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MISSING SKILLS

Results of the Skills Module of the Moldovan Labor Market Forecast Survey

Abstract

Moldovan employers report that inadequate technical skills, poor work ethic, and lack of motivation among the workforce have a negative impact on the performance of their firms. Inadequate knowledge of foreign languages appears to be the most pressing problem for high-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. Two policy measures can help to address the skills gap. First, the education and training system can put more emphasis on the development of socio-behavioral skills in addition to occupation-specific skills. Second, better communication of employers' perspective on missing skills to students and jobseekers can lead to better informed education and career choices.

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The World Bank

Missing Skills: Results of the Skills Module of the Moldovan Labor Market Forecast Survey¹

I. Introduction

Are inadequate workforce skills an obstacle to enterprise performance in Moldova? What are the skills that workers lack, according to Moldovan employers? This Note addresses these questions using the results of the Skills Module of the Moldovan Labor Market Forecast Survey carried out in 2016.² Survey data analysis shows that inadequate workforce skills do hamper the performance of Moldovan firms.³ According to employers, the three biggest skills obstacles to firm performance are insufficient occupation-specific technical skills, poor motivation, and unsatisfactory work ethic (Figure 1). The skills gaps are particularly pronounced in the case of middle-skilled (manual and non-manual) employees (aka “workers”) as opposed to highly-skilled employees (aka “specialists”). Employers report that middle-skilled workers often lack the needed motivation, analytical and problem-solving skills, computer skills, and willingness to learn new things (Figure 2). The performance of specialists, on the other hand, is most hampered by insufficient foreign language skills. Although the average skills gap among specialists is smaller than among workers in middle-skilled occupations, it often weighs more on firm performance, particularly in sectors intensive in high-skilled labor, such as financial services, public administration, and social services. Some employers are also more critical about the skills of young workers compared to those of older ones, which sends an alarming signal for the education system. The severity of the skills gap varies significantly across regions, with some regions suffering from a considerable shortage of foundational cognitive skills (literacy and numeracy, Figure 3). More generally, the survey’s results suggest that the education and training policies need to put more emphasis on the development of skills demanded by employers but undersupplied by workers. This refers not only to occupation-specific technical skills and cognitive skills, both of which are traditionally the focus of the education system, but also to socio-behavioral skills. The development of socio-behavioral skills tends to be neglected in Moldova (as in many other countries), while employers value them at least as much as occupation-specific technical skills. Education and training policy needs to rise to the challenge of equipping young people with skills demanded by the market in order to, on the one hand, enhance their employability and reduce structural unemployment, and to support productivity growth and the competitiveness of Moldovan firms, on the other.

The rest of the Note is organized as follows. Section II provides background information on the occupational structure of new hires in Moldova and on the reasons for labor shortages as identified

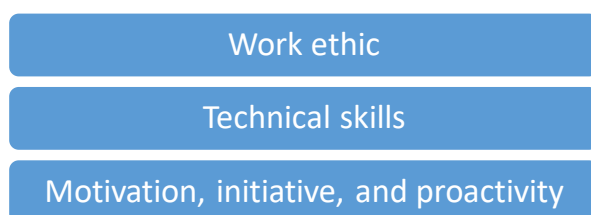
¹ The Note was made possible by financial support from the Korea World Bank Group Partnership Facility. We thank Margo Hoftijzer and Indhira Santos for their useful comments on an earlier draft of this note.

² The module was designed by World Bank staff in collaboration with Ministry of Labor, Social Protection and Family and National Employment Agency of Moldova as part of the Moldova Skills Data Capacity Building Project. The survey was implemented by the Moldovan National Employment Agency (ANOFM) in the Fall of 2016. The skills module was filled out by 3,245 Moldovan firms. More information about the structure of the sample can be found in Annex 3.

³ This is consistent with the results of the 2013 World Bank Enterprise Survey for Moldova. According to this survey, inadequate workforce skills were the third most important obstacle for firms, and 31.2% of Moldovan firms identified inadequately educated workforce as a major constraint, which is more than twice the average for Europe and Central Asia (14.5%). Inadequate workforce skills are thus clearly a major problem for Moldovan firms.

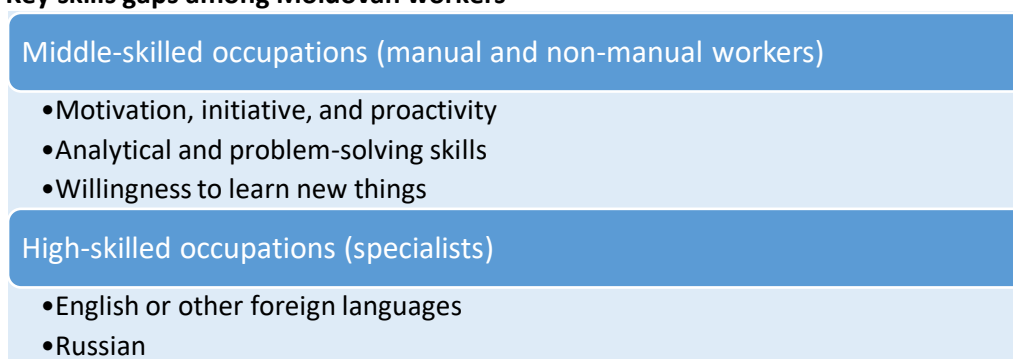
by surveyed employers. Section III identifies key skills gaps among Moldovan workers. Section IV concludes and discusses policy implications of the survey's results.

Figure 1. The top three skills-related obstacles to firm performance in Moldova



Note: The figure shows Moldovan employers' *relative* importance of different skills in terms of their effect on firm performance (responses were asked for the three most important skills-related obstacles). In contrast, Figure 2 shows employers' perception of highest *absolute* skills gaps (i.e. the skills most employers perceived to be currently inadequate in their workforce).

Figure 2. Key skills gaps among Moldovan workers



Note: See note for Figure 1.

Figure 3. Some regions are strongly affected by a shortage of foundational cognitive skills

| | Insufficient Literacy | | Insufficient Numeracy | |
|--------------------|-----------------------|-----|-----------------------|-----|
| Specialists | Gagauzia | 46% | Nord | 23% |
| | Sud | 28% | Chisinau | 23% |
| Workers | Sud | 37% | Sud | 56% |
| | Chisinau | 36% | Chisinau | 40% |

II. Occupational Structure of New Hires and Skills Shortages

This section provides information on the occupational structure of new hires in Moldova and motivates the ensuing analysis of the demand for skills by providing evidence on skills gaps.

In 2015-2016, hiring activity was highest for middle-skilled sales and service workers.⁴ The highest share of new hires (42%) is in the group of middle-skilled workers (clerical support workers and sales and service workers) (Figure 4)⁵. This growth in new hires is largely based on the hiring of service and sales workers (account for 40% of new hires). The second group, skilled and semi-skilled blue collar workers (craftsmen; machine operators and assemblers; skilled agricultural, forestry and fishery workers) constitute 23% of new hires. Third, highly-skilled white-collar workers (managers, professionals, and technicians) represent 18% of the new hires. The smallest share of new hires is for unskilled, elementary workers, who accounted for 17% of the new hires.

Figure 4. Employment increased mainly in low- and middle-skilled occupations



Source: Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.

Inability to find sufficiently qualified staff is reported by employers as the main cause of labor shortages. More than a quarter of firms in Moldova reported that they experienced labor shortage in the last 12 months.⁶ The causes most commonly stated by employers were problems in finding qualified staff: more than half of the employers experiencing labor shortages cited inability to find

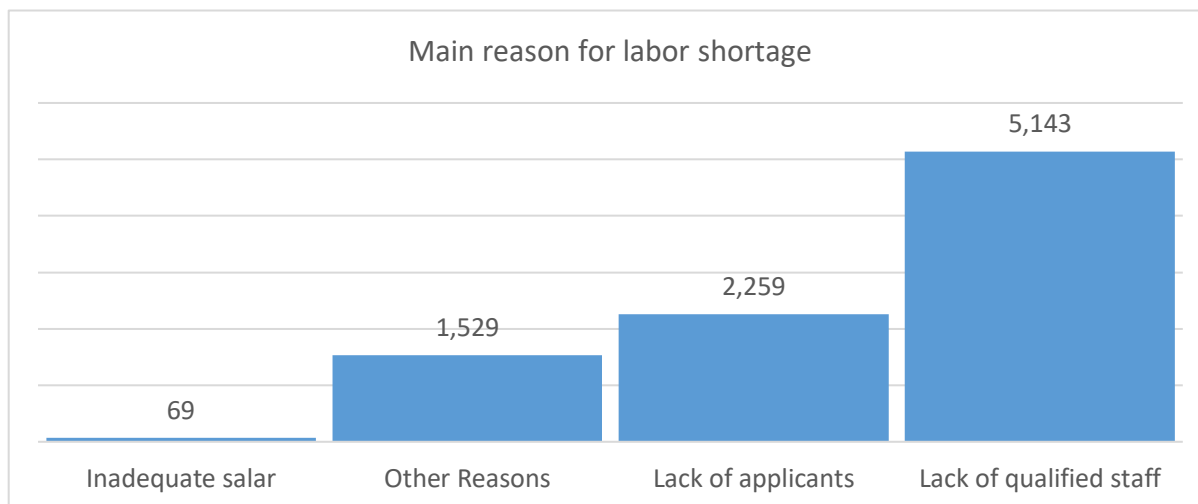
⁴ Hiring activity is assessed using answers to the question “By how many persons is employment now higher in this occupation than it was 12 months ago?”. (Question 2 of the skills module attached in Annex 1).

⁵ This note uses the ISCO-08 classification. More information about the classification can be found in Annex 2.

⁶ Responses to “Did you lack workforce in the last 12 months?” in percent: 26.09% Yes; 73.91% No.

qualified staff as the main cause (Figure 5)⁷. This information underlines the fact that Moldovan employers do indeed face a skills gap. The next section further examines which specific skills are needed by Moldovan employers.

Figure 5. Reasons why around a quarter of jobs were not filled by employers



Source: Moldovan Labor Market Forecast Survey 2016, Main module. Bank Staff Calculations.

III. Skills Employers Seek but Cannot Find

This section aims to pinpoint which skills are in demand by employers but not adequately supplied by employees in Moldova. Employers were asked both about the extent to which particular skills present an obstacle to firm performance and about the relative skills gaps among different types of skills. The responses to these questions will be used to determine overall severity and specific skill shortages that exist in the Moldovan labor market. The first step is to identify among all skills those that present the most severe obstacles to the performance of enterprises. In a second step, an assessment is made of the extent to which the level of skills is sufficient for firm performance, examining it separately for specialists and workers. The objective of this exercise is to measure the intensity of the skills gap and the specific skills that are lacking.

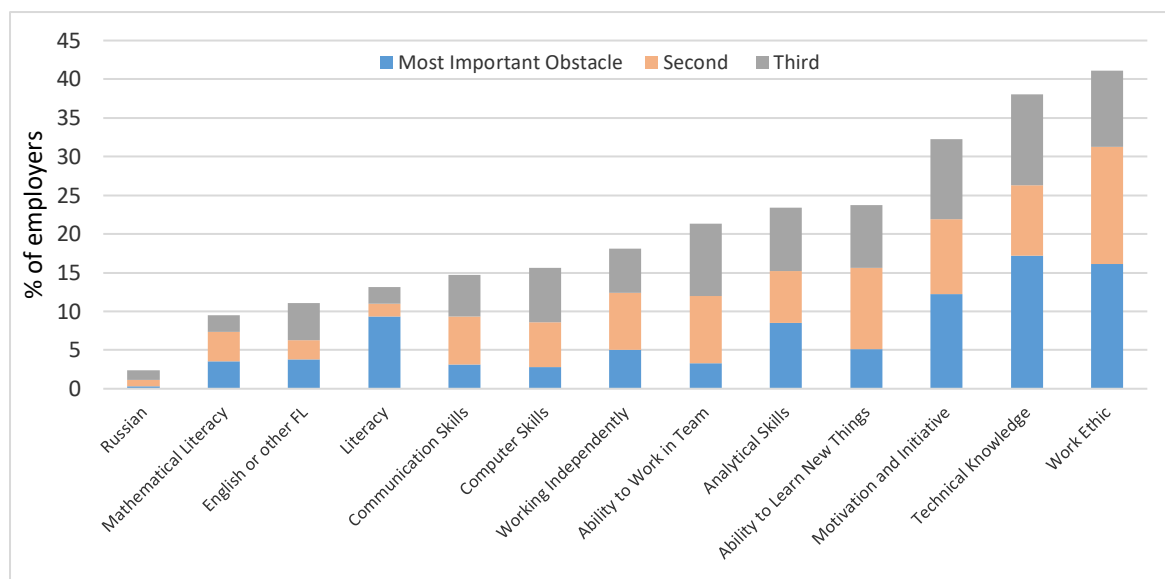
Employers see poor work ethic, inadequate technical skills, and lack of motivation as the most important skills obstacles to performance of their firms.⁸ Figure 6 describes the skills that are deemed by employers to be the three “most severe” skills obstacles to the performance of their firms. Over 40% of Moldovan employers see work ethic as one of the top three skills the lack of which constrains their firm’s performance. Deficits in occupation-specific technical skills are the second most-cited skills obstacle to a firm’s performance, with 37% of firms reporting it is as one of the top-three skills constraints.⁹ Motivation is ranked third with 32%, followed further down by the ability to learn new things (24%), and analytical thinking skills (23.5%).

⁷ Respondents were allowed more than one choice. Subsample of the 26.09% that indicated yes to the previous question.

⁸ These results are based on question 6 of the skills module which can be found in Annex 1.

⁹ Indeed, among all listed skills, deficits in technical skills were most often ranked as the most important obstacle to firm performance, with 17% of companies ranking it as the top skills constraint.

Figure 6. Work ethic, insufficient technical skills and lack of motivation seen by employers as top skills obstacles for their firms' performance



Note: Full results are available in Annex 4, Table A4.1

Source: Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.

The missing skills measured in the LMFS are those skills that constrain the firm's performance. What are the skills that employers see as both insufficient among their employees and important in hampering the performance of their firms? While other surveys on skills gaps try to assess the importance of different skills to employers and/or their satisfaction with them, the Skills Module of LMFS takes a different approach by eliciting the extent to which the current level of the skill in the firm's workforce is a constraint to the firm's performance.¹⁰ For a skill to be "missing," it must be both important to the firm's activities and insufficiently supplied by the current workforce of the firm. The survey elicits these missing skills separately for *specialists* (employees in high-skilled occupations) and *workers* (employees in middle-skilled manual and non-manual occupations) (see Box 1 for the definition of these two groups).

Box 1. Categorization of Occupation groups into workers and specialists

The following categorization of occupation groups was chosen following the standard practice within the Moldovan Public Employment Service's signature product, the Professions Barometer:

Specialists: includes individuals with higher education or specialized secondary education (collegium) (economists, lawyers, accountants, ICT professionals, engineers, doctors, teachers, technicians, etc.)

Workers (not including unskilled employees): trade professionals, service workers, operators of machinery, sales clerks, hairdressers, dressmakers, electricians, welders, mechanics, etc.)

¹⁰ In this, the survey generally follows the approach of Business Environment and Enterprise Performance Surveys (BEEPS), which elicit the extent to which different factors (access to finance, corruption, electricity, tax rates, etc.) appear as obstacles to the firm's operations. BEEPS contains a question on the extent to which "inadequately educated workforce" is an obstacle to the firm's operations; the current LMFS could be considered as unpacking this question to elicit the specific skills that present such obstacles for employers. Please see Annex 2 for more details on the methodology.

Two policy-relevant measures of skills gaps are presented in this note: the *overall skills gap* and the *firm-specific skills gap*. While different only in the choice of the denominator, this distinction matters both theoretically and empirically and is discussed in Box 2. As shown below, the results between these two measures vary greatly in some cases. However, both measures are relevant from the policy perspective. If the overall skills gap is large for a particular skill, this means that an insufficient level of this skill constrains the performance of the whole economy. If the firm-specific skills gap is large (even if the overall skills gap is small) this means that an insufficient level of a particular skill constrains the performance of a certain – often important -- domain of the economy. The level of this skill needs to be raised to remove the obstacle to the growth of that particular domain. Thus, a large firm-specific skills gap should not be ignored, even if the overall skills gap is small.

Box 2. Methodological Issues: Different Firms Need Different Skills

In this note, the skills gap (or shortage) is measured in two different ways. In both cases the numerator of the skills gap measure is the same and shows the number of employers citing the particular skill to be both important for its activities and insufficient in its workforce. But the denominator can vary, and is either:

- The number of *all* firms that answered the question about the insufficiency of that particular skill, or
- The number of firms that reported that particular skill to be important for its activities (and answered the question about the insufficiency of a given skill).

We call the first measure “**overall skills gap**” and the second measure “**firm-specific skills gap.**” Below we use the example of English or other foreign language skills for specialists to show the difference between the two measures.

- **Overall skills gap:** (Moderately + substantially insufficient skill) / all respondents = 39% (i.e. 39% of all respondents reported English or other foreign language skills among their specialists to be a constraint on their firm’s performance)
- **Firm-specific skills gap:** (Moderately + substantially insufficient skill) / (all respondents – unimportant skill) = 69% (i.e. 69% of firms that consider English or other foreign language to be important for their firm’s operations reported this skill as a constraint on their firm’s performance)

The firm-specific skills gap thus can be only greater or equal to the overall skills gap, as the denominator in this case excludes firms who report the skill as being unimportant to the firm’s operations.

Firms that face the firm-specific skills gap usually have common characteristics and are part of a certain domain of the economy. For example, firms that report English skills as insufficient tend to be part of the international trade domain, and firms that report computer skills as insufficient belong to ICT-intensive industries.

For specialists, the biggest overall skills gap is in foreign languages. Nearly 40% of all employers say that specialists’ insufficient knowledge of English or other foreign language hampers the firm’s performance (with 18% of employers reporting this as a *substantially* insufficient skill) and 26% of all employers say specialists lack sufficient knowledge of Russian. The language skills constraints are followed by low motivation and initiative, which is reported to be a constraint on firms’ performance by 30% of all employers. Other skills usually required from specialists, such as computer skills, analytical and problem solving skills, and particularly technical skills are reported as insufficient much

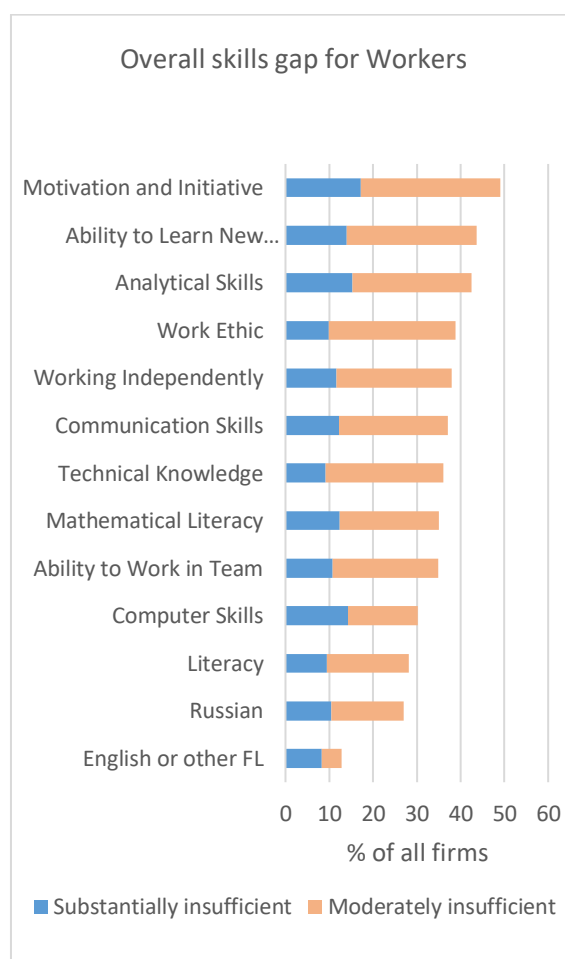
less frequently than languages or motivation, pointing to the latter being a bigger concern for Moldovan companies (Figure 7).

The missing skills of middle-skilled workers are mostly socio-behavioral. Insufficient motivation of middle-skilled workers is reported to be a significant obstacle to firm performance by 49% of all employers, followed by low willingness to learn new things (43%), inadequate analytical and problem solving skills (42%), and poor work ethic (38%) (Figure 8). Language skills that represent the main problem among *specialists* are less of an obstacle in the case of *workers*. This is not because workers know foreign languages better than specialists but because fewer employers need middle-skilled workers to know foreign languages, i.e. middle-skilled workers' knowledge of foreign languages is not important for most firms' performance, while that of specialists is.

Figure 7. Missing foreign language skills is the top constraint for specialists (overall skills gap)



Figure 8. Middle-skilled workers lack motivation, analytical skills and the ability to learn new things (overall skills gap)



Note: Full results are available in Annex 4, Table A4.2.

Source: Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.

Employers consider almost all skills of specialists to be important for their company's activities, while for workers, the level importance of skills varies from firm to firm.¹¹ For specialists, all skills are considered important by the firms with two notable exceptions for languages: English or other

¹¹ These results are based on Q5.2 in the skills module. "Importance" is assessed by adding all answers together except option 4 "not important".

foreign language is reported to be important only in 57% of firms, and Russian is indicated to be important by 91% of employers. This means that apart from these two exceptions, the overall skills gap and the firm-specific skills gap are virtually the same for specialists. For middle-skilled workers, there is more variation. Foreign language and computer skills are least frequently considered to be important for such workers, cited as important only by 17% and 46% of employers, respectively. Work ethic, the ability to work in a team and communication skills are most frequently considered to be important by employers (Figure 9).

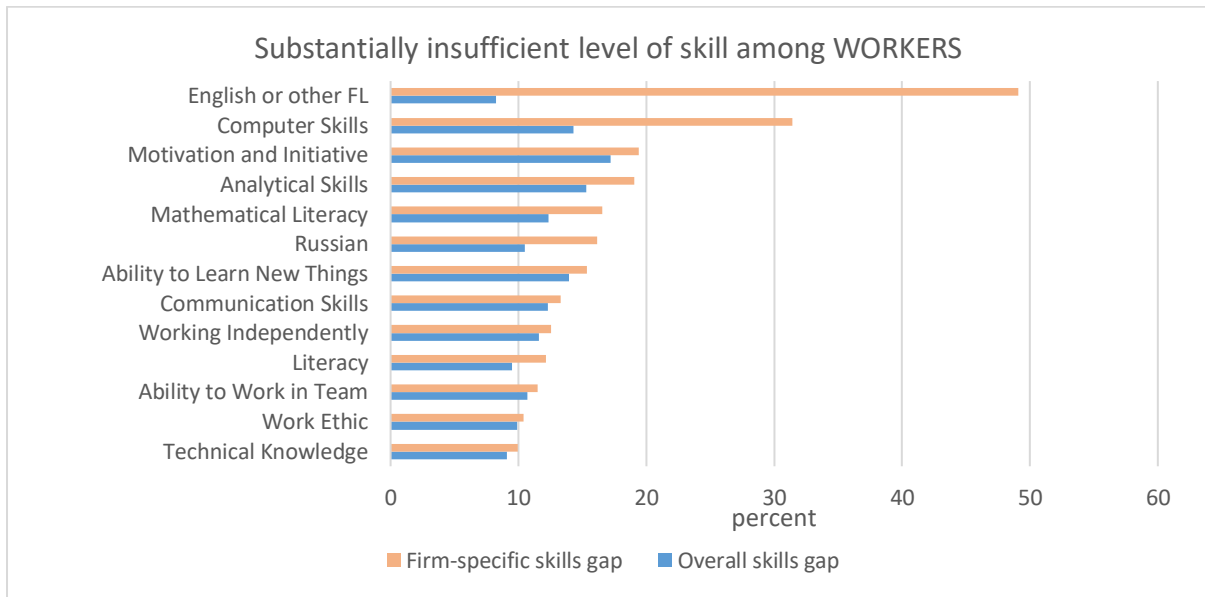
Figure 9. Skills of middle-skilled workers are less frequently considered to be important for the firm’s activities compared to specialists



Source: *Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.*

Half of all firms that need middle-skilled workers to have English or other foreign language skills cannot find such skills in their workforce. There is a significant firm-specific skills gap for workers in foreign languages and in computer skills. Although only 17% of firms reported needing middle-skilled workers to have English or other foreign language skills, 49% of those firms reported that their middle-skilled workers’ foreign language skills are substantially insufficient. For computer skills, one in three firms that consider computer skills of middle-skilled workers as important for their operations found the level of this skill to be substantially insufficient (Figure 10).

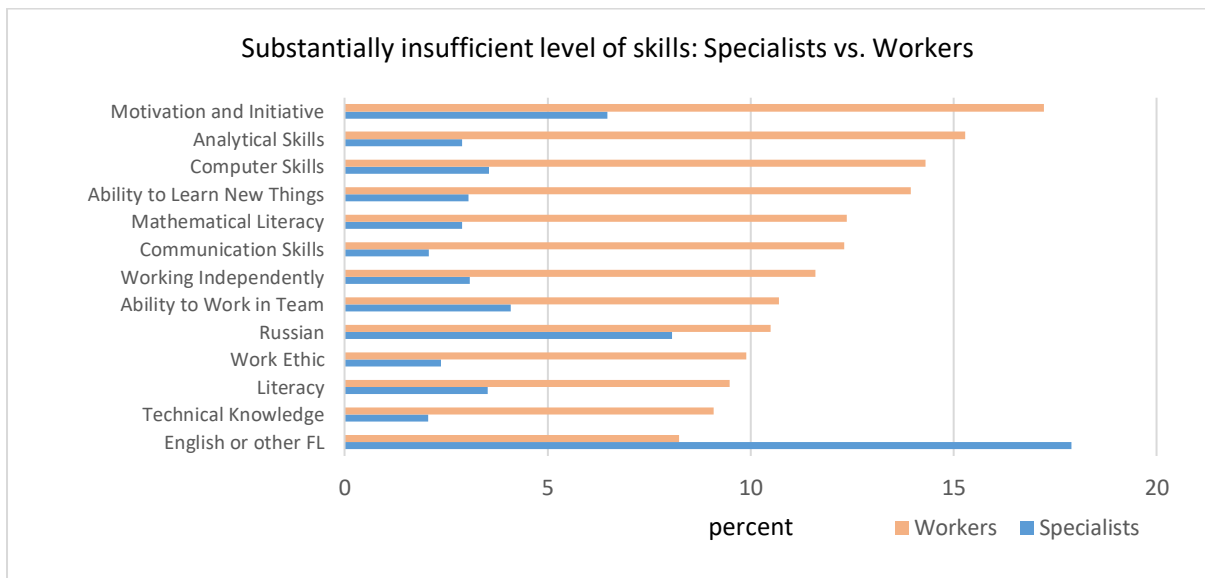
Figure 10. There is a high firm-specific skills gap for middle-skilled workers' foreign language skills and computer skills



Source: *Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.*

Skills of middle-skilled workers are more likely to present a significant obstacle to the performance of firms compared to skills of specialists. When asked to assess the skills of their high-skilled employees (i.e. *specialists*), 11.7 percent of employers marked all skills as sufficient for their firm's operations. In stark contrast, less than 2 percent of companies indicated that all skills of their middle-skilled employees (i.e. *workers*) are sufficient. Indeed, this pattern, whereby skills of *workers* are more often perceived as substantially insufficient compared to skills of *specialists*, holds for every skill except for knowledge of English or other foreign language (Figure 11). As observed above, this exception is due to middle-skilled workers' knowledge of skills being unimportant for most firms' operations.

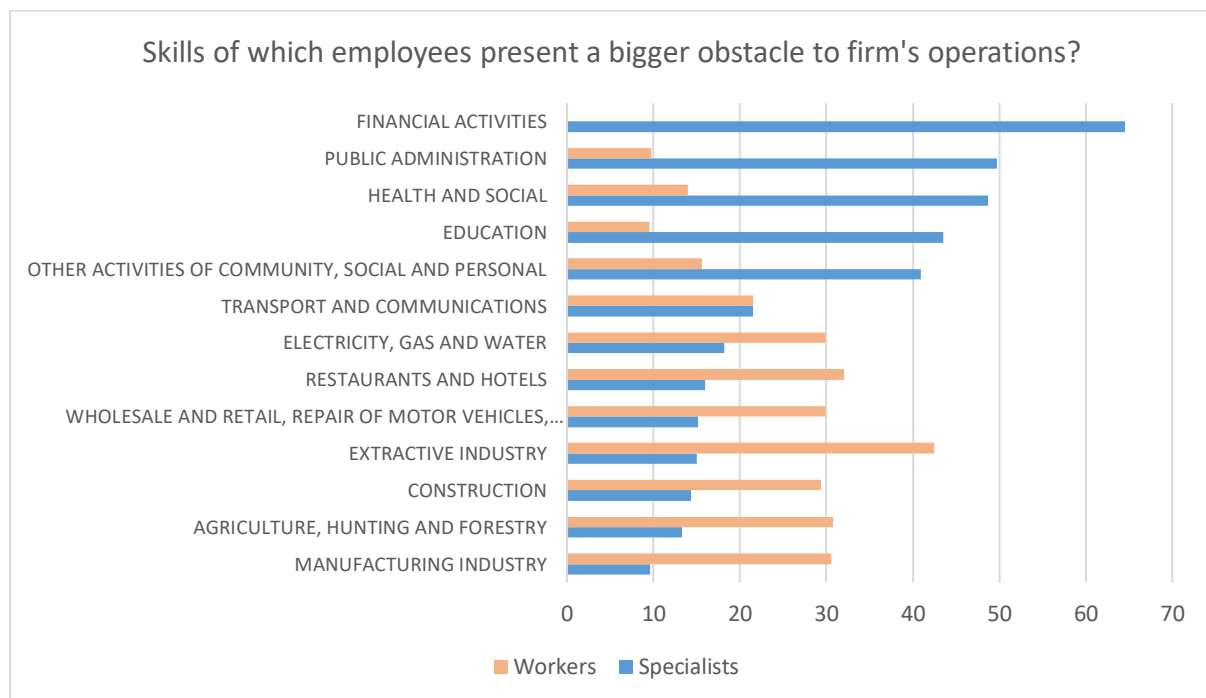
Figure 11. The level of skills among middle-skilled workers are more likely to hamper firm performance (overall skills gap)



Source: *Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.*

However, specialists' skills are more likely to be a **bigger** obstacle, particularly in skill-intensive industries. Although skills of *workers* are more often found to be insufficient than those of *specialists*, in firms that employ both specialists and workers, more employers consider insufficiencies in specialists' skills to weigh more heavily on their firm's performance than insufficiencies in skills of *workers*. When asked to compare skills obstacles for these two types of employees, 27% of firms reported that specialists' skills were a larger obstacle.¹² This finding may be due to the higher value attached to the specialists' skills in terms of the operation of the firms. Indeed, it is the skill-intensive industries (such as financial activities, public administration, health and social services, as well as education) that tend to evaluate the skills of specialists as a bigger obstacle, while industries with lower skill intensity (such as manufacturing, hunting and forestry, construction and extractive industries) see workers' skills as a bigger obstacle (Figure 12).

Figure 12. In skill-intensive industries, specialists' skills are a bigger obstacle than workers' skills¹³



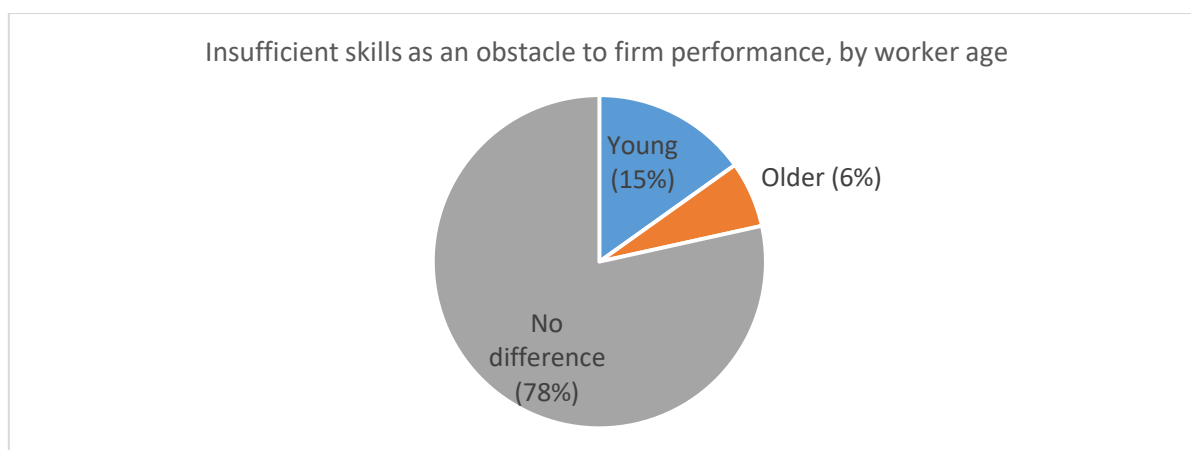
Skills of young employees (under 30) are more likely to be a bigger obstacle to a firm's performance in Moldova than skills of older employees. According to the LMFS Skills module, 15% of employers report that the skills of employees younger than 30 are a bigger obstacle to the firm's performance compared to skills of older employees, while only 6 percent of employers perceived older employees' skills to be more problematic (Figure 13).¹⁴

¹² Answers to Q7 in Skills Module: 23% of firms reported skills of workers are a bigger obstacle. 27% reported that skills of specialists are bigger obstacle. 50% reported no difference. 14% of firms only employ one type of worker (specialist or workers) and did therefore not participate in this question.

¹³ Figure displays answers of Q12 Main Module by Industry and does not display "no difference" answers.

¹⁴ Notably, more than three out of four employers (78%) see no difference in the constraints imposed by skills of young versus older employees.

Figure 13. Skills of young employees are more of a problem in Moldova



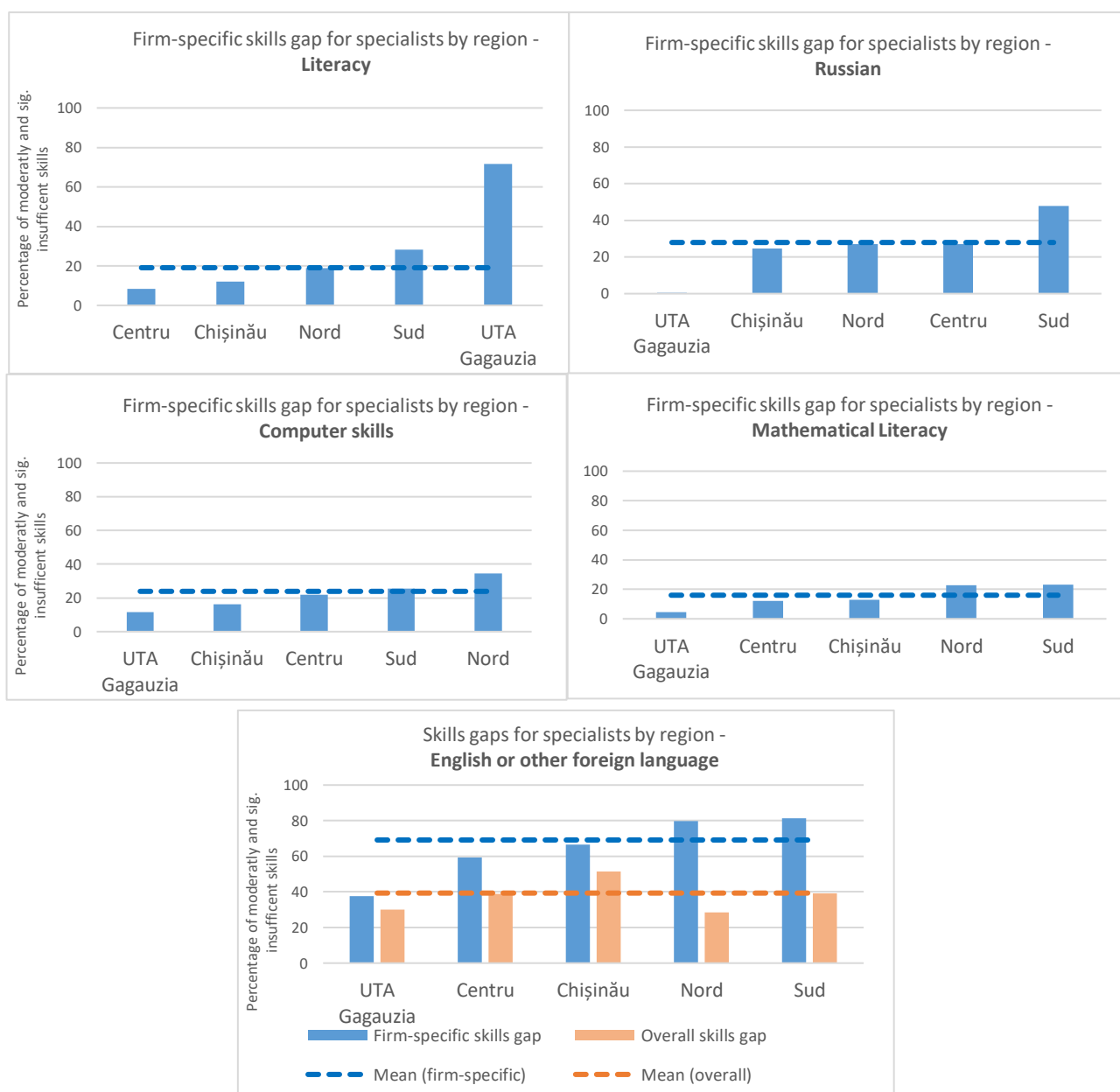
Source: *Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.*

Skills gaps for specialists show strong differences for certain skills across regions. Literacy of specialists is most frequently reported to be missing in UTA Gagauzia with 71% of employers reporting this skill to be either substantially or moderately insufficient,¹⁵ while on the other extreme, only 8% of firms report insufficiencies in this skill in the Centru region.¹⁶ The difference between English (or other foreign language) insufficiencies is very large: Nord and Sud show the largest gaps, where 80% of firms report these skills as insufficient. In comparison, in UTA Gagauzia only 39% of firms report insufficient English or other foreign language skills. Overall, the skill gaps are the largest in Nord and Sud and the lowest in UTA Gagauzia (with the exception of literacy). Figure 14 shows the regional breakdown of the four skills with the highest levels of variance for specialists to illustrate aforementioned trends.

¹⁵ This might be caused by the fact that employers interpreted this question as “Literacy in Romanian”

¹⁶ One potential explanation for this finding is that “literacy” was understood to mean “literacy in the state language” rather than the needed working language of the firm (which is more likely to be Russian in the case of Gagauzia).

Figure 14. Breakdown of skills gaps by region for specialists for skills with highest regional variation¹⁷



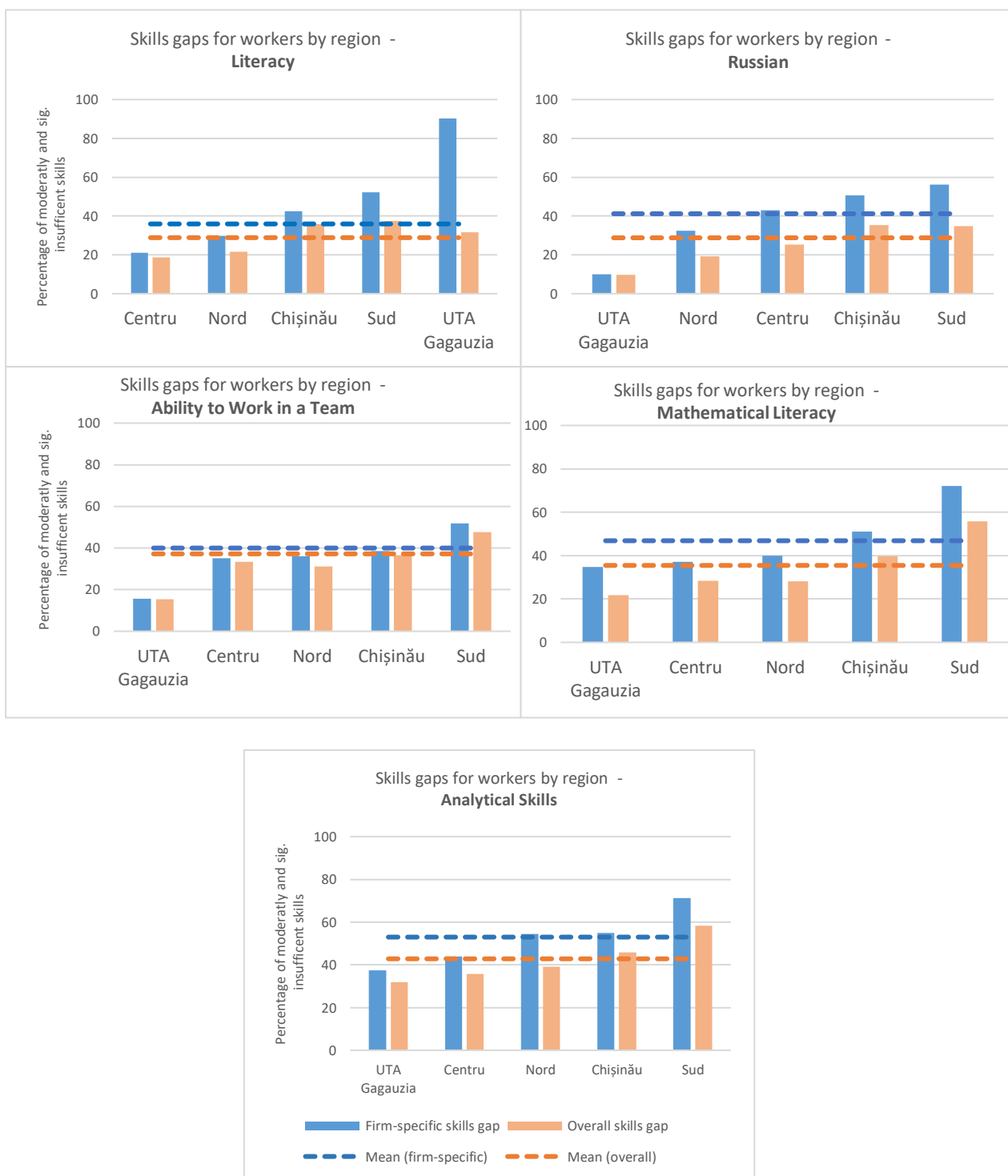
Source: Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.

Skill gaps across regions for middle-skilled workers show even more variation. UTA Gagauzia reports the highest skills gaps for literacy and by far the lowest for Russian. It is important to note that these are also the two skills that do not covary with the others when examining the importance of skills across regions for workers. In UTA Gagauzia literacy is considered by employers to be a lot less important and Russian is considered a lot more important than in all other regions, with 97% of firms reporting that Russian skills are important for the firm's operations. Nevertheless, in firms that consider literacy to be important, UTA Gagauzia shows the largest skills gaps for workers. Overall, Sud

¹⁷ Difference between firm-specific and overall skills gaps are only displayed when there is a considerable difference between the two measures. For specialists, this was only the case for English or other foreign language skills.

shows the most skills insufficiencies with every skill gap being above average, while UTA Gagauzia reports the smallest skills gaps on average. Figure 15 shows the regional breakdown of the five skills with the highest levels of regional variation for workers.

Figure 15. Breakdown of skills gaps by region for workers for skills with highest regional variation



Source: Moldovan Labor Market Forecast Survey 2016, Skills Module. Bank Staff Calculations.

For most skills of workers and specialists, the skills gaps covary across industries. For specialists, looking at the firm-specific skills gaps, the exceptions are Computer Skills in Financial Industry for which less insufficiencies are reported compared to other industries¹⁸ and the hospitality sector, where higher levels of insufficiencies are indicated for mathematical literacy, the ability to learn new things, and work ethic (Annex table A5.1). For workers, the insufficiencies of skills across industries mostly covary with minor exceptions (e.g. computer skills, English or other foreign language skills, and the ability to work in a team show large variation across industries). Full results can be found in Annex table A5.2.

IV. Conclusions and policy implications

There are five main findings emerging from the survey results, which can be summarized as follows:

1. Inadequate workforce skills are a significant obstacle to the performance of many Moldovan firms.
2. Workers, especially middle-skilled ones, lack both technical (occupation-specific) and socio-behavioral (mainly motivation) skills.
3. Skills gaps among specialists in high-skilled occupations are smaller than among workers in middle-skilled occupations, but are particularly important in sectors intensive in high-skilled labor.
4. Skills of young workers are more often of concern to employers than those of older ones.
5. The severity of the skills gap varies significantly across regions, with some regions facing a considerable shortage even in foundational cognitive skills, such as literacy and numeracy.

There is a skills shortage in Moldova, including among young workers. This poses a challenge for the education system, which needs to become more responsive to labor market needs in order to support the growth of Moldovan economy.

The skills shortage, if not addressed, can adversely affect Moldova's economic performance. First, for the current workforce, it hinders productivity improvements and thus makes Moldovan firms less competitive and inhibits their growth. Second, skills deficit worsens employment prospects of Moldovan jobseekers, and as such contributes to structural unemployment.

Enhancing productivity and employability of Moldovan workforce

How then to enhance productivity and employability of Moldovan workers, especially the young ones? This can be achieved by pursuing a two-pronged strategy. First, the education and training system can be reformed so that it becomes more responsive to the changing labor market needs, and puts more emphasis on developing skills that are demanded by employers but often missing among young workers. Second, the demand for skills can be regularly monitored and information about skill requirements can be disseminated to students and jobseekers to enable more informed career choices and investment in skills that are in demand.¹⁹

Reforming education and training system

The education and training system can help individuals to develop the skills that are highly valued by employers but often missing among workers, including recent graduates. The priorities differ

¹⁸ However, the sample size for this industry is relatively small (N=31).

¹⁹ Growth in labor productivity obviously also hinges on capital investments by firms. Growth in labor productivity translates into higher wages, which enhance workers' motivation and strengthen skills development.

depending on the level of education. At the earlier stages of education (pre-school education, primary and secondary schools) more emphasis can be placed on developing adequate socio-behavioral skills, including perseverance, diligence, responsibility and reliability, and honesty.²⁰ These are the traits that at a later stage, during working life, constitute good work ethic. Particular programs for developing such skills could be targeted to children from disadvantaged backgrounds to ensure a more level playing field in the labor market. Box 3 shows examples of programs to develop socio-emotional skills among students designed in different countries.

Box 3. Examples of programs to develop socio-emotional skills among young students

There are numerous school-based programs that aim to develop socio-emotional skills in students. These can be classified into four groups: development of teachers' skills, delivery of socio-emotional curriculum, improvement of school climate, and incorporation of socio-emotional skills into other subjects.

- Peru's *Escuela Amiga* (Friendly School) program, launched in 2013, trained 15,000 school teachers and 81 principals in how to develop their own socio-emotional skills (empathy, tolerance, self-regulation, and social decision making) and how to apply these skills in their interactions in schools. The exit survey revealed that more than 90 percent of participants felt that they were better able to manage their classrooms and to handle conflict at school. The program also developed a comprehensive socio-emotional learning (SEL) toolkit, *Paso a Paso (Step by Step)*, that includes teacher materials, student materials, storybooks, songs, and posters, all aimed to help students understand and manage emotions, form and sustain positive relationships, and make the most out of life. The toolkit enabled gradual development of socio-emotional skills by focusing on age-relevant concepts and activities for each grade.
- Some interventions deliver a socioemotional curriculum on par with other subjects, focusing either on a broad set of socio-emotional skills (such as the *Step by Step* curriculum developed in Peru) or a small set of foundational skills, such as self-regulation or growth mindset. For example, interventions focusing on developing grit (defined as perseverance and passion for long-term goals) have been developed and implemented for primary school students in Turkey and Macedonia. The randomized evaluation in Turkey found significant impacts on perseverance in and preference for challenging tasks and on performance in math and Turkish language tests.
- To create a school climate that is conducive to learning, the *School-Wide Positive Behavior Support* (SWPBS) model, implemented around the world, features a definition of appropriate school norms for behavioral expectations and rules for classroom management, practices to reinforce positive behavior and continuum of consequences for problem behavior, complemented by total school support for students who need additional assistance. SWPBS has been shown to decrease disciplinary problems and improve reading performance.

²⁰ Socio-behavioral skills are not only formed in the school system but also in the family, and in many countries programs were developed to improve the chances of young children from disadvantaged background before they enter the school system. The description of such early childhood development programs is, however, beyond the scope of this note.

- Project-based learning, in which students work for a sustained period on exploring and addressing a challenging problem or question, can be incorporated into different school subjects, such as history. A program implemented in 110 countries and reaching almost 2 million students a year, *Facing History and Ourselves*, trains middle- and high-school teachers on how to incorporate socio-emotional learning and moral reasoning into history instruction. Teachers learn how to encourage students to listen and consider each other's perspectives, connect with the content, take intellectual risks, undertake critical analysis of evidence, and form judgments based on this analysis. An evaluation showed that this program increased students' prosocial behavior, tolerance, and empathy as well as knowledge of history and analytical skills.

Source: Cunningham, W., P. Acosta, and N. Muller (2016), *Minds and Behaviors at Work: Boosting Socioemotional Skills for Latin America's Workforce*, Directions in Development, Washington, DC: World Bank; Alan, S., Boneva, T., and Ertac, S. (2016), "Ever Failed, Try Again, Succeed Better: Results from a Randomized Educational Intervention on Grit," HCEO Working Paper.

At the secondary and post-secondary education level, including TVET, more emphasis can be put on developing higher-order cognitive skills and high-quality technical skills. These include analytical and problem-solving skills, ability and willingness to learn new skills, and computer skills. But further development of basic cognitive skills, such as literacy, numeracy and communication skills, cannot be neglected, especially among students from disadvantaged backgrounds and those who are not aspiring to pursue higher education.

At the tertiary level, colleges and universities can develop a close collaboration with the business community in order to learn about technical occupation-specific skills that are in demand, and adjust the curricula accordingly. One clear message coming from the survey is that young specialists often lack working proficiency in English or other foreign languages, and thus there is scope to improve the teaching of language skills.

In addition to these systemic, *long-term* solutions, *short-term* measures can also be put in place to better match worker skills to the needs of employers, and improve their employability. For example, training provided to the jobseekers can put more emphasis on the development of appropriate socio-behavioral skills (which the unemployed often lack), in addition to technical skills.

Finally, policy measures can be taken to improve the quality of education in regions most affected by insufficient workforce skills, and suffering from a skills shortage. Particularly, priority should be given to equip students with adequate foundational skills.

The main objective of all the suggested measures is to make education and training systems more responsive to labor market needs. The skills mismatch can only be reduced if the inertia in the educational system, which is always present, is minimized. Periodic revisions in the curricula are necessary to account for the changes in the skill profile of labor demand. Such revisions require adequate and timely information on the demand for skills, the point addressed below.

Providing information on demand for skills for students and jobseekers

The infrastructure to monitor the demand for skills already exists in Moldova. The *Labor Market Forecast Survey* (LMFS), implemented annually by the Moldovan Public Employment Service (ANOFM) can be used to identify current shortage occupations, and to estimate short-term changes in

employment by occupation, which are indicative of the evolution of occupational demand.²¹ The skills module added in 2016 can be used periodically (every 3 to 5 years) to identify skill shortages.

There is scope to strengthen the capacity to analyze information on skills demand and supply. Currently the LMFS data are analyzed to a limited extent due to the lack of fiscal and human resources. One way of strengthening the analytical capacity is to establish a *Labor Market Observatory* (LMO) that would be responsible for monitoring labor market trends (with a focus on skills supply and demand), data analysis, and the dissemination of information. Ideally, the LMO would report to the Ministry of Labor, Social Protection, and Family as well as the Ministry of Education as it is these two ministries that would be the main users of the information on occupational and skills demand and supply to guide their policies.

Effective dissemination of information on skills in demand is critical for reducing skills mismatches. The information would aim to reach not only government ministries and agencies, but first and foremost, students and jobseekers so that they can make informed career choices and invest in skills that are sought by employers. To this end, the information on skills in demand needs to be presented in a way that is accessible for the target audience.²² Leaflets with simple graphs accompanied by short comments tend to be more effective than long reports loaded with tables and statistical data. Such leaflets show, for instance, top 10 most in-demand skills, or 20 fastest-growing occupations. The information needs to be made available to school teachers, career advisors and job counselors, who can then communicate it on to students and jobseekers.

²¹ The survey is currently not utilized to its full potential since only a few variables are presented and analyzed by ANOFM. There is room to improve the survey's instrument, enhance the scope of the analysis, and make better use of the survey's results.

²² For example, the results of the *Georgia Occupational Demand Survey* were presented in three different forms. First, a statistical bulletin "*Employment Outlook*", that presented a number of indicators of job prospects for each occupation coded at 4-digit ISCO level at targeted at technical audience in government agencies. Second, a brief "*Choosing an Occupation*", presenting the survey's results in a simple, graphical way and providing their interpretation, targeted at teachers, career advisors and job counselors. Finally, a leaflet "*Know the jobs, know your future*" that was 4-pages long, and contained mainly infographic accompanied by short simple messages on job prospects for different occupations, targeted directly at students and jobseekers.

ANNEX 1: Skills Module of the Moldovan Labor Market Forecast Survey (translated)

Q1. Did your firm increase employment in some occupations during the last 12 months?

Yes (Go to Q2)

No (Go to Q4)

Q2. Did your firm increase employment in some occupations during the last 12 months?

| In 2a. Please list the occupations (workers/specialists) for which your company has increased the number of employees in the last 12 months | In 2b. By how many persons is employment now higher in this occupation than it was 12 months ago? 998 = Don't know 999 = Refusal | In 2c. How many people in your company currently work for this occupation? |
|---|--|--|
| | | |
| | | |
| | | |
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| | | |

Q3. Did your firm reduce employment in some occupations during the last 12 months?

Yes (Go to Q 4)

No (Go to Q 5)

Q4. Employment reduction during the last 12 months:

| Q4a. Please list occupations in which your firm has reduced employment in the last 12 months. | Q4b. By how many persons is employment now lower in this occupation than it was 12 months ago? 998 = Don't know 999 = Refusal | Q4c. How many people in your firm currently work in this occupation? 998 = Don't know 999 = Refusal |
|---|---|---|
| | | |
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| | | |
| | | |

Definition of Occupation Groups

Professionals / specialists: professionals with higher education (economists, lawyers, accountants, ICT specialists, engineers, doctors, teachers, technicians, etc.) [Note: NEA's definition of "specialists" can be used here]

Workers (manual and non-manual below professional level, excluding unskilled workers): Occupations that do not require higher education (clerks, sales workers, service workers, craftsmen, machine operators, assemblers, secretaries, salespersons, hairdressers, seamstresses, electricians, welders, mechanics, etc.) [Note: NEA's definition of "workers" can be used here]

Q5.1. Which of these occupation groups are currently employed in your firm (the right circle):

1. Specialists and workers
2. Specialists only
3. Only workers

Q5.2 To what extent the level of skills in the following list from your staff to date is sufficient for the efficient operation of your company (tick marked adequacy level)?

| List of knowledge and skills | a. The specialists have a level of skills ... | | | | B. Workers (excluding unskilled.) Skill level ... | | | |
|--|---|-------------------------|----------------------------|--|---|-------------------------|----------------------------|--|
| | Sufficient | Moderately insufficient | Substantially insufficient | Not important for the company's activities | Sufficient | Moderately insufficient | Substantially insufficient | Not important for the company's activities |
| 1. Literacy (ability to read with understanding, and write at a level relevant to the job) | | | | | | | | |
| 2. Numeracy (mathematical operations and calculations relevant to the job) | | | | | | | | |
| 3. Analytical and problem solving skills | | | | | | | | |
| 4. Work ethic/ attitude towards the job (commitment, responsibility, diligence, honesty) | | | | | | | | |
| 5. Ability to work independently | | | | | | | | |
| 6. Ability and willingness to learn new things | | | | | | | | |
| 7. Communication skills | | | | | | | | |
| 8. Ability to work in team | | | | | | | | |
| 9. Motivation, initiative and pro-activity | | | | | | | | |
| 10. Technical (professional) knowledge and skills related to the work performed | | | | | | | | |
| 11. Computer literacy | | | | | | | | |
| 12. Knowledge of the Russian language | | | | | | | | |
| 13. Knowledge of English or other foreign languages | | | | | | | | |

Q6. Among skills listed [ENUMERATOR: PLEASE SHOW THE CARD] please indicate which are the three most important obstacle to the performance of your firm or organization:

Q6.1 The most important obstacle: Skill #.

Q6.2 2nd most important obstacle: skill #.

Q6.3 3rd most important obstacle: Skill #.

Q7. Skills of which type of workers are more of an obstacle to the operations of this establishment?

1. Specialists
2. Workers (excluding unskilled workers)
3. There is no difference between specialists and workers

Q8. Does your establishment employ both young (up to 30 years of age), and older (over 30 years of age) workers?

Yes [GO TO Q9]

No [END OF SURVEY]

Don't know

Refusal

Q9. Skills of which type workers are more of an obstacle to the operations of this establishment?

Young workers (up to 30 years of age)

Older workers (over 30 years of age)

No difference between young and older workers

998 Don't know

999 Refusal

ANNEX 2: Measuring demand for skills

The issue of matching the supply of skills with the demand is of high policy relevance. Less skills mismatch means lower skill shortages for employers and better employment prospects for jobseekers. Therefore, there is a growing interest worldwide in measuring both variables (supply of and demand for skills).

Possible instruments

There are different instruments used to measure the demand for skills, and each of them has its advantages and disadvantages. The most common one is an *employer survey*. There are roughly three types of the employer survey: a *skills demand survey*, an *occupational demand survey*, and a *job vacancy survey*. The *skills demand survey* aims at determining the demand for a given set of skills. The survey can cover either the whole economy, or a specific sector (e.g. ICT) to produce information on skills needs in that sector. The Skills Module added to the Moldova's Labor Market Forecast Survey falls into this category. The *occupational demand survey* aims at determining the demand for different occupations, for example by looking at hiring as well as changes in employment and wages within narrow occupation groups. Occupational demand surveys are often carried out by Public Employment Services or by Labor Market Observatories. The objective of the *job vacancy survey* is to identify shortage occupations, i.e. occupations in which demand exceeds supply.

Vacancy scraping is a different way of measuring the skills demand. The underlying idea is to determine a set of skills that are sought after by employers by analyzing skill requirements specified in job vacancy postings. The outcome is a set of skills that appear most frequently, and are thus assumed to be the core employability skills.

The advantages and disadvantages of the three above mentioned approaches are summarized in Table A1.

Table A1. Comparison of different instruments used to measure demand for skills

| Approach | Advantages | Disadvantages |
|----------------------------|---|---|
| Employer Skills Survey | Information on the importance of different generic skills or on skill gaps; relatively cheap (no large sample size required). | No information on demand for technical, job-specific skills, cannot be used to inform the choice of the field of study or occupation; arbitrarily determined list of skills. |
| Occupational Demand Survey | Information on demand for occupation-specific skills; can be used to inform the choice of the field of study or occupation. | Information on skills is implicit rather than explicit, no information on demand for non-technical skills; costly (due to a large sample size) and requires high implementation capacity. |
| Job Vacancy Survey | Information on occupational labor shortages | Same as above. Plus, vacancies often exist in high turnover or unattractive occupations, and are thus not necessarily indicative of the strength of labor demand. |
| Vacancy scraping | Real-time information on skills sought after by employers; the list of important skills is determined by employers themselves | No information on skill gaps; information on skills is difficult to aggregate; costly |

Moldova Skills Module

The Moldova Skills Module is an example of the Employer Skills Survey. It builds on the World Bank *Skills Toward Employment and Productivity* (STEP) project initiated in the mid-2000s. The STEP project was an attempt to develop standardized instruments for measuring both the supply of and demand for skills. These instruments are meant to be applied worldwide, and thus to produce internationally comparable skills supply and demand indicators. The approach to measuring the demand for skills has evolved within the STEP project. The first wave of the STEP employer surveys looked at the *importance* of different skills for employers, under the assumption that higher importance implies greater demand. The second wave of the survey looks at the *difference* between the levels of skills *demand*ed and *supplied*, and thus aims at measuring a skills gap (deficit). (See Table A2 for the exact formulation of the relevant questions).

There were efforts within the Bank to measure the demand for skills before the STEP project. An example is a study by Blom and Saeki (2011), which examined the *importance* of a set of skills, and employers' *satisfaction* with the level of these skills among newly graduated engineers in India (see Table A2).²³

The approach adopted in the Moldova Skills Module differs from that used in the both waves of the STEP employer surveys and by Blom and Saeki in order to get at the skills gaps in the most straightforward manner. The initial intention was to measure the degree to which inadequate skills are an *obstacle* to enterprise performance, an approach analogous to that used in the World Bank Business Environment and Enterprise Survey (BEEPS). The rationale for the focus on skills as a potential obstacle to firm's performance was that this is what ultimately matters to the employer. The problem arises when inadequate workforce skills hamper productivity and competitiveness. However, in practice it turned out that the notion of the *obstacle* is confusing for some Moldovan employers. During the pilot survey there were employers who – according to the enumerators -- apparently mistook “obstacle” for “importance”. They indicated skills they were considering most important (i.e. skill intensity) rather than those that currently presented the biggest obstacle (i.e. skill constraint). In view of this pilot result the project team, in consultation with a group of enumerators, revised the original question so that it focused on the *sufficiency* of the current level of skills for the performance of the firm (see Table 1). According to the enumerators (who were the staff of Public Employment Services), the concept of skill *sufficiency* is clear and will not be misunderstood.

Why did the Moldova Skills Module not use the approaches used in the earlier World Bank skill measurement projects? In the team's view all these approaches suffer from some weaknesses, which the proposed approach tried to overcome. The information on the relative *importance* of different skills (STEP I) is of limited relevance from the policy perspective. In a way, all the skills in the list presented to employers are important, and the differences in frequency with which specific skills were ranked as the most important seem inconsequential. From the perspective of education and training policies, the fact that fewer employers consider skill *A* (e.g. numeracy) as important as skill *B* (e.g. literacy) is of limited value. The recognition of this fact led to the change in approach applied in STEP II. This new approach, aiming at identifying a *skills gap*, is much more relevant. A significant gap between the supply of and the demand for a particular skill has a straightforward policy implication. Action needs to be taken to equip workers with the skill that is in short supply. However, the relevant question is complex, and might pose difficulty for some respondents. The respondents need to determine (a) the existing skill level, (b) the required skill level, and then (c) to assess the difference between (b) and (a). This is a fairly complicated mental activity. The weakness of the solution used by Blom and Saeki is its inherent subjectivity. Respondents are asked about their *satisfaction* with employees' skills, which does not necessarily correspond with the actual skills gap. Some employers

²³ Blom, Andreas and Hiroshi Saeki (2011), “Employability and Skill Set of Newly Graduated Engineers in India”, Policy Research Working Paper, World Bank, Washington, D.C.

can be dissatisfied, even if the skills of their employees meet job requirements. This measure is likely to overstate the magnitude of the skills deficit.

Table A2. Comparison of different approaches to measuring demand for skills

| Question | Possible answers |
|---|--|
| STEP I What is the most important of these skills when deciding which new employees should be retained after a probation period. And the second most important? And the 3rd? And the 4th? And the 5th? [RANK THE TOP FIVE] | Not applicable |
| STEP II How large is the difference between the current skills and the required skills in a typical worker? | Small difference Medium difference Large difference |
| Blom and Saeki a. Rate IMPORTANCE [of the skill] for successful performance of the job b. Rate SATISFACTION with this employee's general skills | Extremely Very Somewhat Not very Not at all |
| Moldova Skills Module - Pilot To what degree is the level of skills among your employees an obstacle to the operations of this establishment? | No obstacle Minor obstacle Moderate obstacle Major obstacle Very severe obstacle |
| Moldova Skills Module - Survey To what degree is the current level of skills among your employees sufficient for the effective performance of your enterprise? | Sufficient Moderately insufficient Significantly insufficient The skill is not important for the activity of the enterprise |

The list of skills adopted was a combination of skills used in STEP I and II with some modifications. In particular, the list used in the Moldova skills Module includes "Ability and willingness to learn new things", a skill that appears neither in STEP I, nor in STEP II. The list of skills was discussed and agreed upon with the counterparts from ANOFM and the Ministry of Labor, Social Protection, and Family. Table A3 presents the comparison between the skill lists used in the STEP surveys and in the Moldova Skills Module.

Table A3. Skill lists: STEP I and II vs. Moldova Skills Module

| STEP I | STEP II | Moldova Skills Module |
|---|--|---|
| Ability to read and write in the official language (literacy) | -- | Literacy (ability to read with understanding, and write at a level relevant to the job) |
| Ability with calculations and numbers (numeracy) | Can do calculations and work with numbers | Numeracy (mathematical operations and calculations relevant to the job) |
| Ability to read and write in English | Can read and write in English | Knowledge of English or other foreign languages |
| Ability to read and write in (another) foreign language | Can read and write in (another) foreign language | Knowledge of Russian |
| -- | Can find new and better ways to do things | Motivation, initiative and pro-activity |

| | | |
|--------------------------------|---|--|
| -- | Can stay on a long and difficult task until it is finished | -- |
| -- | Can be relied on to get things done | Work ethic/attitude towards the job (commitment, responsibility, diligence, honesty) |
| Teamwork skills | Can work well with others and listens to others' views | Teamwork skills |
| -- | Can work well in very busy or difficult situations | -- |
| -- | Can continue in the face of challenging situations at work | -- |
| -- | Can easily adapt to new tasks or changes in the workplace | Flexibility and adaptability to new tasks |
| -- | Can use computer for making presentations and/or other advanced purposes like creating and managing databases, or using specialized computer programs, etc. | Computer literacy |
| Job-specific technical skills | Can demonstrate specific technical skills | Technical knowledge and skills specific to the job |
| Problem solving skills | -- | Analytical and problem solving skills |
| Creative and critical thinking | -- | Creative and critical thinking |
| Ability to work independently | -- | Ability to work independently, self-management |
| -- | -- | Ability and willingness to learn new things |
| Communication skills | -- | Communication skills |
| Leadership skills | -- | -- |
| Time management skills | -- | -- |

"—" = No close equivalent.

In the Moldova Skills Module the skills gap is measured for two types of workers. Highly skilled *specialists* (professionals), and middle-skilled *workers* (manual and non-manual). This is a standard categorization used by ANOFM based on actual occupation/job requirements. For the sake of simplicity, and to avoid adding complexity to the survey's implementation, the team decided not to select a specific, narrower occupational groups (as this is done in STEP). Although STEP asks questions about skills demanded in a selected narrow occupation (different for each firm), in practice the information is aggregated and presented for only two broad occupational groups, Type A and Type B workers (these two groups roughly correspond to *specialists* and *workers*).

ANNEX 3: Description of Data

This Note uses the results of the adapted Moldovan Labor Market Forecast Survey 2016 Skills Module as a basis to analyze the skills gaps in the Moldovan labor market. According to the sampling procedures the LMFS Manual, the survey samples all the firms with 100+ workers, and 15% sample of firms with 5-99 employees, stratifying by firm size (5-20 employees, and 21-99 employees) and by industry (agriculture, construction, manufacturing, services). In November-December 2016, 3,245 employers across Moldova were surveyed and provided answers to the questions attached in Annex 1. The occupational codes used in the survey were then matched with the ISCO-08 occupational codes to enable grouping at any standardized digit level. The distribution of employers by size of the firm size, industry and region can be found in the following tables:

Composition of Sample by Company Size

Table A3.1: Sample by Firm Size

| Region | Frequency | Percent |
|---------------------------------|------------------|----------------|
| Micro <i>1-10 employees</i> | 774 | 24.86 |
| Small <i>11-50 employees</i> | 1,092 | 35.08 |
| Large <i>51+ employees</i> | 1,247 | 40.06 |

Composition of Sample by Region

| Region | Frequency | Percent | Cumulative |
|---------------|------------------|----------------|-------------------|
| Chişinău | 746 | 23.1 | 23.1 |
| Centru | 961 | 29.76 | 52.86 |
| Nord | 839 | 25.98 | 78.85 |
| Sud | 491 | 15.21 | 94.05 |
| UTA Gagauzia | 192 | 5.95 | 100 |
| Unknown | 64 | 1.97 | 100 |
| Total | 3229 | 100 | |

Composition of Sample by Industry

| Industry | Frequency | Percent | Cumulative |
|---|------------------|----------------|-------------------|
| AGRICULTURE, HUNTING AND FORESTRY | 452 | 13.94 | 13.94 |
| FISHING, FISH FARMING | 5 | 0.15 | 14.1 |
| EXTRACTIVE INDUSTRY | 80 | 2.47 | 16.56 |
| MANUFACTURING INDUSTRY | 219 | 6.76 | 23.32 |
| ELECTRICITY, GAS AND WATER | 77 | 2.38 | 25.69 |
| CONSTRUCTION | 167 | 5.15 | 30.85 |
| WHOLESALE AND RETAIL, REPAIR OF VEHICLES & HOUSEHOLD GOODS | 686 | 21.16 | 52 |
| RESTAURANTS AND HOTELS | 75 | 2.31 | 54.32 |
| TRANSPORT AND COMMUNICATIONS | 172 | 5.31 | 59.62 |
| FINANCIAL ACTIVITIES | 31 | 0.96 | 60.58 |
| RENTALS AND SERVICES FOR ENTERPRISES | 8 | 0.25 | 60.83 |
| PUBLIC ADMINISTRATION | 328 | 10.12 | 70.94 |
| EDUCATION | 368 | 11.35 | 82.29 |
| HEALTH AND SOCIAL | 194 | 5.98 | 88.28 |
| OTHER ACTIVITIES OF COMMUNITY, SOCIAL AND PERSONAL | 320 | 9.87 | 98.15 |
| SERVICES PROVIDED BY PRIVATE HOUSEHOLD PERSONNEL | 34 | 1.05 | 99.2 |
| EXTRA-TERRITORIAL ORGANIZATIONS | 26 | 0.8 | 100 |
| Total | 3243 | 100 | |

ANNEX 4: STATISTICAL TABLES

Table A4.1. Insufficient workforce skills as obstacle to firm performance

Percentage of employers indicating

| Skills | Insufficient skills as obstacle to firm performance | | | |
|------------------------------|---|-----------------------------|-----------------------------|-------|
| | 1st most important obstacle | 2nd most important obstacle | 3rd most important obstacle | Total |
| | <i>percent</i> | | | |
| Literacy | 9.3 | 1.7 | 2.1 | 13.1 |
| Numeracy | 3.6 | 3.8 | 2.1 | 9.5 |
| Analytical & problem solving | 8.5 | 6.7 | 8.2 | 23.4 |
| Work ethic | 16.2 | 15.1 | 9.8 | 41.1 |
| Working independently | 5.1 | 7.3 | 5.7 | 18.1 |
| Learning | 5.1 | 10.5 | 8.2 | 23.8 |
| Communication | 3.1 | 6.2 | 5.4 | 14.7 |
| Teamwork | 3.3 | 8.8 | 9.3 | 21.3 |
| Motivation | 12.2 | 9.7 | 10.4 | 32.3 |
| Technical/Job-specific | 17.2 | 9.0 | 11.8 | 38.1 |
| Computer | 2.8 | 5.8 | 7.0 | 15.6 |
| Russian | 0.3 | 0.8 | 1.2 | 2.4 |
| English or other FL | 3.8 | 2.5 | 4.8 | 11.1 |

Source: Labor Market Forecast Survey 2016.

Table A4.2. Distribution of answers to the question about the sufficiency workforce skills

Percentage of employers reporting

| Skills | Degree to which a skill is sufficient for the performance of the enterprise | | | |
|------------------------------|---|-------------------------|----------------------------|---------------|
| | Sufficient | Moderately insufficient | Substantially insufficient | Not important |
| | <i>percent</i> | | | |
| A. Specialists | | | | |
| Literacy | 78.3 | 14.9 | 3.5 | 3.3 |
| Numeracy | 82.4 | 12.8 | 2.9 | 1.9 |
| Analytical & problem solving | 79.7 | 16.3 | 2.9 | 1.1 |
| Work ethic | 82.7 | 14.2 | 2.4 | 0.7 |
| Working independently | 80.0 | 15.9 | 3.1 | 1.1 |
| Learning | 76.4 | 19.3 | 3.1 | 1.2 |
| Communication | 83.6 | 13.7 | 2.1 | 0.7 |
| Teamwork | 79.7 | 15.5 | 4.1 | 0.8 |
| Motivation | 68.5 | 23.4 | 6.5 | 1.6 |
| Technical/Job-specific | 82.4 | 14.9 | 2.1 | 0.7 |
| Computer | 75.0 | 20.0 | 3.6 | 1.5 |
| Russian | 65.8 | 17.4 | 8.1 | 8.7 |
| English or other FL | 17.6 | 21.4 | 17.9 | 43.1 |
| Total | 73.3 | 16.9 | 4.8 | 5.1 |

| B. Workers | | | | |
|------------------------------|------|------|------|------|
| Literacy | 49.9 | 18.7 | 9.5 | 21.9 |
| Numeracy | 39.7 | 22.6 | 12.4 | 25.3 |
| Analytical & problem solving | 37.6 | 27.3 | 15.3 | 19.9 |
| Work ethic | 56.2 | 28.9 | 9.9 | 5.0 |
| Working independently | 54.3 | 26.4 | 11.6 | 7.8 |
| Learning | 47.0 | 29.8 | 13.9 | 9.3 |
| Communication | 55.5 | 24.9 | 12.3 | 7.4 |
| Teamwork | 58.1 | 24.2 | 10.7 | 7.0 |
| Motivation | 39.6 | 31.8 | 17.2 | 11.3 |
| Technical/Job-specific | 55.1 | 27.0 | 9.1 | 8.8 |
| Computer | 15.4 | 15.8 | 14.3 | 54.5 |
| Russian | 38.0 | 16.5 | 10.5 | 35.0 |
| English or other FL | 4.0 | 4.6 | 8.2 | 83.2 |
| Total | 42.4 | 23.0 | 11.9 | 22.7 |

Source: Labor Market Forecast Survey 2016.

ANNEX 5: ADDITIONAL TABLES AND CHARTS

Table A5.1. Breakdown by Industry for Specialists (Adding together Sig. and Mod Insufficient by industry and skill) – only for firms that consider skill as important

| | Literacy | Technical Knowledge | Computer Skills | Russian | English or other FL | Mathematical Literacy | Analytical Skills | Work Ethic | Working Independently | Ability to Learn New Things | Communication Skills | Ability to Work in Team | Motivation and Initiative |
|--|----------|---------------------|-----------------|---------|---------------------|-----------------------|-------------------|------------|-----------------------|-----------------------------|----------------------|-------------------------|---------------------------|
| AGRICULTURE, HUNTING AND FORESTRY | 23.14 | 21.37 | 31.37 | 32.59 | 64.71 | 19.67 | 21.09 | 18.64 | 21.83 | 26.72 | 18.68 | 24.73 | 33.53 |
| EXTRACTIVE INDUSTRY | 34.38 | 21.13 | 24.29 | 27.28 | 71.88 | 13.23 | 23.88 | 15.72 | 21.13 | 24.64 | 18.57 | 20.29 | 32.84 |
| MANUFACTURING INDUSTRY | 14.36 | 15.23 | 18.88 | 20.71 | 64.29 | 14.65 | 17.26 | 17 | 15.74 | 23.35 | 17.17 | 21.32 | 33.84 |
| ELECTRICITY, GAS AND WATER | 23.19 | 11.43 | 16.91 | 26.87 | 77.14 | 14.29 | 12.5 | 12.68 | 18.06 | 21.42 | 15.28 | 16.9 | 32.86 |
| CONSTRUCTION | 19.55 | 15.21 | 19.23 | 25.81 | 56.92 | 14.18 | 19.86 | 13.23 | 21.37 | 25.37 | 13.33 | 17.52 | 22.8 |
| WHOLESALE AND RETAIL, REPAIR OF MOTOR VEHICLES | 22.74 | 17.85 | 20 | 26.5 | 68.86 | 14.11 | 21.2 | 18.16 | 20.49 | 25.09 | 17.99 | 18.62 | 29.41 |
| RESTAURANTS AND HOTELS | 29.69 | 29.69 | 18.76 | 22.41 | 60.53 | 24.25 | 30.16 | 29.23 | 23.44 | 32.82 | 17.19 | 30.77 | 34.92 |
| TRANSPORT AND COMMUNICATIONS | 17.42 | 18.06 | 21.05 | 18.62 | 75.79 | 12.99 | 14.94 | 14.75 | 15.59 | 19.2 | 16.99 | 19.2 | 22.66 |
| FINANCIAL ACTIVITIES | 10 | 10 | 6.67 | 26.67 | 69.57 | 13.33 | 16.67 | 20 | 13.33 | 13.33 | 20 | 20 | 26.67 |
| PUBLIC ADMINISTRATION | 15.84 | 17.97 | 22.7 | 29.48 | 74.1 | 18.06 | 20.86 | 15.79 | 24.42 | 25.24 | 16.23 | 20.91 | 36.37 |
| EDUCATION | 14.37 | 13.04 | 31.98 | 31.77 | 71.43 | 12.83 | 14.45 | 15.61 | 15.94 | 16.18 | 10.66 | 16.76 | 27.76 |
| HEALTH AND SOCIAL | 13.89 | 12.29 | 28.65 | 32.95 | 74.11 | 15.79 | 20.56 | 12.85 | 13.49 | 18.64 | 13.96 | 18.44 | 26.97 |
| OTHER ACTIVITIES OF COMMUNITY, SOCIAL AND PERSONAL | 15.36 | 15.79 | 22.14 | 26.33 | 63.79 | 18.09 | 18.72 | 16.2 | 17.44 | 18.86 | 13.99 | 16.5 | 31.3 |

Table A5.2. Breakdown by Industry for Workers (Adding together Sig. and Mod Insufficient by industry and skill) - only for firms that consider skill as important

| | Literacy | Technical Knowledge | Computer Skills | Russian | English or other FL | Mathematical Literacy | Analytical Skills | Work Ethic | Working Independently | Ability to Learn New Things | Communication Skills | Ability to Work in Team | Motivation and Initiative |
|--|----------|---------------------|-----------------|---------|---------------------|-----------------------|-------------------|------------|-----------------------|-----------------------------|----------------------|-------------------------|---------------------------|
| AGRICULTURE, HUNTING AND FORESTRY | 36.69 | 46.65 | 68.89 | 44.56 | 64.71 | 55.71 | 60.39 | 48.16 | 50.82 | 53.5 | 43.26 | 45.78 | 65.09 |
| EXTRACTIVE INDUSTRY | 52.17 | 49.32 | | 38.89 | 87.5 | 54.72 | 50.84 | 45.21 | 43.47 | 49.29 | 45.45 | 47.88 | 50.75 |
| MANUFACTURING INDUSTRY | 41.09 | 42.34 | 76.39 | 40.95 | 81.82 | 46.36 | 58.13 | 42 | 47.67 | 49.49 | 46.77 | 41.02 | 57.93 |
| ELECTRICITY, GAS AND WATER | 40.35 | 31.34 | 80.64 | 36 | 66.67 | 46.43 | 42.6 | 27.94 | 32.35 | 41.54 | 38.23 | 24.28 | 51.57 |
| CONSTRUCTION | 36.03 | 33.08 | 68.42 | 47.5 | 83.34 | 46.73 | 52.46 | 49.27 | 42.52 | 48.88 | 41.67 | 36.03 | 49.21 |
| WHOLESALE AND RETAIL, REPAIR OF MOTOR VEHICLES | 35.96 | 40.35 | 62.86 | 40.9 | 79.83 | 44.16 | 53.23 | 39.31 | 41.1 | 47.84 | 38.74 | 31.97 | 52.4 |
| RESTAURANTS AND HOTELS | 36.36 | 47.69 | 63.16 | 46.15 | 80.95 | 46.43 | 62.71 | 44.12 | 46.15 | 50 | 35.82 | 33.85 | 49.2 |
| TRANSPORT AND COMMUNICATIONS | 38.28 | 30.5 | 64.39 | 33.34 | 82.85 | 41.53 | 46.28 | 31.72 | 33.81 | 45.26 | 31.69 | 35.5 | 52.67 |
| PUBLIC ADMINISTRATION | 27.51 | 35.68 | 58.42 | 35.07 | 75.68 | 45.34 | 52.04 | 42.13 | 40.87 | 45.8 | 41.78 | 37.44 | 60.19 |
| EDUCATION | 40.74 | 42.11 | 82.52 | 45.7 | 81.4 | 48.27 | 53.62 | 40.78 | 39.77 | 49.2 | 39.85 | 39.55 | 57.49 |
| HEALTH AND SOCIAL | 28.68 | 34.53 | 63.88 | 36.89 | 72.72 | 39.22 | 45.45 | 30.87 | 36.77 | 43.39 | 40.41 | 37.23 | 52.27 |
| OTHER ACTIVITIES OF COMMUNITY, SOCIAL AND PERSONAL | 33.68 | 32.53 | 58.78 | 44.52 | 64.81 | 45.4 | 46.93 | 38.12 | 30.73 | 45.37 | 37.38 | 38.21 | 51.71 |
| MEAN | 37.30 | 38.84 | 68.03 | 40.87 | 76.86 | 46.69 | 52.06 | 39.97 | 40.50 | 47.46 | 40.09 | 37.40 | 54.21 |

Figure A5.3. Breakdown of Skill Insufficiencies by Firm size – Specialists (Q5 Skills Module)

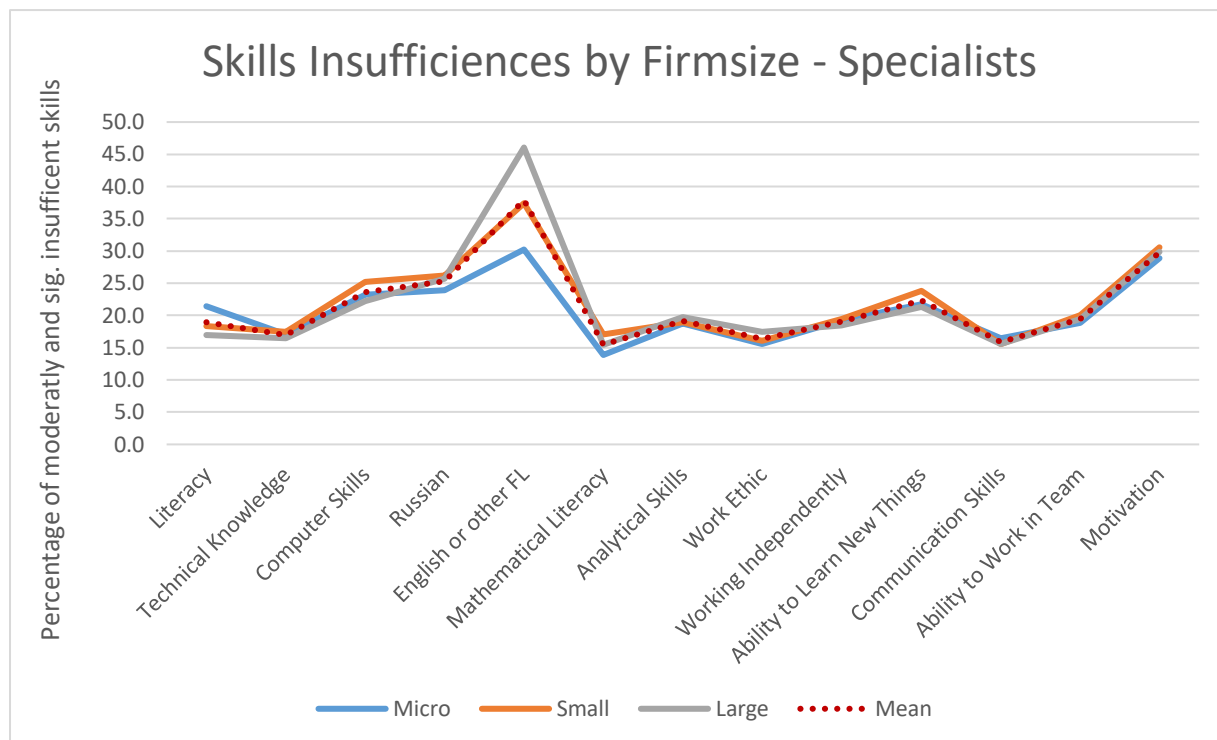


Figure A5.4. Breakdown of Skill Insufficiencies by Firm size – Workers (Q5 Skills Module)

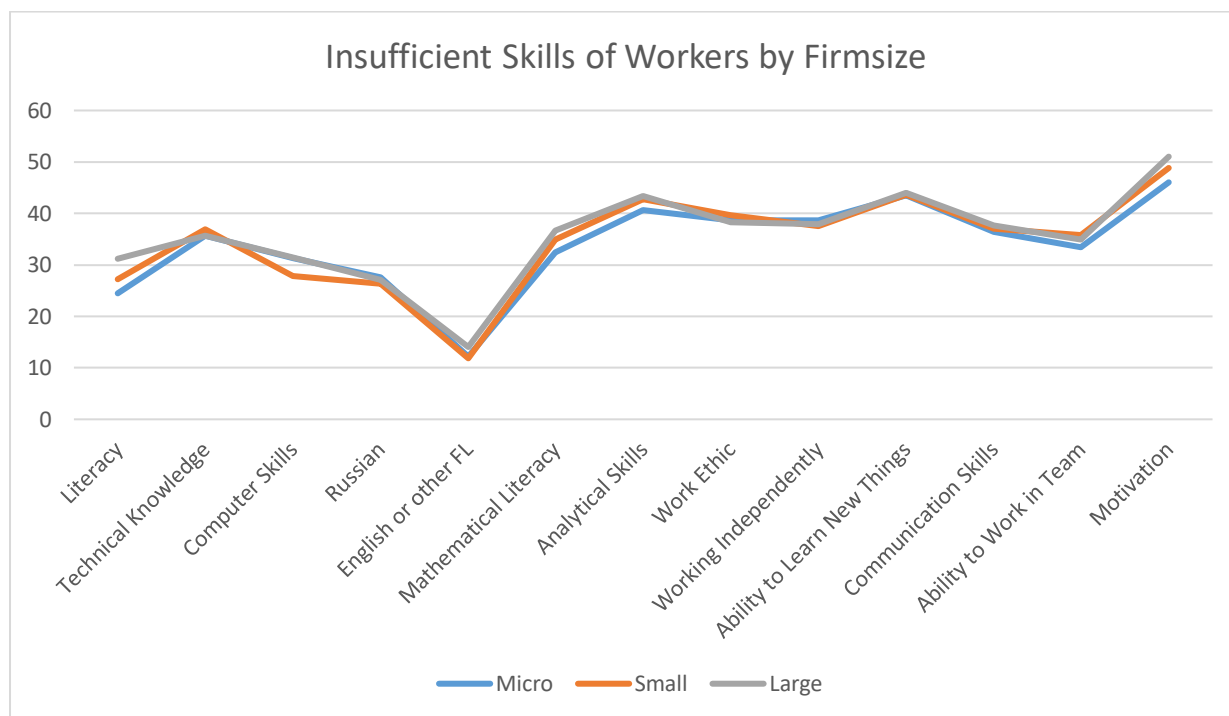


Figure A5.5. Regional differences for insufficiencies in specialists are largest for English and Literacy

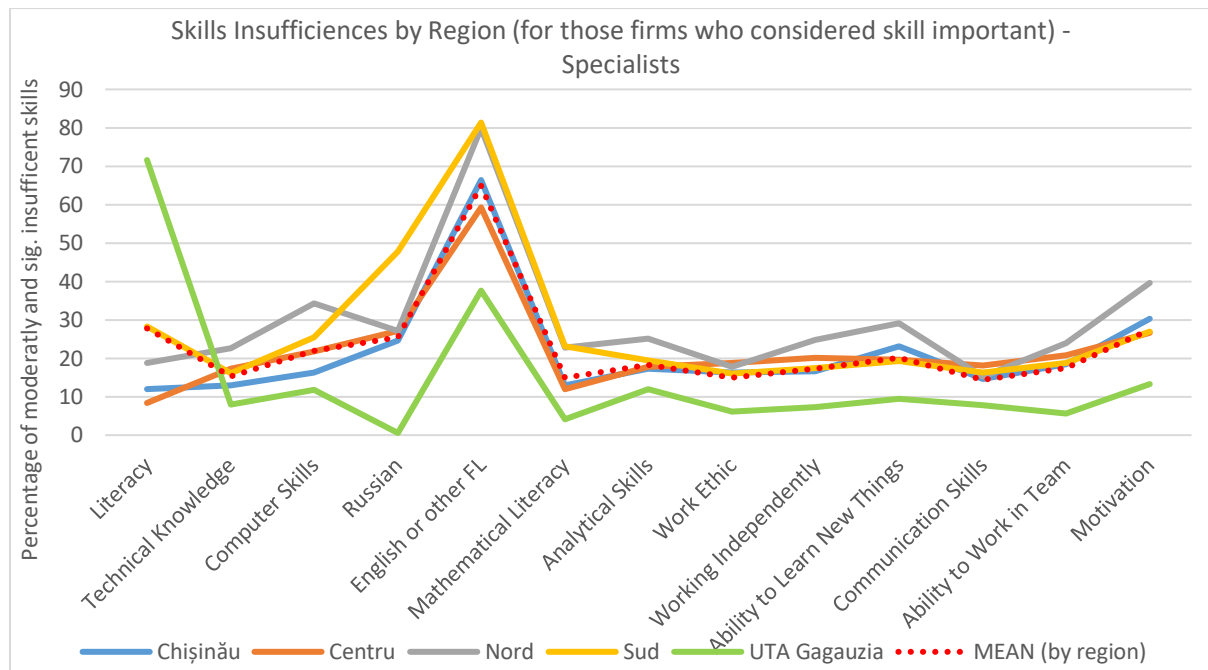


Figure A5.6. Regional differences for insufficiencies in workers are largest for Literacy and Russian

