup> For more details, see: [http://reports.weforum.org/global-information-technology-report-2016/economies/?doing\\_wp\\_cron=1524495514.1967110633850097656250#indexId=NRI&economy=MDA](http://reports.weforum.org/global-information-technology-report-2016/economies/?doing_wp_cron=1524495514.1967110633850097656250#indexId=NRI&economy=MDA)

developing. Technological transfer and innovation capacity is also low. Some explanations could be related to the reorganisation of research activity.

Finally, the responsibility for research activity has been transferred from the Academy of Sciences to the universities. The large number of research institutes that once were part of the Academy of Sciences will survive only if the staff are able to develop projects and apply for grants. This is a new competence that these institutes should develop in time. Universities are also in a difficult situation since they are not provided with sufficient financial resources to carry out important research for the national economy. The reform has just begun and important steps are necessary to do research that serves the national economy.

## 2. KEY DEVELOPMENTS

### 2.1 Labour demand

Evaluation of the monitoring indicators from the National Development Strategy Moldova 2020, performed during 2017, indicates that more than half of the estimated interim targets have not been achieved (53% of the total, or 29 out of 55 estimated targets). It can be expected that by 2020, the situation will not change significantly: achievement of the final targets is forecast at about 48% of the remaining targets (IACEG/SCM/UN, 2017).

According to the recent economic developments in 2016–17, GDP growth resumed and reached 4.5% thanks to strong agricultural output and robust private consumption growth that was driven largely by remittances and public and private wage increases.

Despite robust exports supported by good harvests the past two years, imports increased rapidly, resulting in a negative contribution of net exports to growth (-2.7%). On the production side, growth has been driven mainly by retail and wholesale trade (+1.3%), followed by growth in agriculture (+1%) and industry (+0.4%). The inflation rate has been out of the target rate since April 2017 due, among other factors, to stronger internal demand and increases in regulated prices in early 2017<sup>11</sup>.

As presented in the previous chapter, Moldova identified a number of priority sectors, including ICT, the textile industry, wine production and commercialisation, and tourism. Currently these industries are not the ones generating most of the growth in GDP. The following actions are being done in the hope of developing these industries and creating larger workforce demand: investment in development of professional associations, organisation of products and services exhibitions abroad, supporting companies in establishing relationships with partners and customers for development of external market contacts, and providing companies with consultations provided by high-level specialists from other developed countries.

The traditional agricultural sector will remain one of the most important sectors in the country. Development partners are supporting Moldova in increasing the efficiency of the value chain in horticulture, vegetable growth, and apiculture. Modernisation of production and distribution channels remains a priority for increased value added of agriculture, and skills play a crucial role in achieving this objective.

### 2.2 Labour supply

As discussed above, population decline and the impact of migration are key factors shaping the labour supply. Coverage, quality and relevance of education are prioritised in policy making with particular focus on VET and higher education. Recent policy development and achievements are summarised below.

- The VET system has been reformed and there is increasing cooperation between VET providers (professional schools, centres of excellence, training centres) and public/private sector companies.

---

<sup>11</sup> For more details, see: <http://pubdocs.worldbank.org/en/195121524127055800/Moldova-Snapshot-Spring2018.pdf>

- An accreditation system for education institutions and programmes was established at the end of 2014.
- An NQF was established, including the creation of the National Qualifications Framework Department, development of a new methodology for the elaboration of qualifications, plans for development of the national qualification register, delivery of training for working groups, and collecting contact details about specialists who could be part of a pool of experts.
- The Law on Sector Committees for Professional Education was adopted<sup>12</sup>. Sector committees will be in charge of developing occupational standards, and validation of qualifications and curricula with industry representatives.
- The National Employment Strategy 2017–2021 was approved in 2016 and the Law 105/2018 on employment promotion and unemployment insurance system was adopted.
- The Labour Market Observatory was established as part of the National Employment Agency, with participation of all key institutions, social partners and organisations in the fields of labour, education and the economy<sup>13</sup>, with the main responsibility of identifying labour market needs in the hope of avoiding skills mismatches. The current priorities are the development of methodologies and capacity building (e.g. training for staff and other actors participating in the labour market and skills monitoring).

Inactivity and issues of under-employment, including engagement in subsistence and/or informal economic activities, lead to skills depletion in the country. The country needs to address this challenge through more lifelong learning opportunities and more flexible skills development pathways (e.g. through recognition and validation of informal and non-formal learning, in particular for unemployed people and returning migrants).

In the employer survey conducted by the National Employment Agency in cooperation with the World Bank<sup>14</sup>, Moldovan employers report that employees' inadequate technical skills, poor work ethic, and lack of motivation have a negative impact on the performance of their firms. Inadequate knowledge of foreign languages (English, Russian) appears to be the most pressing problem for highly skilled occupations, while insufficient analytical and problem-solving skills as well as low willingness to learn new things are most cited skills gaps for middle-skilled workers. Some regions are strongly affected by insufficient literacy (46% in Gagauzia) and insufficient numeracy (56% in South). More than a quarter of firms experienced a labour shortage, with the most common reasons being a lack of qualified staff, followed by the lack of applicants. Employers felt strongly that labour market entrants, whether coming from vocational or general secondary school or even higher education, do not possess the skills required to be effective workers.

## 2.3 School-to-work transition

Since 2010, Moldova has registered a persistently high share of NEETs of around 20% among 15- to 24-year-olds. The incidence of NEETs increases with age and is more prominent among women, rural residents and those with lower levels of education. Beyond reasons related to poor employability of

---

<sup>12</sup> <http://lex.justice.md/viewdoc.php?action=view&view=doc&id=373349&lang=1>

<sup>13</sup> <https://msmps.gov.md/ro/content/republica-moldova-va-fi-creat-un-observator-al-pietii-muncii>

<sup>14</sup> This is a regular annual employer survey called Moldovan Labour Market Forecast Survey. The World Bank provided technical expertise and developed a module on skills/competences needed by employers in the questionnaire; 3 245 Moldovan firms replied to the survey in the autumn of 2016. The World Bank, together with the National Employment Agency, analysed the survey data and shared the preliminary results with the ETF.



graduates and low availability of (quality) jobs, family care, prospects of emigration, disability/illness score highly as reasons for being NEET.

The ETF 2018 report on mapping youth transitions to work in Moldova identifies four sub-categories of NEETs based on the analyses of different variables, namely unskilled NEETs, low-/medium-qualified NEETs, highly qualified NEETs and volunteer/opportunist NEETs. The first and second categories are the most sizeable and policymakers should devote special attention to addressing their needs, particularly raising the level of education and qualifications and better matching of their skills.

According to the ILO School-to-Work Transition Survey results in Moldova, it takes a young person an average of 8.6 months from the time of graduation to attain a first job that was deemed to be stable/satisfactory. The transition length to a first stable or satisfactory job increases as education level decreases: for a university graduate it is four times shorter than for someone graduating from secondary education (2.8 and 11.8 months respectively). The transition to first stable or satisfactory job takes two years for people with a low quality of education (ISCED 1–2) (ILO, 2016).

According to the same survey, young people predominantly search for jobs by contacting employers directly and using social networks and personal contacts. According to the ILO School-to-Work Transition Survey data (ILO, 2016), almost 36% of employed young people obtained their job by contacting employers directly, while another 31% used networks of friends and relatives. More than 13% of young people started work by joining the family business, almost 7% took tests for recruitment, and 5% directly responded to job vacancies. Only 1.2% of young people found their first job through the public employment service (ETF, 2018).

When asked about the main problems faced by young people when searching for a job, many referred to three factors: low salaries offered (almost 38%), lack of work experience (almost 29%), and lack of jobs (almost 13%).

## 2.4 Continuing training and active labour market programmes

Matching education supply and occupation demand is a key preoccupation of national authorities, social partners and other relevant stakeholders. As described above, certain initiatives and reforms aim to make initial education at all levels more fit to providing the right foundational and technical skills that will foster employability of future graduates.

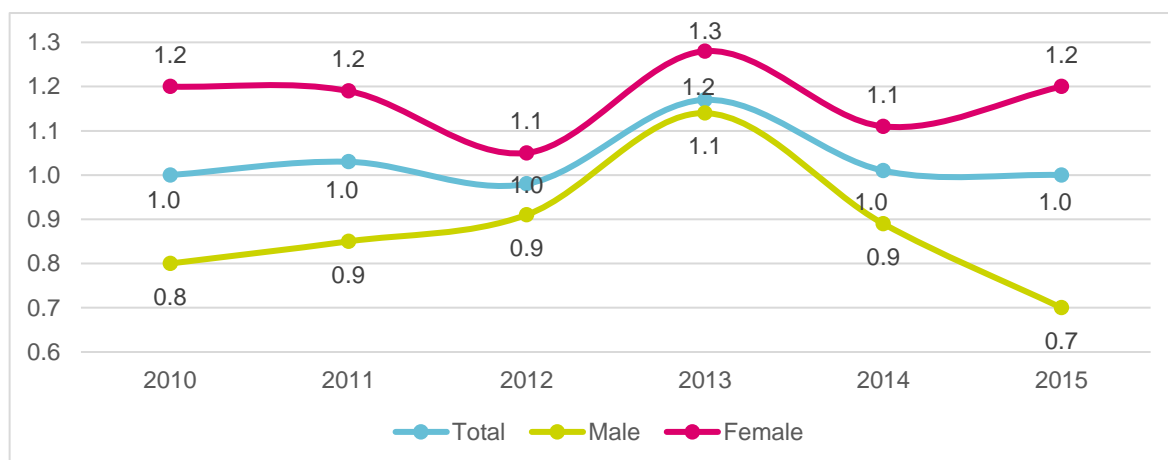
Another rapid route to address emerging gaps between skills supply and demand is lifelong learning. As in many other transition and developing countries, the sector of continuing education and training in Moldova is under development, providing very few learning opportunities for adults; there is also the issue of employers' capacity/willingness to provide continuing training opportunities for their workers. Inactive and vulnerable groups have the lowest chances of participating in lifelong learning, and the rural–urban divide remains an issue as well.

The latest data shows a very low participation level in education and training among those aged 25 to 64 which over the last few years was around the 1% mark (very low figures may lead one to question the reliability of results but they are still an indication of the underdeveloped lifelong learning in the country).

As already stated, the Ministry of Education, Culture and Research has tried to address this shortcoming by developing a national lifelong learning strategy. At the request of the Ministry of Education, Culture and Research, with the support of the World Bank, the mapping of training providers was performed. The results of this activity will be used for designing further support in the area

of lifelong learning. Measures will be developed to ensure that the content and quality of the training courses is in line with the labour market needs.

**FIGURE 2.1 PARTICIPATION IN TRAINING/LIFELONG LEARNING (% AGED 25–64)**



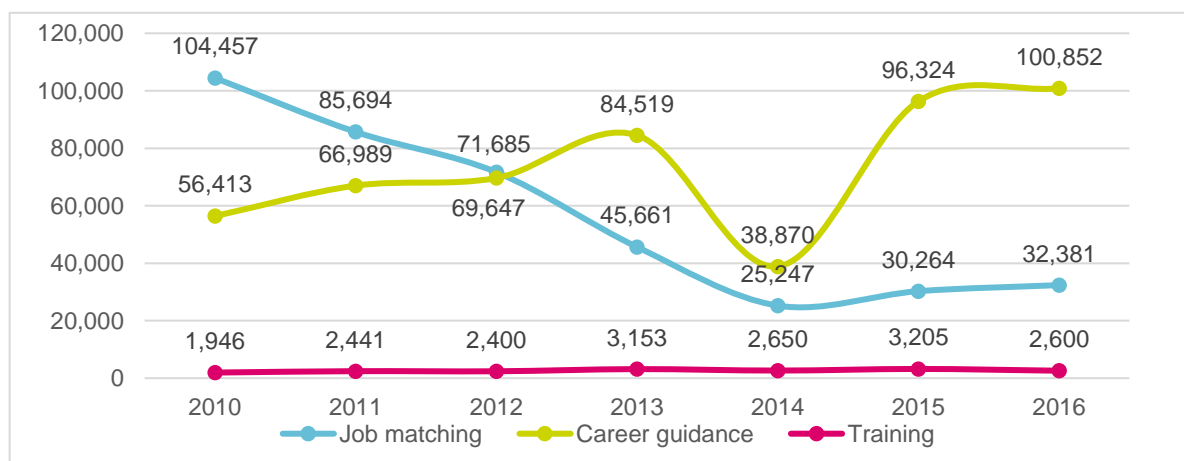
Source: Developed by author based on NBS data, LFS

It is worth noting that continuous training is provided to public sector employees, such as public servants, doctors and teachers. Some professions, by law, require regular training, like electricians and tourist industry personnel, and these categories of employees have access to specific continuous training. However, many other categories of workers do not have access to continuous professional training. As in many other countries, large companies can afford to pay their staff to get training or can organise in-house training, but this is less likely for SMEs.

Another important type of intervention to address mismatches is active labour market measures, namely various services and programmes aimed at increasing the employability, skills and readiness of jobseekers to get employed. The National Employment Agency (ANOFM) is the key institution providing such services and support to jobseekers.

Figure 2.2 features key information about the number of participants in the active labour market measures of job matching, career guidance and training from 2010 to 2016. There are low participant numbers for training measures, mainly due to budget limitations.

**FIGURE 2.2 PARTICIPANTS IN ACTIVE LABOUR MARKET PROGRAMMES**



Source: Developed by author based on ANOFM data

## 3. METHODOLOGICAL ASPECTS AND DATA SITUATION

### 3.1 Methodological considerations of skills mismatch calculation

As mentioned in the Introduction, skills mismatch is mostly measured by proxy in this ETF project, with data on education and occupation used as proxies of ‘skills’ (worker education and job-required skills). Given the multiple countries involved, the ETF and the international and national researchers and experts decided to use labour market data that is likely to be available in most countries as the basis for mismatch indicators.

Table 3.1 offers an overview of key indicators used in signalling mismatches which are mostly based on labour force survey data, a survey widely available in all ETF partner countries. Most LFSs follow the general model of taking a representative sample of the population and providing sufficient demographic, employment and education background to provide useful labour market information related to the dimensions of skill through education by level and type, employment by sector or occupation, age and gender. We use these breakdowns for the calculations of the main indicators.

Additional data is usually more scattered around various sources, such as school-to-work transition surveys, tracer studies, employers’ surveys, self-assessment of skills level and skills needs analyses.

**TABLE 3.1 OVERVIEW OF INDICATORS**

Indicator	Measurement	Data availability
<b>1. Employment by educational attainment (level, orientation and field), occupation and sector</b>	Rates Shares Tabulations – by statistical services	LFS – good
<b>2. Unemployment by educational attainment (level, orientation and field), occupation and sector</b>	Rates Shares Tabulations – by statistical services	LFS – good
<b>3. Coefficient of variation in employment rates/unemployment across skill levels (high, medium, low)</b>	The technique compares the distribution of skills within different groups, and the difference of these skills distributions between the different groups is expressed in just one number, which measures the overall extent of mismatch. Simple to calculate	LFS – good See ETF, 2012
<b>4. Shortage or oversupply in the labour market by level of education</b>	Proportion of unemployed vs employed Easy to calculate	LFS – good See ETF, 2012
<b>5. Mismatch by occupation – vertical by sector, occupation, age</b>	Comparison of the ratio of people with a given education level (ISCED) working at an appropriate skill level (measured by ISCO) to all workers within that ISCED level. The same can be done for different education and ISCO levels, and if required data is available, it is also possible to compare the mismatch by occupation for different age groups	Good availability, with some problems for distribution by education (ISCED: low, medium, high levels) See ETF, 2012

Indicator	Measurement	Data availability
<b>6. Mismatch unemployment rate vs vacancy rate</b>	Beveridge curve: depiction of the relationship between the unemployment rate and the vacancy rate for several distinct points in time. Depicts all the vacancy and unemployment rate combinations resulting from the available data over a period. The behaviour of the curve has two movements: along the curve (expansionary or recessionary movements) and shifts of the curve. Shows the dynamics of the matching process. Interpretation not always easy and straightforward; requires combination with other measurements	Data on unemployment is available (LFS), but more difficult: required data on vacancies. Given the high share of informal economy, informality of many recruitment practices, vacancy data may be insufficient. See ETF, 2012
<b>7. Demand by occupation, skills sets, qualification level</b>	Number/proportion of vacancies by specified criteria	Vacancies – public employment services and private web portals (data mining), employer surveys, issues with differences in classifications
<b>8. Vacancies that are difficult to fill</b>	Proportion of open/filled vacancies by specified criteria/time	Vacancies – public employment services and private portals (data mining), employer surveys, issues with differences in classifications
<b>9. Skills mismatch, skills gaps: assessed, self-reported – quantitative and qualitative aspects</b>		International sources (not always available in the ETF's partner countries): Programme for the International Assessment of Adult Competencies and Programme for International Student Assessment (OECD), STEP Skills Measurement Programme (World Bank) Enabling Environment for Sustainable Enterprises (ILO survey), ILO school-to-work transition surveys In certain countries, several survey-based data sources are available such as employers' or workers' surveys, tracer studies, other quantitative and qualitative analyses

Table 4.1 in Chapter 4 shows available and calculated mismatch indicators for Moldova.

The data for the calculation of the mismatch indicators was collected by national experts. In order to formalise and streamline the process, a data collection template was generated following a three-step procedure:

In the first step, the national experts provided data on the national availability of required basic and in-depth variables using a questionnaire. This included the possibility of data access through microdata, or through aggregate data tables. It also contained information on national classifications of educational attainment levels, occupations, data quality, and other variables of interest for the mismatch.

In the second step, a data collection template was adapted to the national circumstances by international experts. This template was sent to the national experts to transfer the data. In the cases

where microdata was available and it was permissible to transfer the data, this was done using the template.

The final step was the calculation of the indicators based on the microdata or the aggregated tables provided by the national experts.

The national expert closely cooperated with the National Bureau of Statistics to retrieve data sets relevant for skills mismatch calculation. Information was also exchanged with other relevant institutions, such as the Ministry of Education, Culture and Research, Ministry of Health, Labour and Social Protection, and the National Employment Agency. Preliminary findings of this report were discussed during an ETF-organised workshop aimed at capacity building of the Employment and Skills Observatory (Chisinau, June 2018).

## 3.2 Data sources and availability

A number of institutions and organisations are involved in producing information related to labour market skills needs, demand, supply and other relevant types of data to assess the degree and typology of mismatches, such as the National Bureau of Statistics, the Ministry of Education, Culture and Research, the Ministry of Health, Labour and Social Protection, the National Employment Agency, and research institutes.

A significant amount of data is gathered, but various institutional users/stakeholders lack further analysis, management and access to information. Following a 2015 ETF feasibility study, the Ministry of Labour and the National Employment Agency proceeded to establish a Labour Market Observatory as part of the employment agency (key functions include data collection, monitoring and analysis, and cooperation with key stakeholders in the field).

When it comes to fundamental statistical classifications and products, Moldova enjoys a relatively good position. The Classification of Activities in the Moldovan Economy (CAEM Rev. 2) is fully harmonised with the Nomenclature of Economic Activities of the European Community (NACE) and ensures full correspondence. The statistical data obtained under CAEM-2 is comparable at European level and at global level. The use of CAEM-2 in the national statistical system is mandatory. It was approved by the Decision of the College of the National Bureau of Statistics No 20 on 29 December 2009 and implemented from 1 January 2014<sup>15</sup>.

The Classification of Occupations for Moldova is harmonised with the International Standard Classification of Occupations 08 (ISCO-08), ensuring the transparency of economic and social information in resources and use of labour<sup>16</sup>.

The classification of educational levels is based on the Law on Education in the Republic of Moldova (1995) and lately in the Education Code (2014) and in general follows ISCED-97. The National Bureau of Statistics is slowly moving to classification according to ISCED 2011. At this moment, ISCED 2011 has been implemented for administrative data but not yet for the LFS. As mentioned before, the LFS includes a particular classification of 'people living abroad' as inactive that may distort the overall picture of the workforce.

---

<sup>15</sup> [www.europeandataportal.eu/data/it/dataset/5188-clasificatorul-activitatilor-din-economia-moldovei-caem/resource/3c1f0645-666d-4202-99b6-8bf66c1a17c8](http://www.europeandataportal.eu/data/it/dataset/5188-clasificatorul-activitatilor-din-economia-moldovei-caem/resource/3c1f0645-666d-4202-99b6-8bf66c1a17c8)

<sup>16</sup> <http://lex.justice.md/viewdoc.php?action=view&view=doc&id=353018&lang=1>

Starting in 2014, the national statistical system decided to implement the EU classification of statistical data and definitions proposed by Eurostat. Harmonisation with Eurostat/international standards is a complex process needing multilevel adjustments, such as considering people working abroad as inactive, and requires more effort and data collection.

A skills mismatch, per se, is not assessed on a regular basis by national authorities or other stakeholders.

Since 2017, the National Qualifications Framework Directorate was established within the Ministry of Education, Culture and Research. This directorate deals with qualifications based on competences described as learning outcomes: knowledge, skills, responsibilities and autonomy. Thus, more attention will be paid to the development of specific professional skills, opening up new measures/angles to look at the skills mismatch.

The Ministry of Health, Labour and Social Protection and the National Employment Agency are entrusted with labour market monitoring and analyses of skills and occupational demand and supply. For example, the National Employment Agency runs regular analysis of in-demand occupations through the monitoring of vacancies (i.e. Barometer of Professions) and statistical reports on jobseekers. So far, a more in-depth and multi-angle measurement of skills mismatches has not been done. Moldova does not have the tools, methodology and human resources available to take these measurements for all sectors of the economy.

At the same time technical assistance projects, targeting individual sectors of the economy, are measuring the skills gap, basically putting an emphasis on missing skills in the workforce and under-qualification. The low quality of the workforce is affecting the performance of economic sectors and companies. These projects review the situation with the aim of developing training programmes and supporting the development of the workforce for specific sectors. Unfortunately, these analyses are neither systemic in nature, nor do they cover the entire economy.

Regular information about the skills mismatch that accounts for under- and over-qualifications, skills obsolesce and horizontal mismatches is missing in the country. There is no mechanism for collecting and interpreting this information. At the same time, companies'/employers' perceptions of the quality of the workforce is rather pessimistic. As a result, responsible entities have started developing plans to tackle this issue.

The Ministry of Health, Labour and Social Protection is responsible for labour policy in the country and for providing input to enrolment plans for the technical vocational education and higher education institutions. As mentioned above, in 2018 the Ministry of Health, Labour and Social Protection and the National Employment Agency established a Labour Market Observatory, an entity that will support interested parties with quantitative and qualitative assessments of the labour market and specifically in identification of skills mismatches and information about the education system. However, this newly created entity will need capacity building and substantial support to carry out these kinds of measurements. Also the 2017 adopted law on establishing sector committees may help the development of more sector-focused analyses of skills demand and supply that is able to signal emerging mismatches and ensure an efficient correspondence between education supply and labour market demand.

## 4. INDICATORS OF SKILLS MISMATCH

In this chapter, we discuss at length the mismatch indicators calculated, based on data available in Moldova, and we provide interpretation in line with the country's context.

While labour market imbalances in general refer to a difference between demand and supply, mismatch concentrates on certain aspects of demand/supply imbalances, specifically a mismatch of skills or qualifications between demand and supply. Skills mismatch can occur even when the total supply meets total demand in numbers, but not in skills or qualifications.

The micro dimension of the skills mismatch is a matter of level, and thus the skills can be within the correct field of a specific task or occupation, but the level of the skill is lower than what would usually be required for the specific occupation or task. This is usually referred to as vertical mismatch, or over- and under-education, or over- and under-skilling. Horizontal mismatch occurs when the level of the qualification is sufficient, but the type or field of qualification does not adequately match. The more detailed job requirements can be measured in terms of skills or qualifications, the more likely it is that one finds (some) horizontal mismatch. The corollary is also that the less detailed data is, the less likely it is to identify horizontal mismatch, even if it exists.

The body of knowledge and recommendations summed up in the ETF methodological note (ETF, 2012), as well as other important studies carried out on skills mismatch by the Joint Research Centre (2014), Cedefop (2015), the European Commission (2015), and Eurostat (2016), represents the essential conceptual and methodological starting point for this country-specific study.

Table 4.1 summarises the selected mismatch indicators, definition, sources and interpretation relative to mismatch incidence.

**TABLE 4.1 MISMATCH INDICATORS – DEFINITIONS AND INTERPRETATION**

Indicator	Definition	Purpose	Data source(s)	Interpretation
<b>1. Unemployment rates, including unemployed to employed ratios</b>				
<b>1.1. Unemployment rate</b>	$U/(E+U)$	Official unemployment rate Often strict definition of unemployed (searching within the past four weeks)	LFS	Higher unemployment rates show a mismatch between demand and supply.
<b>1.2. Unemployed / employed ratio</b>	$U/E$	Like the unemployment rate Simpler to calculate Provides a direct interpretation of the relation of the employed to unemployed	LFS	See above Note also that the different groups might exhibit quite different ratios. Here, youth $U/E$ shows problems in school-to-work transition; old age $U/E$ shows lack of relevant skills or institutional barriers to employment.
<b>2. NEET</b>	$IA\_U/POP$ (for specific age groups)	Examines non-employment among young people in the school-to-work transition	LFS	Higher rates indicate higher shares of (young) people who are not in employment nor in any form of education.

Indicator	Definition	Purpose	Data source(s)	Interpretation
<b>3. Variance of relative unemployment rates</b>		Comparison of differences in education level among unemployed	LFS	Higher the value of variance, higher the level of mismatch
<b>4. Coefficient of variation by skills</b>		Comparison of differences in education level among employed and unemployed	LFS	Higher levels indicate increased incidence in skills mismatch.
<b>5. Relative wages</b>	Various definitions Mostly index of wages relative to base year (and relative to specific base level)	Examines the overall level at a specific time, also the development over time	LFS, wage surveys, administrative (tax or social security) data	Increasing (relative) wages usually indicates a higher (relative) demand for the specific group, i.e. an increase in wages for those with higher levels of education relative to those with intermediate level reflect higher relative demand towards people with higher levels of education.
<b>6. Occupational mismatch</b>		Compares ratios of people with given education level working in inappropriate occupation level	LFS	Higher percentages indicate mismatches.
<b>7. Over- and under-education (empirical method)</b>				
<b>7.1. Over-education</b>	% with education level above required/identified level of education in occupation (group)	Degree of mismatch by qualification level	LFS, skills surveys	Higher percentages of over-education (or an increase) reflect higher mismatch.
<b>7.2. Under-education</b>	% with education level below required/identified level of education in occupation group	Degree of mismatch by qualification level	LFS; skills surveys	Higher percentages of under-education (or an increase) reflect higher mismatch.

Notes: U – unemployed, E – employed, IA – inactive people, POP – population. The population is, by definition, the sum of employed, unemployed and inactive people ( $POP=U+E+IA$ ), while the labour force (LF) is defined as unemployed plus employed people ( $LF=U+E$ ).

Table 4.2 provides a general overview of employed, unemployed and inactive people split by four types of education: low, intermediate non-VET, intermediate VET and high<sup>17</sup>. Almost one third of the population falls into the category of having a low level of education, somewhat more than one fifth has completed intermediate education without VET training, whereas about one third has VET-based intermediate qualifications. Finally, about 17% of the population has a high level of education.

<sup>17</sup> Annex 1 includes further information on the aggregation by education levels used in this report.



**TABLE 4.2 POPULATION STRUCTURE (15+ AGE GROUP), 2016**

% share of population with the same education status	Employed	Unemployed	Inactive	Total population
Low education (ISCED 0–2)	20.41	21.56	37.06	29.98
Intermediate non-VET education (ISCED 3)	19.76	19.21	22.16	21.13
Intermediate VET education (ISCED 3–4)	35.45	32.75	28.58	31.46
High education (ISCED 5–8)	24.39	26.48	12.20	17.43
<b>Total (%)</b>	100	100	100	100
<b>Total population (thousands)</b>	1 219.54 (40.8%)	52.95 (1.7%)	1 712.68 (57.4%)	2 985.17 (100%)

Source: Authors' calculations using LFS 2016

Relative to their proportion in the population, those with a low level of education are much more likely to be inactive compared with the other categories. Those with a higher level of education, namely people with upper secondary and tertiary attainment level, are much less likely to be inactive; however, they are more likely to be among the unemployed. This might also be related to the age distribution across these education levels.

**FIGURE 4.1 POPULATION STRUCTURE (15+ AGE GROUP), 2016**



Source: Authors' calculations using LFS 2016

In the following sections, each identified mismatch indicator is explained and discussed at length, placing calculation results in the wider context of Moldova's education and labour market situation.

## 4.1 Unemployment rate and unemployed/employed ratios

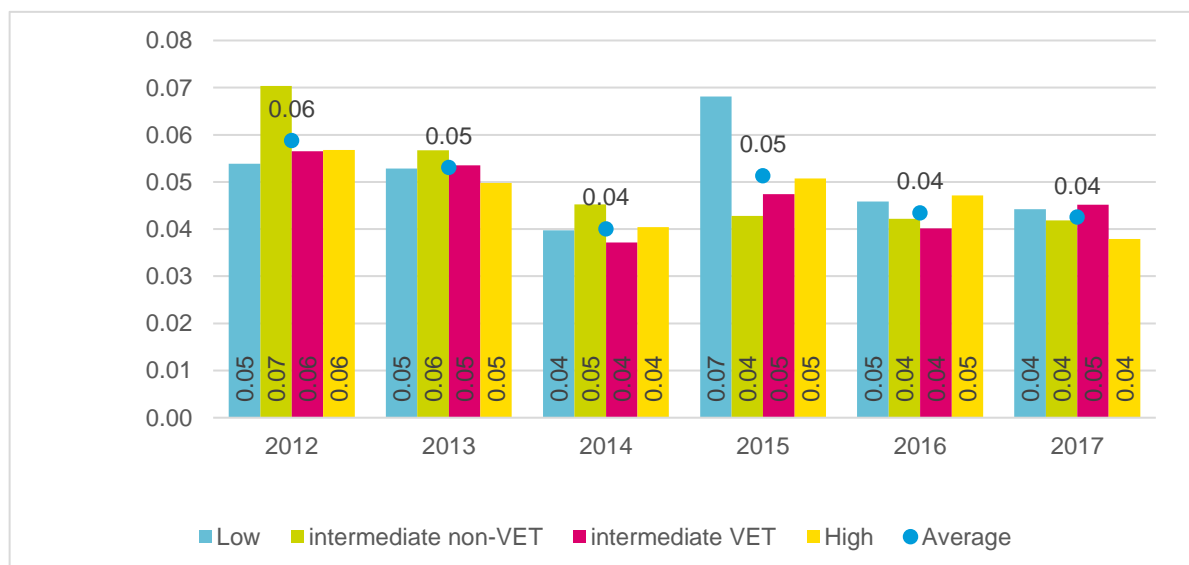
The unemployment rate calculates the rate of unemployed relative to the population that is active on the labour market, the sum of employed and unemployed. Higher rates show an increasing mismatch between supply and demand. Related to this are the unemployed to employed ratios which provide a placid way to express the magnitude of the unemployed. A ratio of 0.1 implies that for each unemployed person there are 10 employed persons (e.g. 1 unemployed/10 employed = 0.1), while 1 implies a one-to-one relation (e.g. 10 unemployed/10 employed = 1).

The proportion of unemployed versus employed by different categories allows us to analyse the relative size of unemployment (or employment) independent of the overall size of a specific category. Naturally, this indicator is very much related to the unemployment rate. The unemployment-to-employment ratio by educational attainment, as presented in Figure 4.2, reflects the data discussed before. This indicator, evaluating only the active population being either employed or unemployed, might be misleading in the case of Moldova as not all qualification levels tend to remain formally in the labour market when unemployed. Intermediate graduates and especially those with lower levels of education have the tendency to withdraw from the official labour market, rather than be counted as unemployed.

Figure 4.2 confirms the general downward trend of unemployment, also through the unemployment to employment (U/E) ratio. Lower U/E ratios can be found among people with a high level of education. This could point towards better labour market conditions for these workers, but it might also be the result of a larger inclination and possibility to emigrate when they face adverse conditions.

Negative demographic developments might have helped as well: while there is a constant or slightly increasing number of jobs, the workforce has been diminishing.

**FIGURE 4.2 UNEMPLOYMENT-TO-EMPLOYMENT RATIO BY EDUCATIONAL ATTAINMENT LEVELS (15+ AGE GROUP), 2012–17**



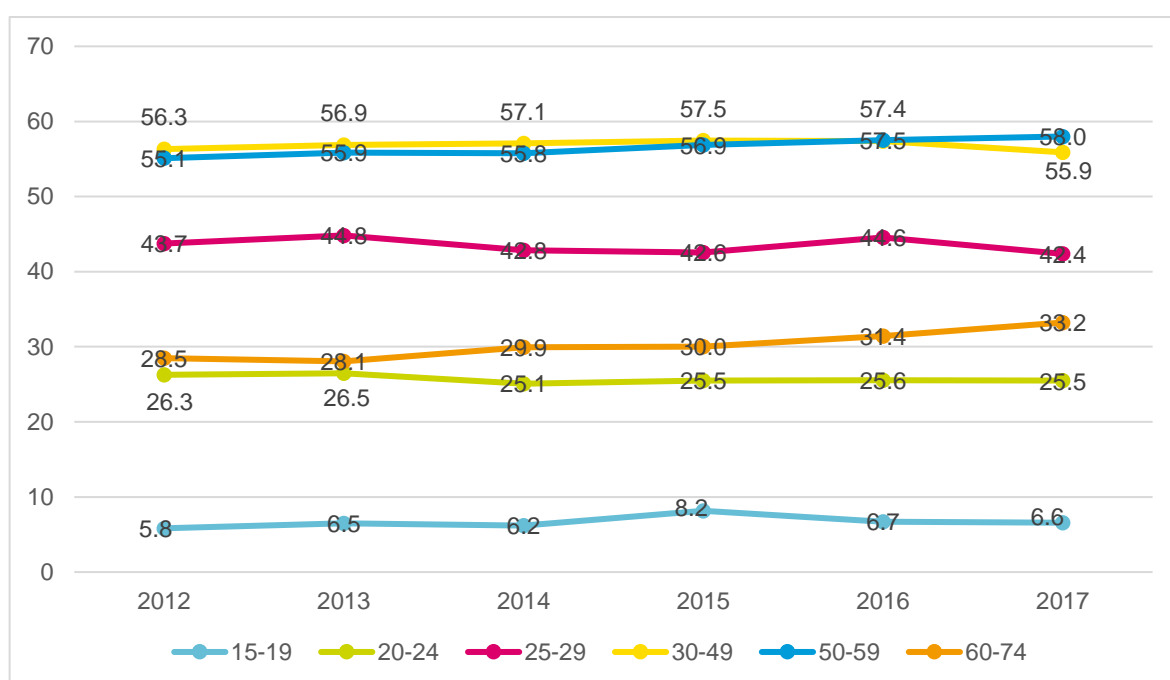
Source: Author's calculations using LFS 2012–17

Figure 4.3 displays the contribution of different age groups to the U/E indicator. It provides a breakdown of the indicator for age groups over time.

The first thing to note is that there are quite low rates for young people, with participation rates for 15- to 19-year-olds at 6.6% in 2017. The reason is that most young people are in education (inactive). At 20 to 24 years of age, the participation rate rises to 25.5%, while 25- to 29-year-olds have a 42.4% participation rate (all in 2017).

Prime age adults between 30 and 49 years of age show a participation rate of 55.9%, surpassed in 2017 by those aged 50 to 59 years old with a rate of 58.0%. This last group has seen an increase from 55.1% in 2012 to 58.0% in 2017. The oldest group, ranging from 60 to 74 years, also shows a significant increase from 28.5% in 2012 to 33.2% in 2017.

**FIGURE 4.3 SHARE OF EMPLOYED POPULATION BY AGE GROUP, 2012–17 (%)**

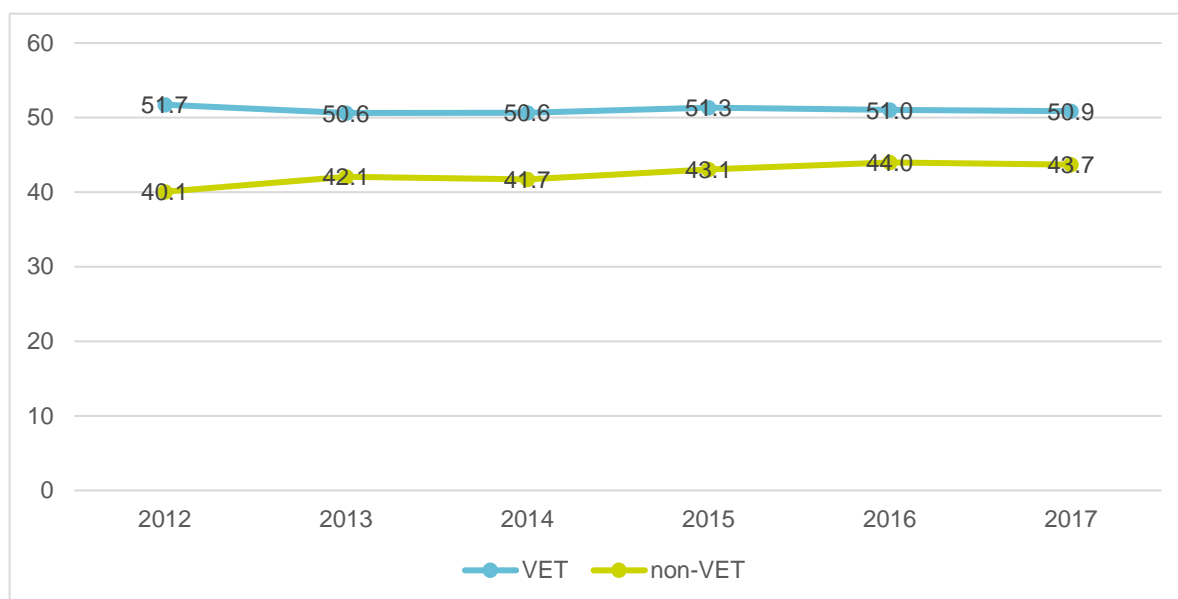


Source: Author's calculations using LFS 2012–17

As Figure 4.4 shows, those parts of the population that have a VET-based qualification tend to have higher participation rates, as indicated by the employment-to-population ratio, than those with non-VET-based education. That said, the participation of non-VET seems to have increased somewhat from 40.1% in 2012 to 43.7% in 2017, while VET-qualified participation dropped slightly from 51.7% in 2012 to 50.9% in 2017. This suggests that the participation rates are converging between VET- and non-VET-based qualifications.

However, this cannot be attributed to overall employment as there is not always a direct link between higher employment ratio and lower skills mismatch.

**FIGURE 4.4 EMPLOYMENT-TO-POPULATION RATIO BY TYPE OF EDUCATION (15–64 AGE GROUP), 2012–17**



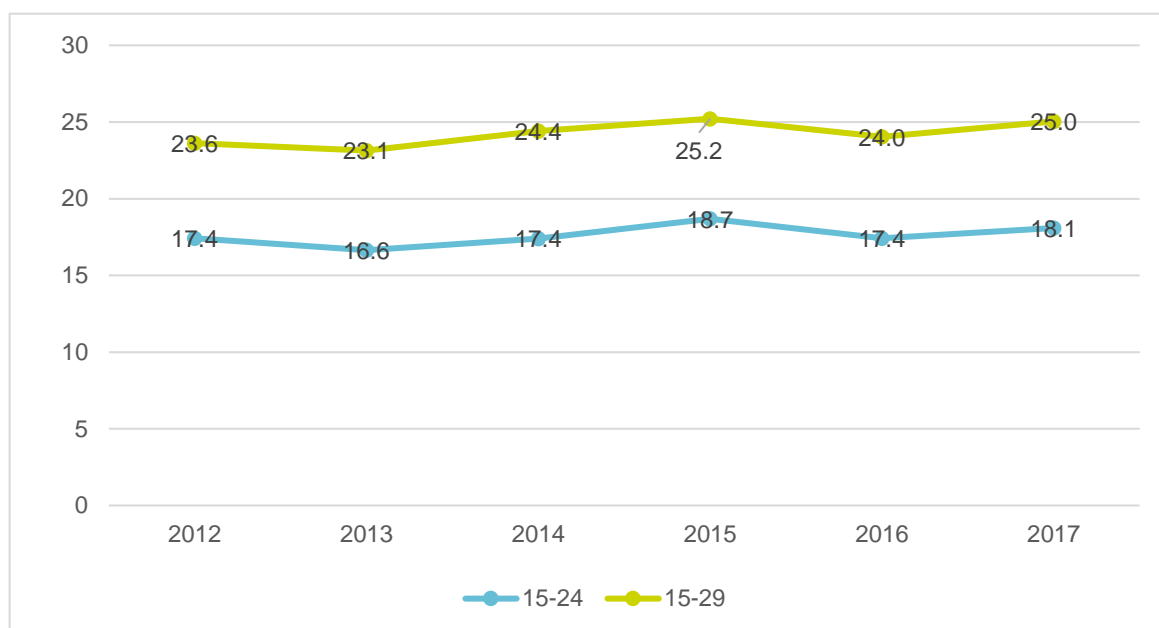
Source: Authors' calculations using LFS 2012–17

## 4.2 Young people not in employment, education or training

This methodology calculates the rate of young people who are not in employment, education or training. It calculates the rate of young people not actively participating in the labour market or in education. The underlying reason is presumed to be some form of mismatch, as those that are not in education are generally presumed to have finished their education and should find employment in some form. It thus combines non-participation and unemployment.

Given the country's size, the breakdown in the NEET rate has been chosen to reflect only two age groups: 15- to 24-year-olds and, overlapping, 15- to 29-year-olds. When reviewing Figure 4.5, it should be kept in mind that the difference between the two age groups is generated by those aged 24 to 29 years old. Overall, Figure 4.5 seems to indicate that there is a slight rise in the NEET rate. This would indicate that the school-to-work transition has become slightly more difficult. It also illustrates the propensity towards inactivation after the age of 24 – 25 among women (e.g. due to family obligations, children care etc.).

**FIGURE 4.5 YOUNG PERSONS (15–24, 15–29 AGE GROUPS) NOT IN EMPLOYMENT, EDUCATION OR TRAINING**



Note: Values of NEETs' shares slightly differ from the NBS released indicators (e.g. LFS annual publications) due to variations in the reference population taken into account in line with the Eurostat methodology (e.g. exclusion of young emigrants working abroad who are included in the LFS data as inactive) and possible effects of re-calculation done using microdata. Nevertheless, overall trends remain consistent regardless the methodology/definition employed.

Source: Authors' calculations using LFS 2012–17

### 4.3 Variance of relative unemployment rates

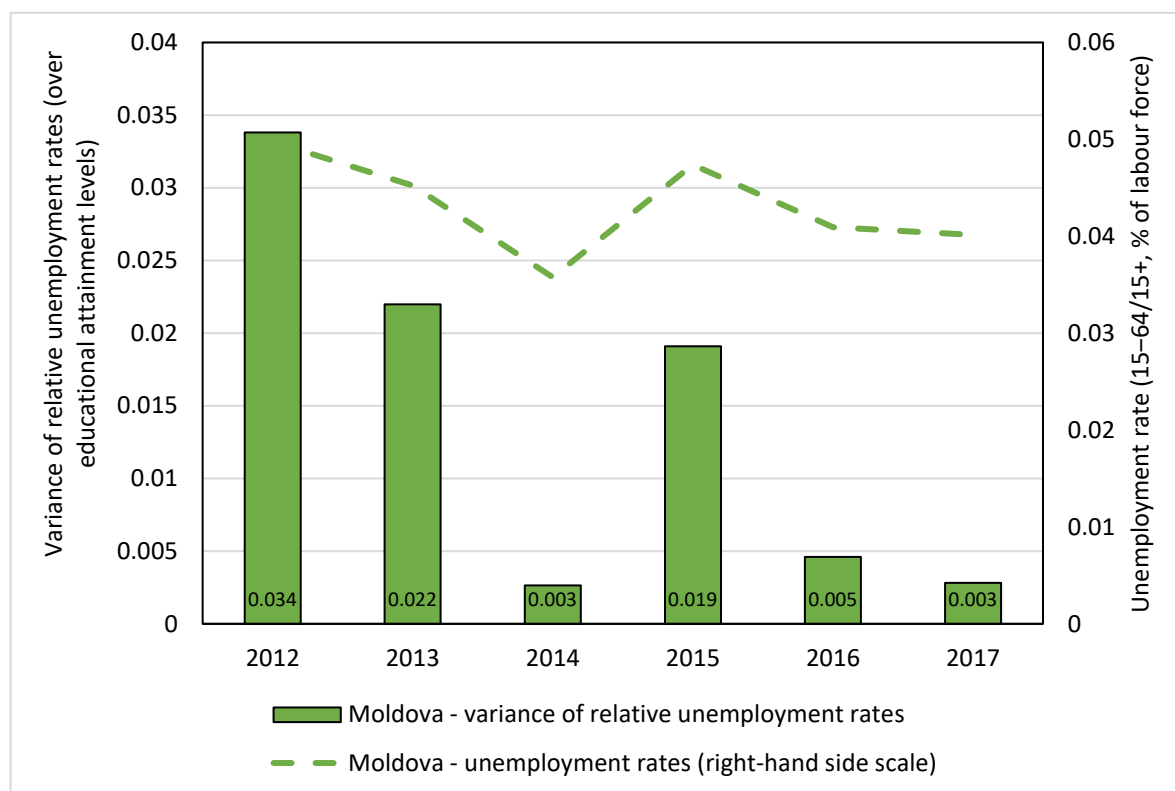
This indicator shows how unemployment deviates within education levels from the average of the entire country. The higher the value of the variance, the higher the level of mismatch. The methodology would also be applicable to sub-groups such as age, age and gender, and (previous) occupation.

The variance of relative unemployment rates, as presented in Figure 4.6, allows us to compare the variation that exists in unemployment rates of specific education levels with the national average. A higher level indicates that there is a lot of deviation between these education levels, or in other words, unemployment affects the various types of education very differently. It provides an alternative but related indicator of skills mismatch to the CVAR. Higher values imply a higher level of mismatch.

As can be seen in Figure 4.6, the overall mismatch, as measured by this indicator, decreased from 2012 to 2017, along with a slight decrease in the overall unemployment rate. The indicator follows the unemployment rate, indicating that the fluctuation in the unemployment rate is probably generated by one education group that in some years (2012, 2013, 2015) deviates more from the average. This requires further analysis.

Overall, the variance of relative unemployment rates is very low. This is also due to the low levels of unemployment rates, which hide a large part of non-employment by education.

**FIGURE 4.6 VARIANCE OF RELATIVE UNEMPLOYMENT RATES (15–64 AGE GROUP), 2012–17**



Source: Authors' calculations using LFS 2012–17

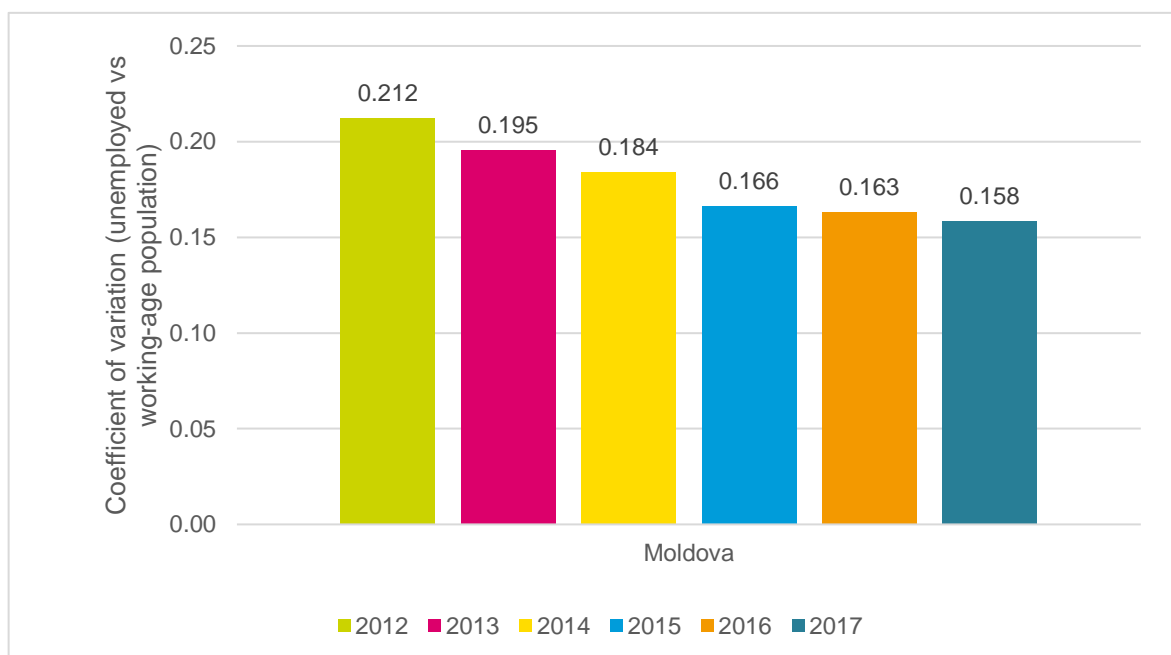
## 4.4 Coefficient of variation by skills

This indicator compares the distribution of skills within different groups while correcting for the overall size of the underlying statistic. The difference in skills composition of employed to unemployed is expressed in just one number which measures the overall extent of the mismatch. The higher the number, the greater the difference between the skills possessed by people employed in the labour market and the skills possessed by people wishing to enter the labour market. The extent to which the distributions are different can therefore be interpreted as a measure of the ineffectiveness caused by the matching process of supply and demand of skills in the labour market (ETF, 2012, p. 6).

The CVAR by skills is a related indicator to the previous one. The indicator attempts to grasp one or several elements of skills mismatch to quickly gauge the degree to which a mismatch exists. The CVAR compares the variation of qualifications (in shares) in the unemployed group versus those in the working-age population. Again, we have the caveat for Moldova of a potential underrepresentation for unemployed people.

The idea of the indicator is that if unemployment were independent of the qualification level, the CVAR should be zero; the more the two groups differ, the higher the CVAR is. Figure 4.7 thus implies that, over time, qualification level has become less discriminatory in explaining unemployment, or said differently, the distribution of qualifications in the working-age population seems to coincide more with those of the unemployed in 2012 than it was in the previous years, implying a reduction in mismatch.

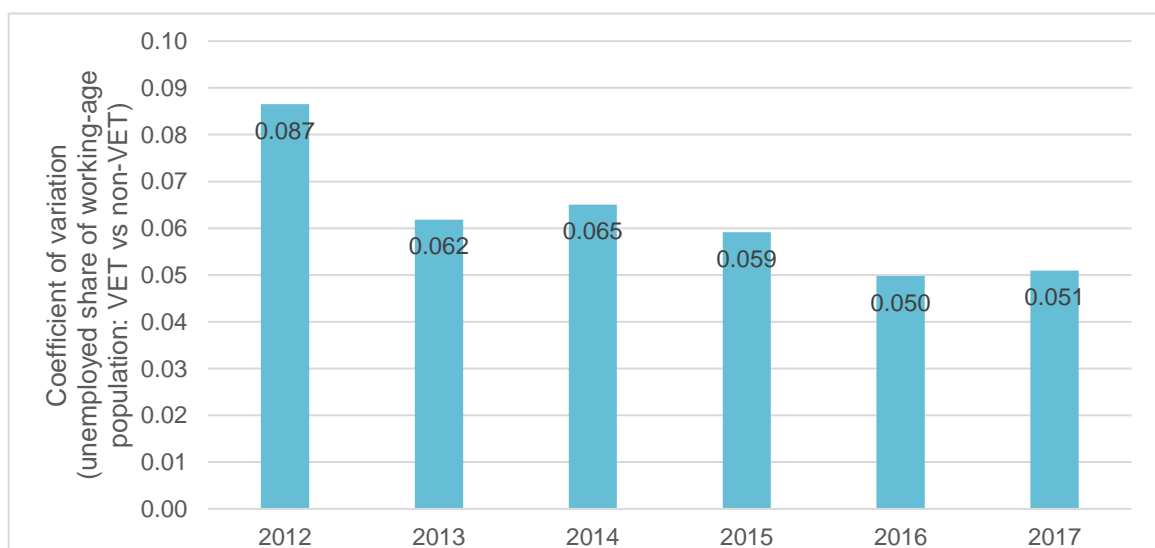
**FIGURE 4.7 CVAR OF QUALIFICATION COMPOSITION (15–64 AGE GROUP), 2012–17**



Source: Authors' calculations using LFS 2012–17

Figure 4.8 applies this concept to a different application of qualification. Here we only distinguish between qualifications gained through VET and those qualified by other means. The outcome over the period 2012–17 shows a reduction over time, which is stronger from 2012 to 2013 than in the later years.

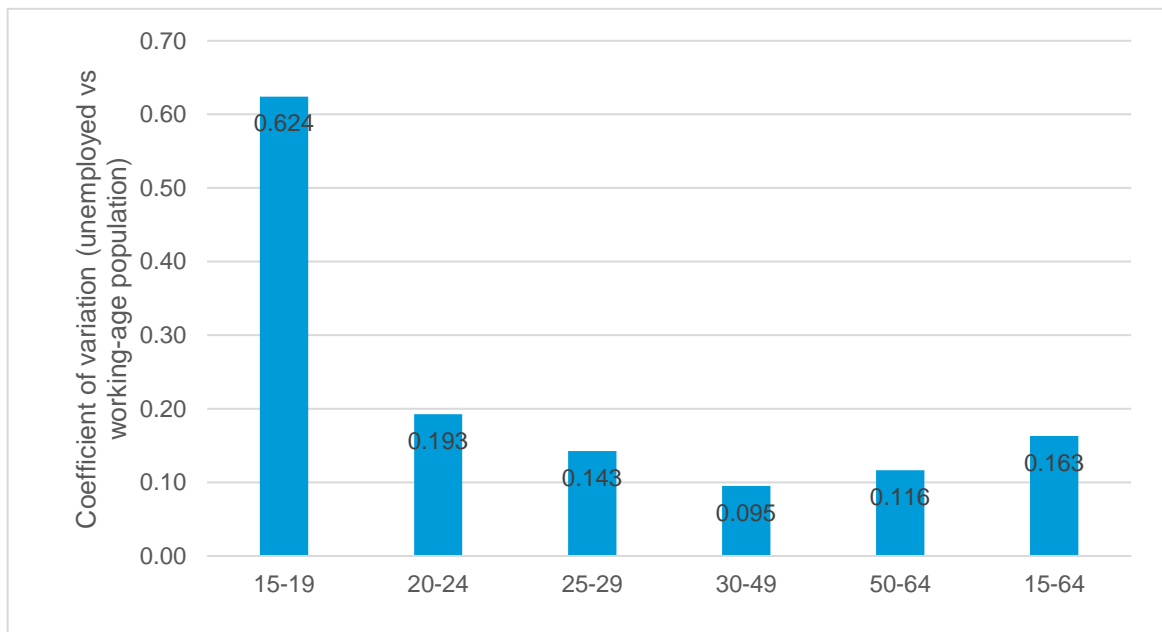
**FIGURE 4.8 CVAR OF QUALIFICATION COMPOSITION (15–64 AGE GROUP): COMPARING THE VARIATION BETWEEN VET AND OTHER QUALIFICATIONS, 2012–17**



Source: Authors' calculations using LFS 2012–17

After analysing the development of the CVAR indicator, a separate calculation by age group is provided in Figure 4.9. The high CVAR indicator values for the youngest category (those aged 15 to 19) indicates very different unemployment experience by qualification which should not be over-interpreted as many are still in the education process and the indicator is likely based on few observations. The higher CVAR value for those aged 20 to 24 relative to the older age groups probably reflects young people (mostly graduates) entering the labour market. The high indicator value indicates a mismatch triggered by a problematic/difficult school-to-work transition. The indicator is smaller, indicating fewer mismatches, at prime age (30 to 49), with a slight increase for those aged 50 to 64. All age groups beyond 24 years of age are below the average of 0.163 calculated over the entire age group (15–64).

**FIGURE 4.9 CVAR OF QUALIFICATION COMPOSITION BY AGE GROUP, 2016**



Note: There is high variation in lower age groups due to small cell size, 2016 being the new base year.  
Source: Authors' calculations using LFS, 2016

## 4.5 Relative wages

This methodology compares the wages across education levels over time, either relative to a benchmark wage or indexed vis-à-vis a base year. It can usefully be plotted in a diagram, as it is then very easy to see how certain education levels are more or less well remunerated than others over time. An education level that is seen to attract a higher income than that achieved by people with other levels of education can thus be a sign that this level of education is in higher demand on the labour market.



**TABLE 4.3 INCOME BY EDUCATIONAL ATTAINMENT LEVEL, 2012–17**

Education level of wage earner	2012	2013	2014	2015	2016	2017
Primary or no education	142	182	197	163	100	153
Lower secondary school	182	238	249	261	292	331
Secondary school	246	267	282	310	313	352
Secondary professional	266	281	288	329	356	383
Secondary specialised	295	313	332	361	419	424
Higher	486	515	529	600	612	660
Average	309	338	345	395	411	446

Note: Index set to primary or no education in 2016 = 100; households with one wage earner.

Source: Authors' calculations using LFS 2012–17

Data presented in Table 4.3 shows the development of wages from 2012 to 2017. Note that the data had to be taken from household data which forced us to eliminate households with multiple incomes. This might bias the results somewhat. Ideally, individual income data would be available.

The wages are indexed at the primary or no education category in 2016 at 100, where all other qualification levels are calculated relative to this 'baseline' education level. It shows an overall increase in average wages of 44%. The strongest increase in the observation period is for those leaving education with a lower secondary level qualification, which rose by 82% from 2012 to 2017, followed by all secondary qualifications rising about 43 to 44% in the same period. Those with higher education qualifications exhibit a slightly smaller wage growth of 36%, while those with primary-level education only had an increase of 8% from 2012 to 2017.

The relative wages are on average 4.1 times the baseline with primary education in 2016, which seems to be a very low point relative to all other years, where the factor fluctuates between 1.8 (2014) and 2.9 times (2017). Overall, those with higher levels of education have an average wage that fluctuates between 4.9 times the baseline qualification (2012) and 6.1 times in 2016. Relative to primary education, average wages increase three- or fourfold for those finishing secondary education based on 2016 data.

The dynamic in salary growth is positive for all education levels, showing unequivocally that the higher the level of education, the higher the remuneration. This means that professions that need different levels of education are in constant demand on the labour market.

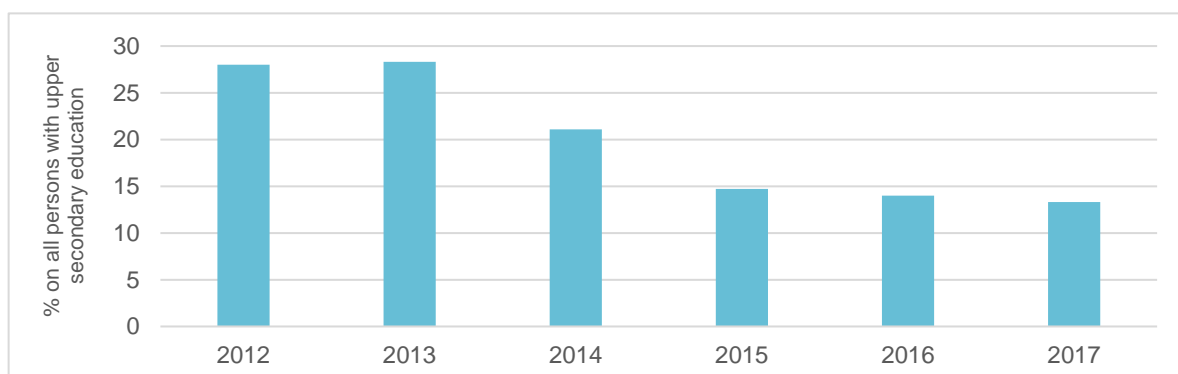
## 4.6 Occupational mismatch

This method is based on comparisons of the ratio of people with a given education level (ISCED) working at an inappropriate skill level (measured by the ISCO) to all workers within that ISCED level.

Figures 4.10 and 4.11 present the results of empirical analysis of the occupational mismatch by comparing the ratio of people with a given education level working at an inappropriate skill level to all workers within that same education level. Figure 4.10 shows the occupational mismatch for individuals with a middle education level and Figure 4.11 for individuals with a high education level.

The comparison of these two figures shows that the occupational mismatch was initially, in 2012 to 2014, lower for people with a tertiary level of education compared with those with an upper secondary level of education; however, while the level of mismatch for those with a higher level of education increased to 23% in 2017 (Figure 4.11), the mismatch at the intermediate level fell to 13.3% in 2017 (Figure 4.10).

**FIGURE 4.10 OCCUPATIONAL MISMATCH – PERSONS WITH UPPER SECONDARY EDUCATION WORKING IN ELEMENTARY OCCUPATIONS (15–64 AGE GROUP\*), 2012–17**



Note: Occupational classification: ISCO-88; see [www.oecd-ilibrary.org/education/education-at-a-glance-2010/education-and-occupational-mismatches-for-young-individuals-2003-2007\\_eag-2010-table175-en](http://www.oecd-ilibrary.org/education/education-at-a-glance-2010/education-and-occupational-mismatches-for-young-individuals-2003-2007_eag-2010-table175-en).

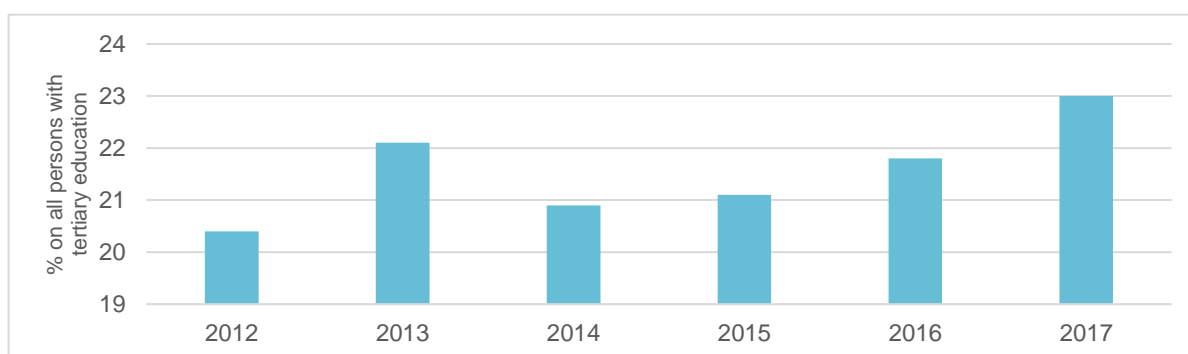
Upper secondary education: secondary school, secondary professional (national classification, corresponds to ISCED 3). Elementary occupations: ISCO-08 – major group 9.

\* Calculation according to OECD definition for age group 15–64 (instead of 25–29) due to data limitations.

Source: Authors' calculations using LFS 2012–17

The percentage of people with tertiary education working in semi-skilled occupations aged 15 to 64 slightly increased over the six-year period (20.4% in 2012 increasing to 23% in 2017). This is not a good sign, since over-qualified staff are taking on jobs below their qualification levels. It shows indirectly that there is less demand for staff with higher levels of education, since more than one fifth of the population with tertiary education work in jobs requiring lower levels of qualifications.

**FIGURE 4.11 OCCUPATIONAL MISMATCH – PERSONS WITH TERTIARY EDUCATION WORKING IN SEMI-SKILLED OCCUPATIONS (15–64 AGE GROUP), 2012–17**



Note: Occupational classification: ISCO-88; see [www.oecd-ilibrary.org/education/education-at-a-glance-2010/education-and-occupational-mismatches-for-young-individuals-2003-2007\\_eag-2010-table175-en](http://www.oecd-ilibrary.org/education/education-at-a-glance-2010/education-and-occupational-mismatches-for-young-individuals-2003-2007_eag-2010-table175-en).

Tertiary education: higher education (national classification). Semi-skilled occupations: ISCO-08 – major groups 4–9.

Source: Authors' calculations using LFS 2012–17

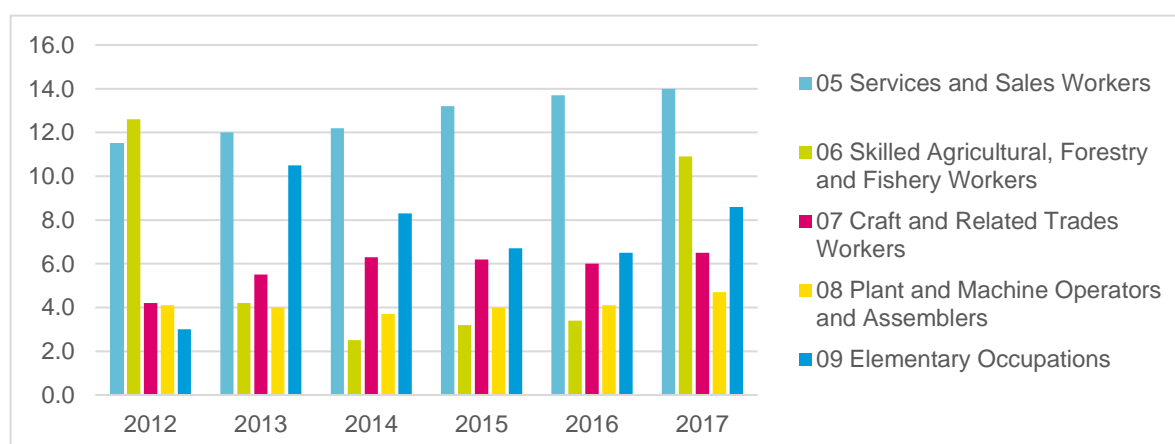
Beyond demand, another explanatory factor could be the quality and relevance of higher education, which may not provide the skills demanded on the labour market, could indicate insufficient cooperation with the business and research community, and suggests there is weak support during the transition to the first job. As discussed above, the longer-term development goals prioritise certain economic sectors requiring upper secondary and university-level degrees. Therefore, education and training systems are crucial in anticipating and responding to such potential demand with better-qualified and skilled workforce.

## 4.7 Over-education and under-education (empirical method)

This method can be used in cases where data sets do not include specific questions on over-education or over-skilling; it is nevertheless quite a simplistic measurement and must be interpreted as a proxy. The empirical method is a purely statistical measure where the distribution of education is calculated for each occupation; over-education is defined as existing when the level of education is more than one standard deviation above the mean (Bauer, 2002) or above the mode (Mendes de Oliveira et al., 2000) for the education level for a given occupation. The educational mean and/or mode for each occupation are thus assumed to be a match for that occupation, but this may very well be a false assumption. In theory everybody employed in a given occupation could be mismatched (ETF, 2012, p. 12). The distribution of education is calculated for each occupation; over-education is defined as existing when the level of education is more than one standard deviation above the mean.

Figure 4.12 shows the proportion of employed people who are over-educated using the empirical method. The figure shows that the highest incidence of over-skilling is observed among service and sales workers, and to a lesser degree in skilled agricultural workers. Craft workers, plant operators and assemblers exhibit some over-education. No over-education can be found in the higher occupations (ISCO 1–4).

**FIGURE 4.12 EMPIRICAL METHOD – OVER-EDUCATION BY OCCUPATION (15–64 AGE GROUP), 2012–17, ISCO-08 (%)**



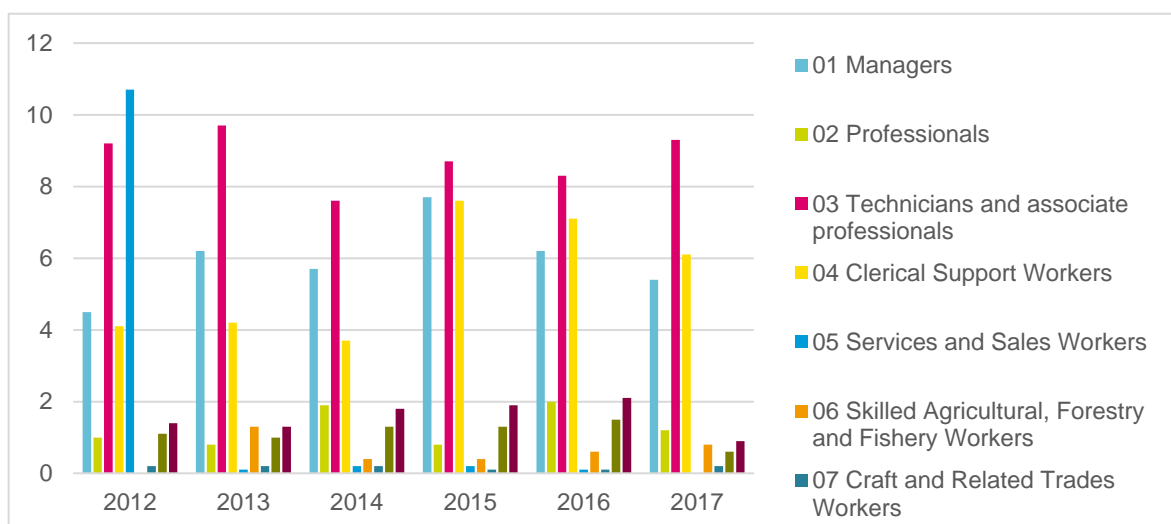
Note: Groups 01–04 registered 0 value for all years.

Source: Authors' calculations using LFS 2012–17

During the six analysed years, the ratio of over-qualified staff placed in an occupation that needs lower levels of education has been increasing for services and sales workers (from 11.5% in 2012 to 14% in 2017), for craft and related trades workers (from 4.2% in 2012 to 6.6% in 2017), for plant and machine operators and assemblers (4.1% in 2012 to 4.7% in 2017) and for elementary occupations (from 3.0% in 2012 to 8.6% in 2017). This situation reveals that for the occupations in categories 05 to 09 according to ISCO-08, there is an evident trend of a slight increase in over-qualification.

The degree of under-education in occupations following the empirical method, presented in Figure 4.13, shows that under-education also takes place among the above-mentioned occupations, albeit to a very small degree. Higher levels of under-education can, however, be found among the higher occupations, especially among technicians and associate professionals, and clerical support workers. Among the group of professionals, under-education is smallest within the group of higher occupations.

**FIGURE 4.13 EMPIRICAL METHOD – UNDER-EDUCATION BY OCCUPATION (15–64 AGE GROUP), 2012–17, ISCO-08 (%)**



Source: Authors' calculations using LFS 2012–17

During the six years under review, the ratio of under-qualified staff placed in an occupation that needs a higher level of education shows the following trends in under-education:

- an increasing tendency for managers (from 4.5% in 2012 to 5.4% in 2017), for clerical support workers (from 4.1% in 2012 to 6.1% in 2017) and for skilled agricultural, forestry and fishery workers (0.0% in 2012 to 0.8% in 2017);
- a stable situation for professionals, technicians and associate professionals and craft and related trades workers;
- and a decreasing tendency for services and sales workers (from 10.7% in 2012 to 0.0% in 2017), for plant and machine operators and assemblers (1.1% in 2012 to 0.6% in 2017) and for elementary occupations (from 1.4% in 2012 to 0.9% in 2017).

In general, over-qualification is more pronounced than under-qualification, like in the other countries selected in the ETF initiative of mismatch calculation.

# CONCLUSIONS

The ETF skills mismatch measurement project develops and pilots several indicators of labour market and skills mismatch, with an aim to develop, test and implement mismatch indicators that allow easy access and updating. The adopted methodological approach for measuring skills mismatches should be country-specific, but also ensure as much comparability as possible across countries. A deeper knowledge of skills mismatch direction, nature and incidence, including contextualisation (e.g. socio-economic aspects, labour regulations and job-matching services), would in turn help countries to better target their efforts to match supply to demand via education, training, employment and other policy interventions.

This report presents an analysis of mismatch from several perspectives and data sources available in Moldova. It briefly analyses economic, education and labour aspects that are directly or indirectly related to the skills supply and demand. By using a specific methodology for calculating the skills mismatch taking into account the data availability and reliability in each country, it is possible to calculate a set of key skills mismatch indicators which will be discussed in this last chapter.

There are several important findings related to the supply and demand in terms of skills, matching and skills governance system.

## **Education attainment is positively linked to employment outcomes, but skills relevance remains an issue.**

The share of people with a low level of education is quite high, representing a little below one third of the population aged 15 and over (29.98%), being overexposed to inactivity. The population with intermediate non-VET education represents almost one fifth of the population, while people with intermediate VET education represents almost one third of the population. LFS data from 2012–17 shows better employment outcomes for people with VET intermediate education level who show higher employment rates against those who graduated non-VET education programmes (Figure 4.4). Not surprisingly, tertiary education graduates enjoy better prospects in employment but almost one quarter are working in occupations below their level of education. Overall, the issue of skills relevance remain and higher education and VET systems should revise their programmes since the high unemployment or inactivity among graduates/young people is also related to skills mismatch and insufficient preparedness for the world of work leading to long transitions from school to the labour market.

## **Migration distort the picture as reflected in key labour market indicators.**

The decreasing trend of unemployment is found within the entire population, i.e. within all education backgrounds. This trend has existed for some time, at least for the last six years. Although this report does not intend to determine the causes of the registered situation, the data does raise the following questions: Has Moldova managed to have more jobs become available and thus has the unemployment rate decreased? Did the country receive foreign investment that contributed to the increase in labour force demand?

In fact, many people prefer to find temporary jobs outside the country and migrants are counted as inactive in the LFS. Also, those who remain behind are tempted to stay inactive due to remittances received from relatives working abroad. Therefore, the low unemployment rate might not reflect an improvement in the national economy. It is recommended to further consolidate the monitoring and analysis, including a clarification on the way people working abroad are reflected in national LFS. This

would help determining whether there is a lack of opportunities, i.e. a shortage of suitable demand, or a lack of suitably qualified personnel to attract more and better investment leading to employment opportunities, or a combination of both.

### **Young people are more exposed to mismatch risks.**

The most successful (as measured by employment rates) age groups on the labour market are people aged 30 to 49 (55.9% in 2017) and 50 to 59 (58% in 2017), followed by those aged 25 to 29 (42.4% in 2017). In fourth place is the pension age group of 60- to 74-year-olds. One third of this age group are active on the labour market (33.2%) which is partly explained by relative higher employment in agriculture (very often subsistence agriculture). Those aged 20 to 24 are less active in the labour market, where only one quarter is employed, probably due to them still being in education. The least active age group is 15- to 19-year-olds, because education is mandatory for everyone until the age of 18. Consequently, those aged 50 to 59 are least affected by skills mismatches, then 30- to 49-year-olds, and then 25- to 29-year-olds. The group most affected by skills mismatches are those aged 20 to 24 years old and, potentially, the older generation of 60- to 74-year-olds. The 15 to 19 age group is, given the education process, not generally present on the labour market.

The population with a VET background prevails on the labour market compared with the population with non-VET education (low education and higher education). That is understandable since, on the one hand, the population with low education and higher education together represent a smaller share of the population than those with VET education, and, on the other hand, 70% to 80% of jobs available are for professions that need VET education.

Around one quarter (depending on the calculation method) of the population aged 15 to 29 is NEET, a fact that reflects the difficulties in the transition from education to the labour market and indirectly could reflect the country's labour force mismatch between demand and supply.

### **Mismatch incidence decreases over time but trends should be interpreted carefully.**

Judging by the results of variance of relative employment rates for the last six years, the overall skills mismatch has generally been decreasing. This could be interpreted as a positive trend; however, it is important to consider the fact that the unemployment rate is very low and does not fully reflect the reality of the labour market (e.g. low propensity to actively search for jobs due to remittances; discouraged workers; unattractive wages and work conditions). Therefore, interpretation of this indicator and relation to skills mismatch incidence should be done carefully.

According to the CVAR of qualification composition during the last six years, the level of skills mismatch is reducing. Taking into account that the data was based on the employment rate, the indicator partially reflects the reality of the skills mismatch. This could also be explained by the fact that those people not finding a job in the national labour market are emigrating to the EU or Russia for a period of time allowed by the relevant visa regimes. Consequently, migration is reducing greatly the level of skills mismatch indicators as well as the non-registered unemployment, as many members of the active population are not registering at the employment offices.

The highest mismatch is registered for those aged 15 to 19, presumably because they have not yet gained their skills, followed, at a big distance, by those aged 51 to 64, presumably because of skills obsolescence. Understandably, the lowest level of skills mismatch is registered for those aged 30 to 49, for middle-career professionals who have been on the labour market for a while and are young enough to acquire and adjust their professional skills to the current and changing needs of the market.

Higher levels of education command higher salaries. On average, the salary is two to three times higher for people with more advanced education than those that have just primary education.

The occupational mismatch indicator shows that over-education is present in the country. There is a declining trend in the number of people with upper secondary education working in elementary occupations, aged 15 to 64, during the years 2012 to 2017. This is a good sign, showing that over-qualified staff are taking fewer jobs that need elementary skills (from 28% in 2012 to 13.3% in 2017). Therefore, the skills mismatch related to over-qualifications in elementary occupations is reducing.

Most worrying is over-education for those aged 15 to 64 with a tertiary level of education working in semi-skilled occupations, as this trend has increased over the last six years (20.4% in 2012 increased to 23% in 2017). A number of reasons may explain the situation: problems in labour demand for highly skilled workers (e.g. lower demand or uneven territorial distribution of employment opportunities for university graduates), insufficient quality of university education outcomes in terms of skills and abilities to take up highly skilled jobs, and lack of practical experience (for example, taking a job that does not match one's actual level of education is often a strategy to acquire work experience and open new avenues for job searches). If a different method is applied (i.e. empirical), it seems that over-qualification mainly occurs in occupations included in the ISCO group services and sales workers, showing an increasing tendency (from 11.5% in 2012 to 14% in 2017).

**Full compatibility of statistics with international standards should be achieved and skills mismatch analyses should become a regular practice.**

Data and information on the economy, education, skills and employment are fairly developed. Consideration of the way key statistics are influenced by the high propensity for people to work abroad may be an avenue for further analysis and possibly changes in the LFS methodology (e.g. classification of those working abroad being inactive). ISCED 2011 has not yet been fully implemented in all statistical products.

In-depth analysis and interpretation of various indicators could be prioritised to delve into specific aspects of skills mismatches, shortages, and gaps and to capture emerging trends, including medium- to longer-term projections. This would be particularly important for the education and training providers and policymakers as data input has to serve longer-term policies, such as enrolment in education.

Also, proper analysis and interpretation of complex aspects, such as skills analysis, emerging skills needs, and long-term occupational changes, require consolidated cooperation between key stakeholders, employment and education institutions, the research and academic community, and social partners. Improved capacity for data collection, analysis and dissemination of findings is therefore recommendable. The establishment of the Labour Market Observatory is a good step, but additional resources, capacity building and further partnerships with various stakeholders are necessary.

## Key policy messages

As mentioned before, results of various skills mismatch indicators should be interpreted carefully, taking into account the specific context and features of transitions on the labour market, external factors (such as job attractiveness and wages), propensity for migration, and the high incidence of subsistence agriculture. Nevertheless, some policy messages become clear.

- There is a need to invest in career guidance and counselling services for all learners (at all levels of education) and to offer enhanced support to young graduates while transitioning from school to work (as major mismatches seem to occur in the younger age groups).
- Skills supply policies (e.g. increasing the relevance and quality of education and inclusiveness of skills development and employability programmes) would need to be combined and synchronised with economic development and innovation policies (e.g. to stimulate higher value added economic activities and technological development).
- Economic and technological dynamics and global changes call for forward-looking policy making on skills development and, most importantly, require deployment of more lifelong learning opportunities for various groups (e.g. jobseekers, workers, inactive people, returning migrants, and those with low or obsolete qualifications).



# ANNEXES

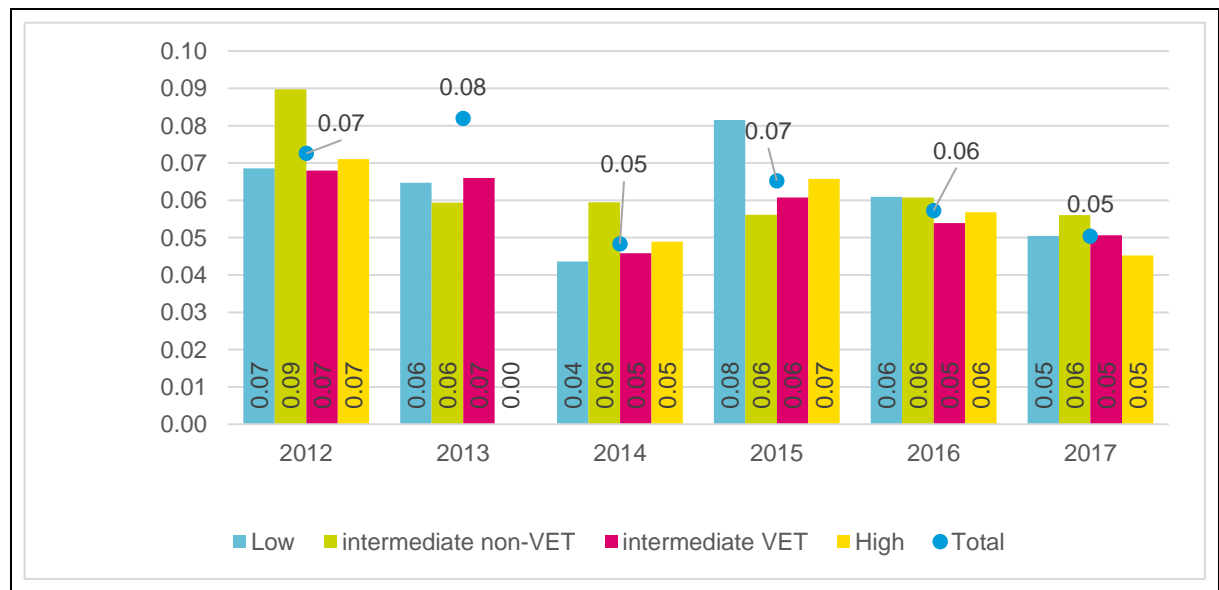
## Annex 1. Aggregation by education level

The following aggregation by education level was used to calculate the mismatch indicators, throughout the report.

National classification	ISCED 2011	ETF aggregation
Primary or no education	0–1	Low
Lower secondary (gymnasium)	2	Low
Secondary school	3	Intermediate – non-VET (lyceum)
Secondary professional	3	Intermediate – VET (professional schools, centres of excellence)
Secondary specialised	4	Intermediate – VET (colleges, centres of excellence)
Higher	6+	High (universities)

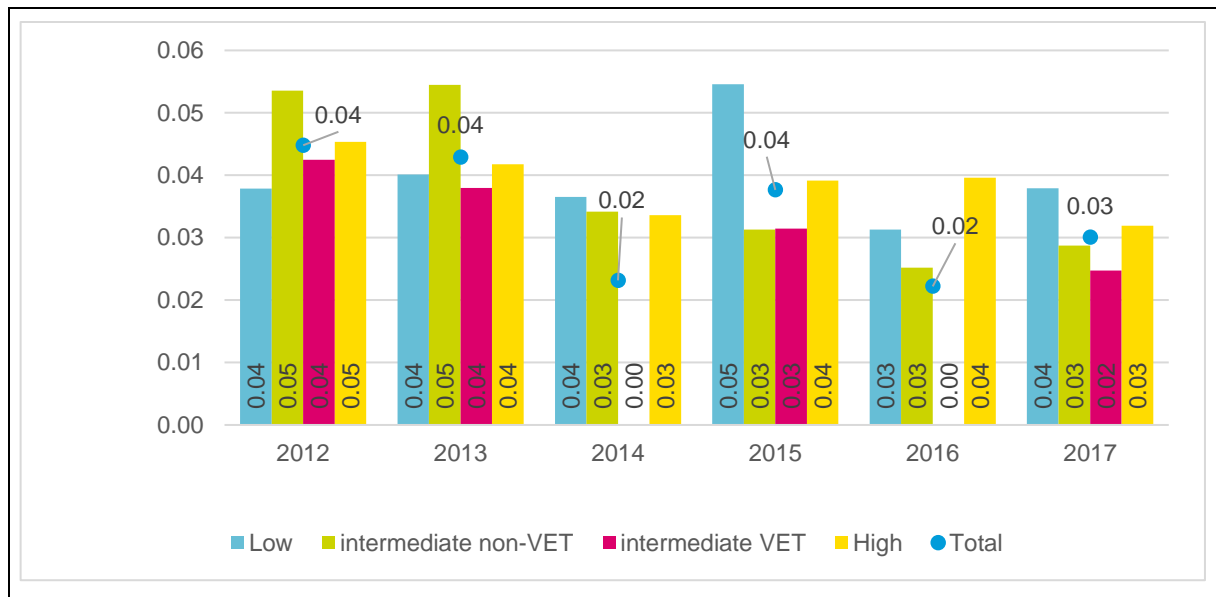
## Annex 2. Additional figures

**FIGURE A2.1 UNEMPLOYMENT-TO-EMPLOYMENT RATIO BY EDUCATIONAL ATTAINMENT LEVEL OF MEN (15+ AGE GROUP), 2012–17**



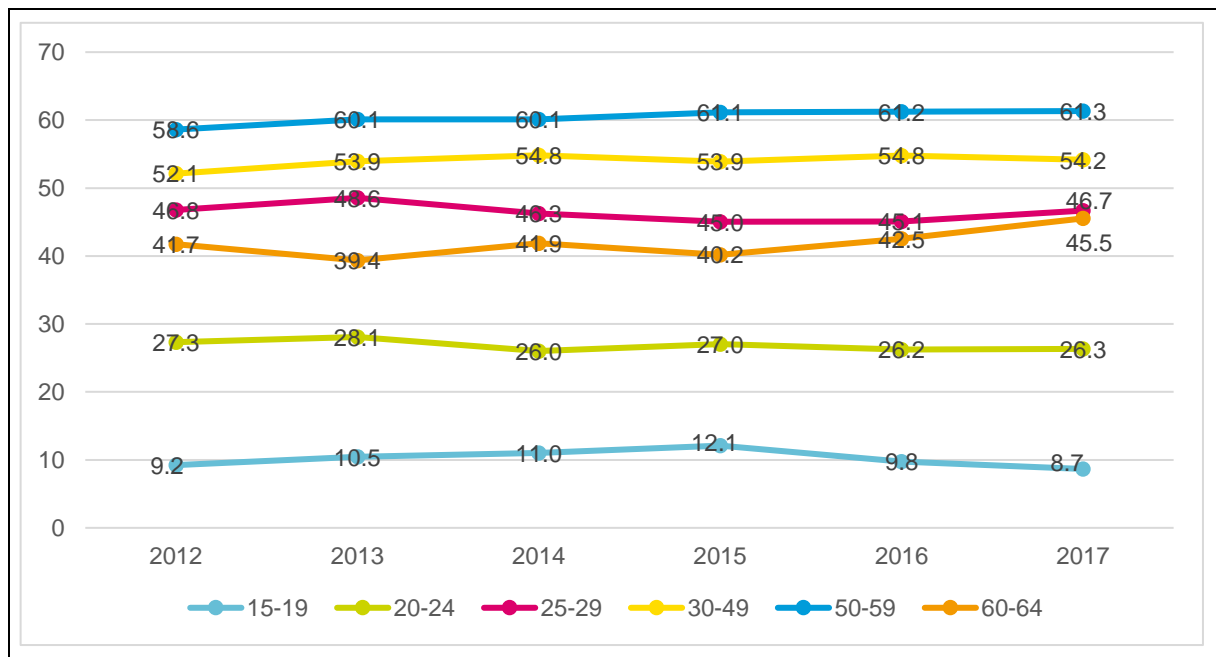
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.2 UNEMPLOYMENT-TO-EMPLOYMENT RATIO BY EDUCATIONAL ATTAINMENT LEVEL OF WOMEN (15+ AGE GROUP), 2012–17**



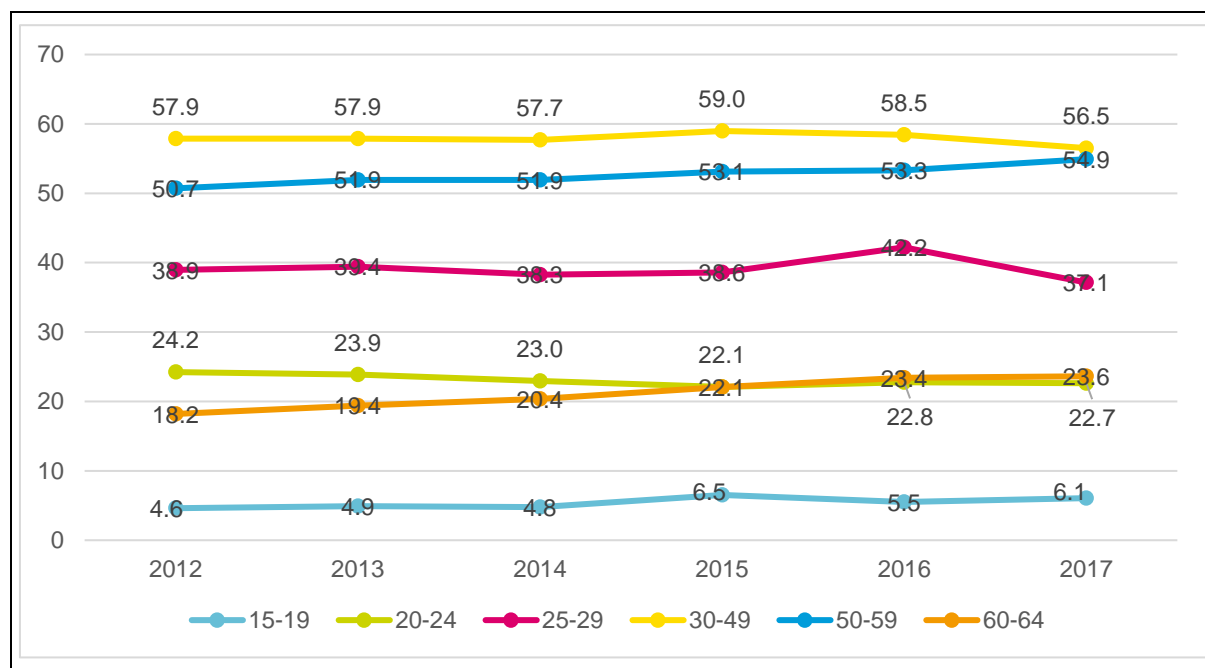
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.3 EMPLOYMENT-TO-POPULATION RATIO OF MEN BY AGE GROUP, 2012–17**



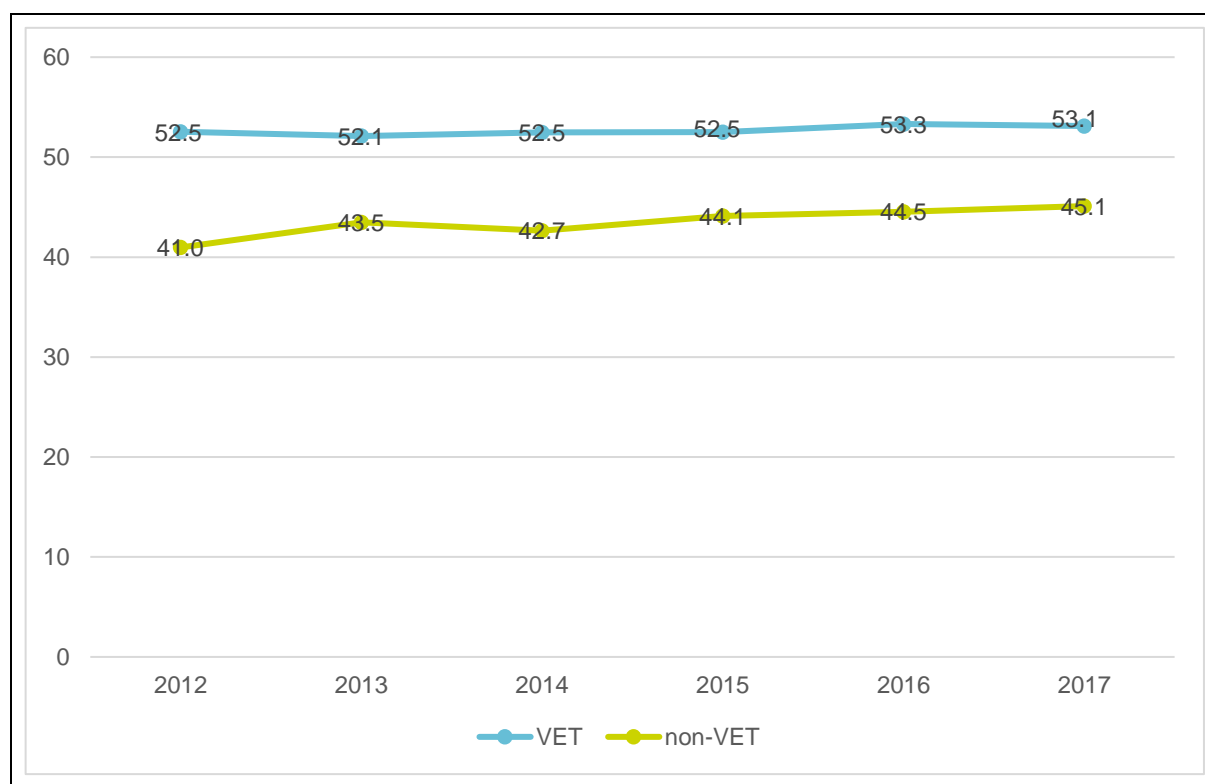
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.4 EMPLOYMENT-TO-POPULATION RATIO OF WOMEN BY AGE GROUP, 2012–17**



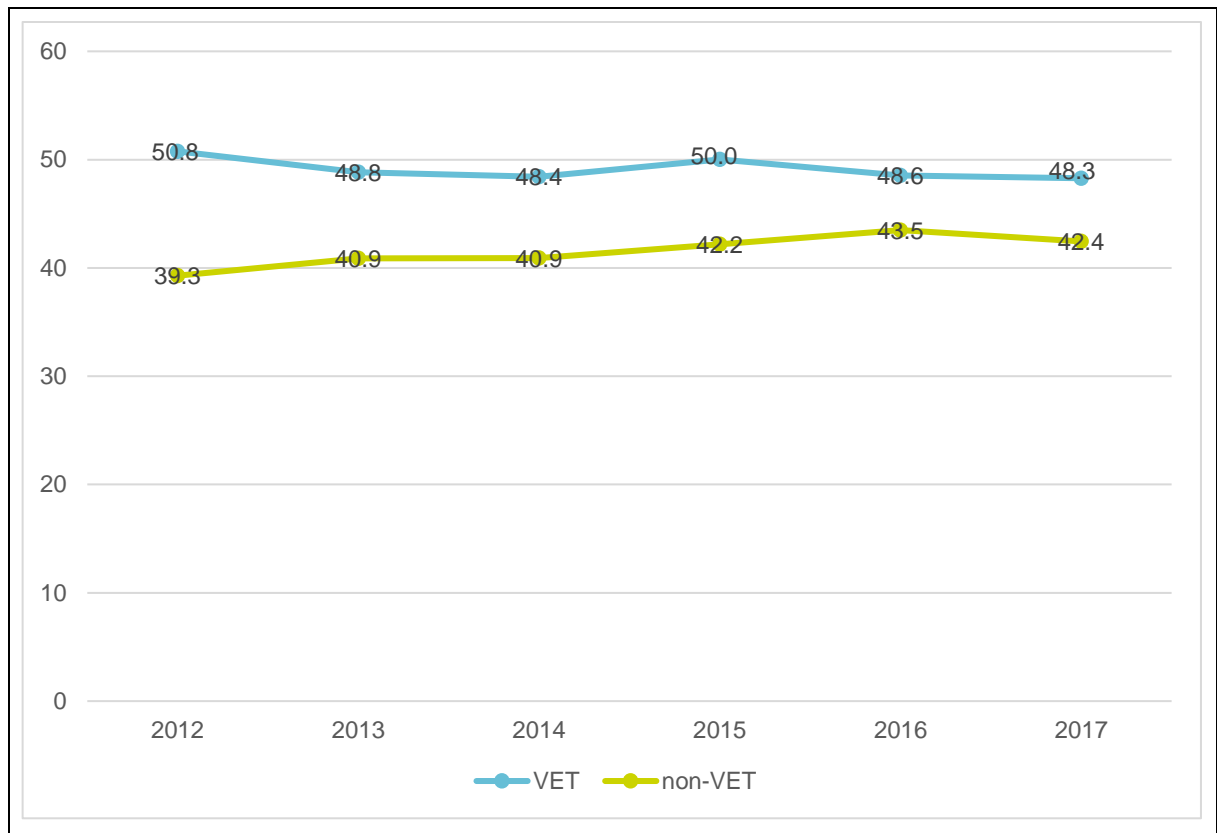
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.5 EMPLOYMENT-TO-POPULATION RATIO OF MEN BY TYPE OF EDUCATION (15–64 AGE GROUP), 2012–17**



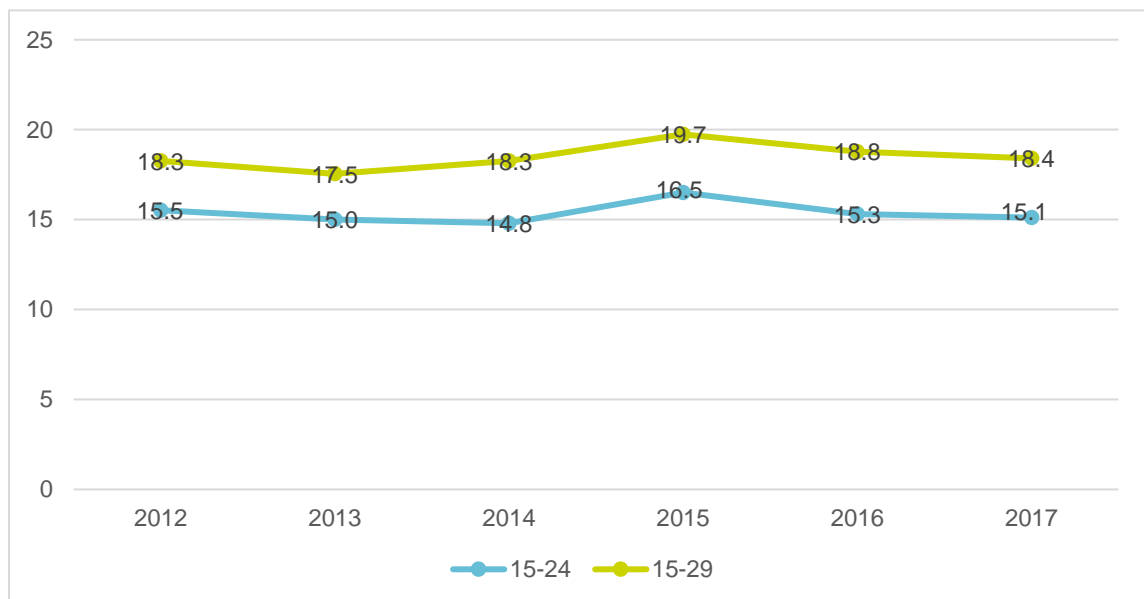
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.6 EMPLOYMENT-TO-POPULATION RATIO OF WOMEN BY TYPE OF EDUCATION (15–64 AGE GROUP), 2012–17**



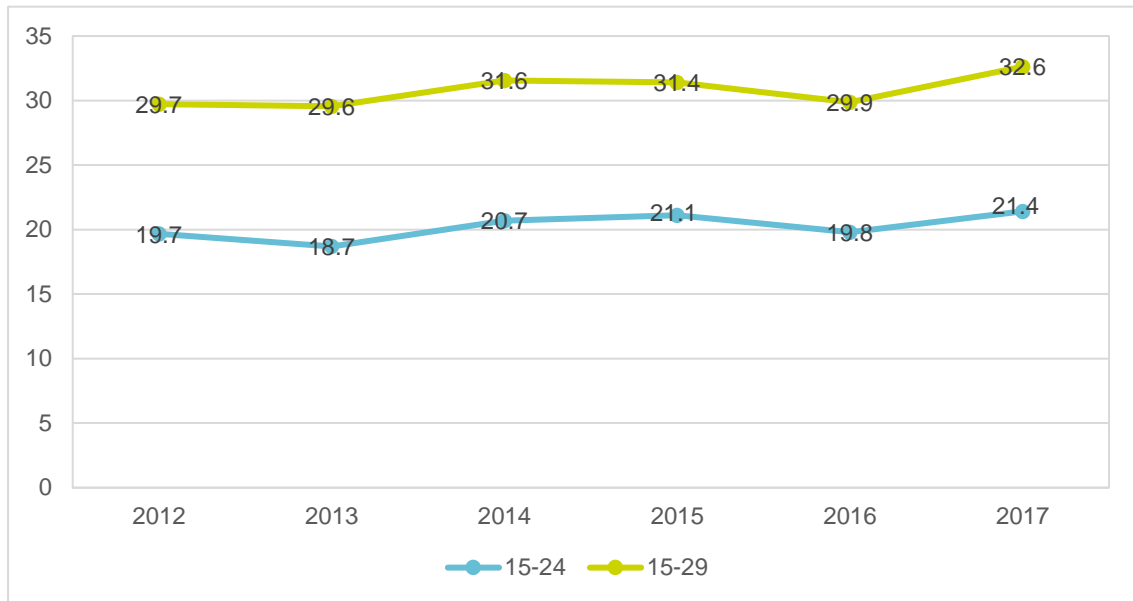
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.7 YOUNG MEN (15–24, 15–29 AGE GROUPS) NOT IN EMPLOYMENT, EDUCATION OR TRAINING, 2012–17 (%)**



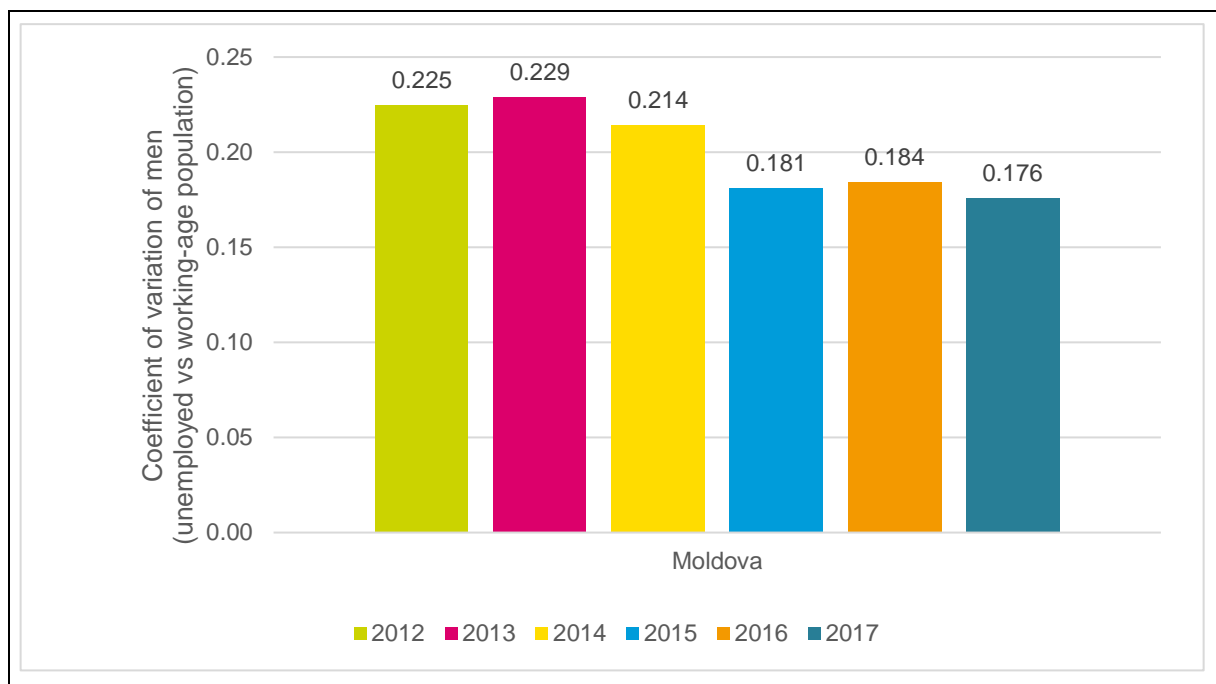
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.8 YOUNG WOMEN (15–24, 15–29 AGE GROUPS) NOT IN EMPLOYMENT, EDUCATION OR TRAINING, 2012–17 (%)**



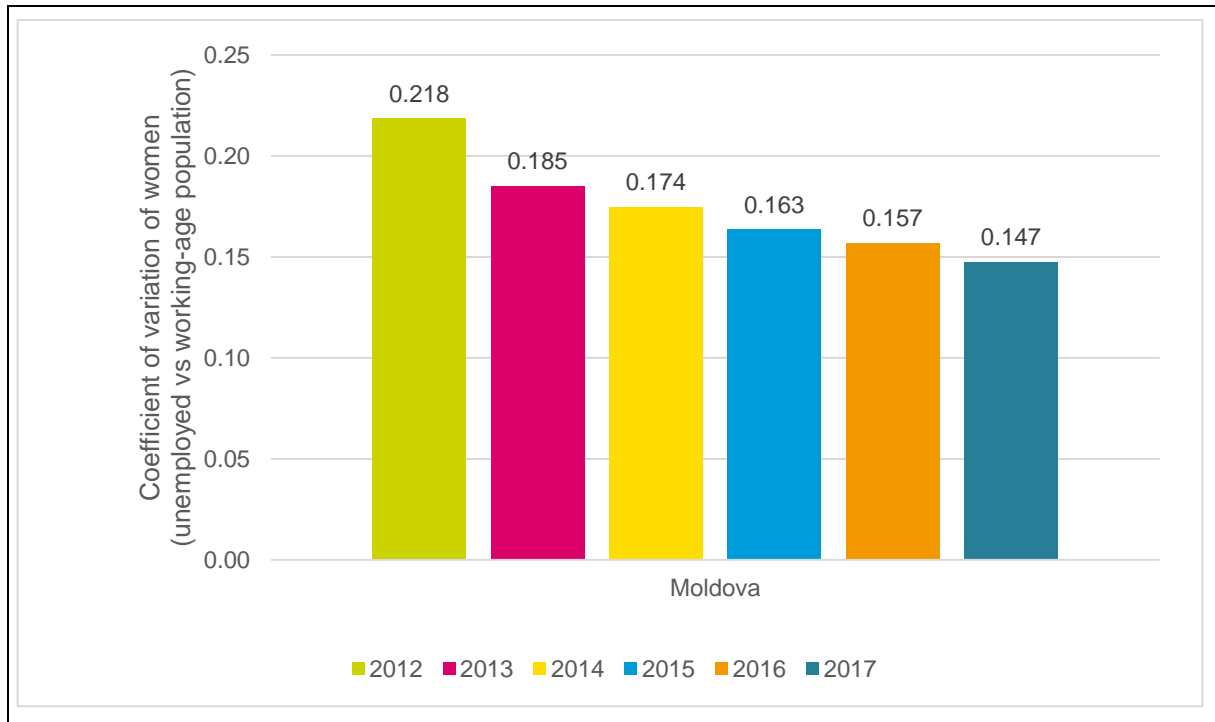
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.9 CVAR OF QUALIFICATION COMPOSITION OF MEN (15–64 AGE GROUP), 2012–17**



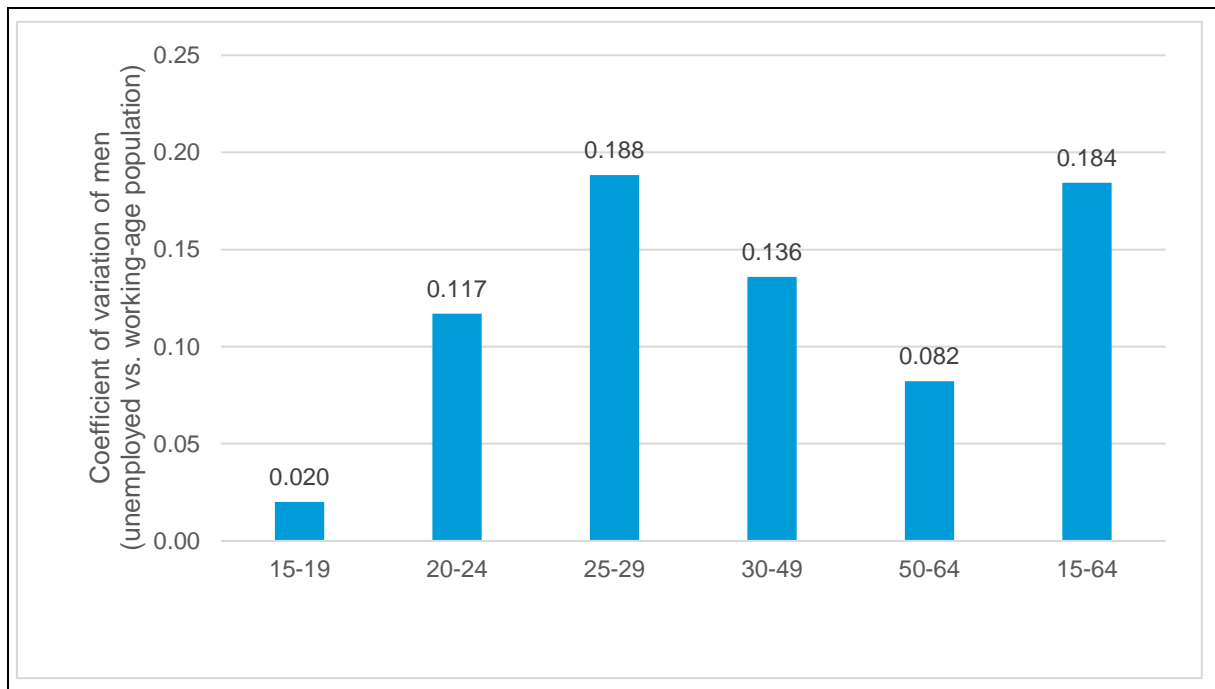
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.10 CVAR OF QUALIFICATION COMPOSITION OF WOMEN (15–64 AGE GROUP), 2012–17**



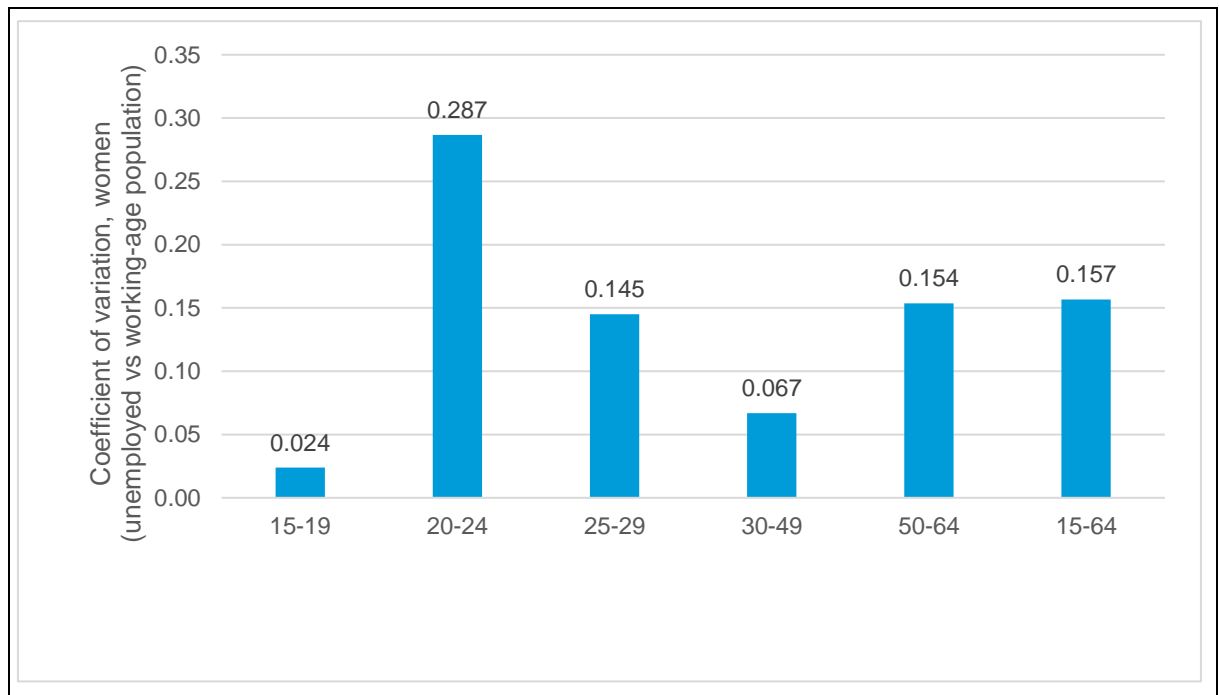
Source: Authors' calculations using LFS 2012–17

**FIGURE A2.11 CVAR OF QUALIFICATION COMPOSITION OF MEN BY AGE GROUP, 2016**



Source: Authors' calculations using LFS 2016

**FIGURE A2.12 CVAR OF QUALIFICATION COMPOSITION OF WOMEN BY AGE GROUP, 2016**



Source: Authors' calculations using LFS 2016

## LIST OF ACRONYMS

<b>ANOFM</b>	Agenția Națională pentru Ocuparea Forței de Muncă (National Employment Agency)
<b>CVAR</b>	Coefficient of variation
<b>ETF</b>	European Training Foundation
<b>EU</b>	European Union
<b>EUR</b>	Euro (currency)
<b>GDP</b>	Gross domestic product
<b>ILO</b>	International Labour Organisation
<b>ISCED</b>	International Standard Classification of Education
<b>ISCO</b>	International Standard Classification of Occupations
<b>LFS</b>	Labour force survey
<b>MDL</b>	Moldovan leu (currency)
<b>NBS</b>	National Bureau of Statistics
<b>NEET</b>	(Young people) not in employment, education or training
<b>NQF</b>	National qualifications framework
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>PISA</b>	Programme for International Student Assessment
<b>SME</b>	Small and medium-sized enterprise
<b>USD</b>	United States dollar (currency)
<b>VET</b>	Vocational education and training



## LITERATURE

Bauer, T.K., 'Educational mismatch and wages: A panel analysis', *Economics of Education Review*, 21(3), 2002, pp. 221–229.

Cedefop (European Centre for the Development of Vocational Training), *Skills, qualifications and jobs in the EU: The making of a perfect match?*, Publications Office of the European Union, Luxembourg, 2015.

Demographic Research Centre, *Population Barometer*, Chisinau, 2015.

ETF (European Training Foundation), *Measuring mismatch in ETF partner countries: A methodological note*, ETF, Turin, 2012.

ETF (European Training Foundation), *Young people not in employment, education or training (NEET): An overview in ETF partner countries*, ETF, Turin, 2015.

ETF (European Training Foundation), Vladimir Lungu and Ummuhan Bardak, *Youth transition to work in Moldova*, ETF, Turin, 2018.

European Commission, *Measuring skills mismatch*, Publications Office of the European Union, Luxembourg, 2015.

Eurostat, *Statistical approaches to the measurement of skills: 2016 edition*, Publications Office of the European Union, Luxembourg, 2016.

IACEG/SSM/UN (Independent Analytical Centre Expert Group/State Chancellery of Moldova/United Nations Moldova office), *Intermediary evaluation report of the National Development Strategy 2020*, Chisinau, 2017.

ILO (International Labour Organisation), *Labour market transitions of young women and men in the Republic of Moldova: Results of the 2013 and 2015 school-to-work transition surveys*, Work4Youth Publication Series No 38, International Labour Office, Geneva, 2016.

IMF (International Monetary Fund), Country report No 18/205, Washington, DC, 2018.

Joint Research Centre, *Occupational mismatch in Europe: Understanding overeducation and overskilling for policy making*, Publications Office of the European Union, Luxembourg, 2014.

Kaufman, H.G., *Obsolescence and professional career development*, Amacom, New York, 1974.

Mendes de Oliveira, M., Santos, M.C. and Kiker, B.F., 'The role of human capital and technological change in overeducation', *Economics of Education Review*, 19(2), 2000, pp. 199–206.

NBS (National Bureau of Statistics of the Republic of Moldova), *Labour force survey*, Chisinau, 2017.





[www.etf.europa.eu](http://www.etf.europa.eu)

