

# Georgia Skills Mismatch and Unemployment Labor Market Challenges

March 2013

Human Development Sector Unit  
South Caucasus Country Department  
Europe and Central Asia Region  
The World Bank



## **CURRENCY AND EQUIVALENT UNITS**

Currency Unit=Lari

US\$1 =1.658 GEL

(As of March 29, 2013)

## **FISCAL YEAR**

January 1 – December 31

## **ACRONYMS AND ABBREVIATIONS**

BEEPS	Business Environment and Enterprise Performance Survey
EU	European Union
FSU	Former Soviet Union
GDP	Gross Domestic Product
IBRD	International Bank for Reconstruction and Development
HBS	Household Budget Survey
ILO	International Labour Organization
LFS	Labor Force Survey
NEET	Neither in Education, Employment, or Training
VET	Vocational Education and Training

Regional Vice President:	Philippe H. Le Hou��rou
Country Director:	Henry G.R. Kerali
Sector Director:	Ana L Revenga
Sector Manager:	Roberta V. Gatti
Task Team Leaders:	Ramya Sundaram, Meskerem Mulatu
Author:	Jan J. Rutkowski

## TABLE OF CONTENTS

Acknowledgements.....	iv
Executive Summary .....	1
Introduction.....	6
I. Recent Labor Market Developments .....	7
II. Skills Mismatch and Its Consequences.....	15
III. Labor Market Status and Poverty .....	29
IV. Conclusions and Policy Implications.....	39
Annex .....	43
References.....	45

### Tables

Table 1. Recent labor market trends, 2005-2010.....	8
Table 2. Main labor force indicators, 2010 <sup>a</sup> ) .....	9
Table 3. Summary of wage distribution by education, 2010 .....	27
Table 4. Labor force status and poverty, 2010.....	29
Table 5. Worker characteristics and poverty, 2010 .....	32
Table 6. Job characteristics and poverty, 2010.....	33

### Figures

Figure 1. Employment outcomes appear decent compared to other transition economies.....	10
Figure 2. Many of the unemployed are young and highly educated.....	12
Figure 3. High incidence of long-term unemployment, especially among workers with tertiary education.....	13
Figure 4. Traditional employment structure dominated by agriculture .....	17
Figure 5. Employment pattern among young workers is similar to that among older workers....	18
Figure 6. Highly educated workforce .....	18
Figure 7. Most existing jobs do not require higher education .....	19
Figure 8. Many Georgian employers see inadequate workforce skills as major obstacle to operation of their firms .....	20
Figure 9. Workers with tertiary education face a very high unemployment rate .....	21
Figure 10. Workers with tertiary education often take less skilled jobs.....	22
Figure 11. Overqualified workers earn lower salaries .....	23
Figure 12. Highly educated workers earn higher wages, but the wage premium for professional skills is low .....	23

Figure 13. Many professionals work in low-wage industries, such as education and health care	25
Figure 14. Incidence of low-pay is high even among highly educated workers.....	28
Figure 15. Unemployment elevates the risk of poverty but more so in urban areas than in rural areas, where employment does not safeguard against poverty.....	30
Figure 16. Farmers and their contributing family members represent the largest group of the working poor .....	31
Figure 17. Poverty is the results of low work intensity and low earning potential.....	35
Figure 18. A high percentage of households with low work intensity .....	36
Figure 19. Large differences in labor income between quintiles.....	37
Figure 20. Work intensity falls with the increase in earning potential .....	37

## **Acknowledgements**

This report was prepared by Jan Rutkowski, Lead Economist, and was supported under two tasks: the South Caucasus Programmatic Poverty Assessment (under the task team leadership of Ramya Sundaram) and the South Caucasus Skills Development task (under the task team leadership of Meskerem Mulatu). Roberta V. Gatti provided overall guidance as the Sector Manager of the ECA Human Development Economics group and as Lead Economist for the HD department. Arvo Kuddo (Senior Labor Economist), Mariam Dolidze (Economist) and Kenneth Simler (Senior Economist) acted as peer reviewers. Jennica Larrison edited the text. Kamila Kanafa and Gady Saiovici provided research assistance, and Sujani Eli provided administrative support. The team thanks Asad Alam, Country Director, for his comments and guidance at the early stage of the preparation of this report. The team is grateful for the comments and recommendations provided by the participants of the Decision Meeting chaired by Ana L. Revenga, Sector Director, ECSHD. The team thanks the Government of Georgia, and in particular the National Statistics Office, for their support and collaboration.



## **Executive Summary**

1. Georgia faces three main labor market issues: (a) underutilization of labor resources, (b) earnings inequality, and (c) skills mismatch. All three have a negative impact on poverty. Improving labor market outcomes is thus key to poverty reduction. This first of all requires supporting the creation of more and better jobs in order to absorb the surplus labor and increase earnings. It also requires improving the quality of education to reduce the skills mismatch and support modernization of the Georgian economy. Finally, improving labor market outcomes requires developing institutions that improve access to jobs, reduce income inequality, and effectively protect core worker rights.

2. Underutilization of labor resources in Georgia manifests itself in two phenomena: first, in high unemployment, and second in low-productivity employment. Low-productivity employment implies low earnings, and along with unemployment, is an important factor behind poverty in Georgia. The policy challenge is thus not only to create more jobs in order to reduce unemployment, but also to increase the productivity of jobs. After all, it is workers holding low-paying jobs rather than the unemployed who are the single largest group among the poor. Hence, addressing in-work poverty through increasing labor productivity is equally important for poverty reduction as the reduction in unemployment.

### **Underutilization of labor resources**

3. At over 15 percent, the unemployment rate is high by European standards. The outlook is even worse when discouraged workers are considered. Roughly, one in five persons who could work does not in Georgia. This translates into a substantial output loss.

4. High unemployment persists in Georgia despite periods of strong economic growth. Even during the period of economic upturn preceding the 2008 crisis the unemployment rate was around 13 percent. This means that employment in Georgia is relatively unresponsive to economic growth. During the period 2005-2010, GDP grew at an average annual rate of 5.1 percent, and employment at a rate of negative 1.4 percent. Output growth is achieved primarily through growth in productivity, and the labor content of economic growth is low.

5. Unemployment is particularly high in urban areas, where job opportunities are extremely scarce. The unemployment rate in urban areas, at 28 percent is dramatically high (three times as high as in rural areas). And only 46 percent of the urban population of working age is employed.

6. Youth are hit by unemployment particularly hard. The youth unemployment rate is 36 percent, more than twice as high as for prime-age workers. And young workers (15-29) account for 40 percent of all unemployed. These figures indicate that the school-to-work transition is difficult. In addition, close to one-third of youth (persons aged 15-24) are not in education, employment or training. This figure is two to three times higher than in most European countries. The productive potential of young workers is thus grossly underutilized. Low youth

employment in Georgia predominantly reflects depressed labor demand, although, a skills mismatch also plays a role.

7. Many of the unemployed are highly educated. Over 50 percent of all unemployed have a secondary school diploma, and as many as 40 percent have a higher education degree. In urban areas, the proportion of unemployed with higher education is still higher, accounting for 46 percent of all unemployed. In contrast to most EU countries, where unemployment is heavily concentrated among less educated workers, those with less than secondary education represent a minority among the unemployed in Georgia. High unemployment among workers with tertiary education primarily reflects relative scarcity of jobs requiring tertiary education in Georgia. This phenomenon is known as overeducation. However, it also reflects the fact that some of the tertiary graduates lack skills required by employers, a phenomenon known as a skills gap. High unemployment among highly educated workers carries considerable individual and social cost, implying a loss of human capital investment.

8. Unemployment in Georgia is of long duration. Two-thirds of the Georgian unemployed are jobless for more than a year. In comparison, in European countries with well performing labor markets, the share of long-term unemployment is less than one-third. The high incidence of long-term unemployment in Georgia means that the chances to escape unemployment are low, as outflows from unemployment to jobs are limited. At the same time, inflows into unemployment are modest. Accordingly, high unemployment in Georgia reflects low outflows from unemployment rather than high inflows.

9. The outflows from unemployment to jobs are low in Georgia due to weak labor demand and a mismatch of skills. These two types of unemployment - demand deficiency unemployment and structural unemployment - are likely to coincide. Despite high formal education many of the unemployed lack skills sought after by employers. There are job vacancies that the employers cannot fill because of skill shortages. While, the deficient labor demand is the primary cause of high unemployment in Georgia, the skills mismatch is a significant contributing factor.

10. Low productivity employment is driven by a traditional industrial structure. The Georgian employment structure is dominated by agriculture, which accounts for 46 percent of total employment (but for only 10 percent of Georgia's GDP). The industrial sector is small, representing only 11 percent of total employment. The market service sector is relatively large (25 percent of employment), but is dominated by trade, which in a large part is a low value-added activity. The public services sector is also large. The modern business and financial services play a minor role. Thus, the majority of jobs in Georgia are located in the traditional, low-productivity sectors, while only a minority is in modern, high-productivity sectors. This traditional employment structure limits the demand for highly educated workers.

11. The employment structure changes only gradually in Georgia. Younger workers are employed roughly in the same industries as older workers. A trend towards modernization of the employment structure is reflected in the fact that younger workers are more likely to work in the financial services industry, and somewhat less likely to work in the trade industry than older

workers. However, this shift in the demand for skills from the “traditional” towards “modern” skills is quite limited, and jobs held by young workers and older workers do not vary greatly.

12. A high share of the workforce employed in the traditional, low productivity activities implies low earnings for most workers. Using the average wage in the financial sector as a benchmark, an average agricultural worker earns 34 percent, a trade sector worker about 55 percent, and a manufacturing worker less than 60 percent of the benchmark wage. There are many low-paying jobs in the large traditional sector and few well-paying jobs in the relatively small modern sector of the economy.

### **High earnings inequality**

13. By European standards, wage inequality is very high in Georgia. The decile ratio, which is the ratio of the top decile (high) wage to bottom decile (low) wage amounts to 7.1, indicating considerable wage inequality. On average, in the EU, the top decile workers earn no more than four times as much as the bottom decile workers. A bottom decile (i.e. low-paid) Georgian worker earns only one-third of the median wage, whereas in most EU countries, bottom decile workers earn 50 to 65 percent of the median wage. Such large wage differentials may undermine social cohesion, and thus can have a negative impact on social welfare.

14. High wage inequality is associated with a high incidence of low-pay. A large proportion of Georgian workers earn wages that are below a socially defined low-pay threshold. Usually low-pay is defined in relative terms as less than two-thirds of the median wage. According to this criterion, about 40 percent of Georgian wage-workers are low-paid. In most EU countries the incidence of low-pay varies between 10 and 20 percent, and higher rates are rare. The high incidence of low pay leads to increased poverty.

### **Skills mismatch**

15. There is a mismatch between the demand for highly educated workers and their supply. Given Georgia’s industrial structure, relatively few jobs require higher education. The demand for higher education graduates in agriculture or trade – the two largest industries in Georgia - is limited. At the same time, a significant portion of the workforce has a tertiary education. The supply of highly educated workers well exceeds the demand. This leads to a high unemployment rate among higher education graduates. At the same time, not enough workers with vocational training exist to fill the large proportion of jobs that would require vocational skills. Currently, workers with tertiary education fill many jobs requiring vocational skills. Georgia needs to accelerate the creation of highly skilled jobs in the modern sector of the economy. At the same time, the educational system needs to equip workers with the required skills, so that workers are able to perform high productivity jobs.

16. Highly educated workers often do not have the skills needed in the labor market. There is a large pool of jobless workers with tertiary and secondary education, which could suggest that employers should not have problems finding workers with skills to perform necessary labor. However, many Georgian employers complain that hiring workers with required skills is

difficult. Importantly, innovative and growing firms suffer from skill shortages the most. Thus, despite a large supply of highly educated workers, skills are a major constraint. Highly educated workers are not necessarily highly skilled. This implies that skill shortages, if not addressed, may become an important constraint to the modernization and growth of the Georgian economy.

### **Labor market outcomes and poverty**

17. Whereas the unemployed face an elevated risk of poverty, the employed are the single largest group among the poor. Thus, poverty in Georgia is largely associated with low labor earnings, rather than unemployment. The working poor are mainly employed in agriculture. Households where no one works are most likely to be poor; unfortunately such household are quite numerous in Georgia.

18. Unemployment dramatically increases the risk of poverty in Georgia. The poverty rate among the unemployed is 28 percent, nearly twice as high as among the employed. Persons who are out of the labor force face a somewhat higher risk of poverty than the employed, but a much lower one than the unemployed.

19. The employed are the largest single group among the poor. The employed represent 41 percent of all the poor, whereas the unemployed (including the discouraged workers) represent only 18 percent. To a large extent this reflects the rural/urban divide. Rural (agricultural) employment often does not lift workers and their families out of poverty. At the same time urban unemployment does not necessarily push people into poverty because many of the unemployed (especially youth) live in relatively well-off families. Thus, the reduction in unemployment, however desirable, will only partly contribute to the poverty reduction in Georgia. The key for poverty reduction is addressing the in-work poverty through increasing labor productivity.

20. The working poor are mostly farmers and their contributing family members. Farming households jointly account for 65 percent of the working poor. This reflects both the high incidence of poverty among farmers and their family members, and the fact that farmers represent a large share of total employment in Georgia. Wage earners are also a large group of the working poor, representing 27 percent of the total working poor. The self-employed face a higher risk of poverty than dependent workers, but this is a relatively small group and therefore represents only 8 percent of the working poor. These results entail that poverty reduction in Georgia requires industrial restructuring and the modernization of the economy. First, a modern high value added sector of the economy needs to grow in order to provide productive job opportunities. Second, jobs need to be reallocated away from low-productivity agriculture to more productive industries in the modern sector.

21. While having a low-paid job raises the risk of poverty, it does not necessarily lead to poverty. After all, the majority of low-paid workers are not poor. This is because low-paid workers are often secondary earners (e.g. youth) in well-off families. It is low-paid workers in poor households, most likely to be workers employed in rural areas and in agriculture, which pose a

particular policy problem. Accordingly, the growth in agricultural productivity and thereby earnings would have the biggest impact on poverty reduction.

22. The proportion of households with low work intensity is high in Georgia. Workless households represent as many as 22 percent of all households, and households where less than half of the members of working age are employed represent an additional 17 percent. Thus, work intensity is low in two out of five households. Such low work intensity is not surprising given the lack of work opportunities and high joblessness. Joblessness is associated with poverty: over 50 percent of all poor households are those with low work intensity.

### **Policy implications**

23. To reduce poverty Georgia needs to create more and better jobs. More highly skilled jobs in the modern sector of the economy are required to absorb the unemployed highly educated young workers. Job creation outside agriculture should be fostered in order to reallocate labor away from subsistence farms to more productive activities in the industry and services sectors.

24. The creation of more and better jobs requires a favorable investment climate, sustainable long-term economic growth and industrial restructuring. It also requires the development of a culture of entrepreneurship. The solution of Georgia's labor market problems lies in the expansion of the modern, high value-added sector of the economy. Only when such a sector is large enough to provide attractive job opportunities to highly educated workers will investment in skills begin to pay-off.

25. For high productivity jobs to be created, workers need to have the right skills, not only diplomas. The modern sector will expand if workers have the skills that make investments in high value-added activities profitable. This means that the education sector in Georgia needs to change so as to provide high quality education and become more responsive to the changing labor market demands. Graduates need to have not only degrees, but also the skills and competencies required by employers in modern firms. It is necessary to foster the demand for highly skilled labor, but the demand will materialize only if there is an adequate and swift supply response.

26. While the long-run solution to unemployment and poverty lies in strengthening the demand for and enhancing the supply of highly skilled labor, the medium run solution lies in improving the matching of supply to demand for labor. Policies to alleviate a skills mismatch include developing labor market information to guide career choices; developing job matching and career guidance services; ensuring education and training systems are responsive to the changing labor market needs; and increasing training and skill development opportunities.



## Introduction<sup>1</sup>

1. *Unemployment and low-productivity employment are the primary causes of poverty in Georgia.* While university educated workers represent a large part of Georgia's workforce, productive job opportunities are few. A skills mismatch in Georgia not only contributes to unemployment, but also forces highly educated workers to take less skilled jobs. However, over-education coincides with a skills gap: many employers find it difficult to recruit workers with the required skills. To reduce poverty, Georgia needs to foster the development of a modern, high value-added sector of the economy that will provide job opportunities for skilled workers, while simultaneously improving the quality of education and making the education system more responsive to labor market demands.

2. *This paper reviews labor market performance in Georgia, and examines the link between labor market outcomes and poverty, focusing on the skills mismatch critical for understanding the nature of labor market problems in Georgia.* The paper complements an earlier World Bank analysis of labor market performance in Georgia in which job creation, job destruction, and the contribution of enterprise restructuring to skills mismatching were addressed (Rutkowski 2008). This paper focuses specifically on the skills mismatch to provide a thorough understanding of the phenomenon.

3. *The analysis presented in this paper was derived primarily from individual level data in the 2010 Household Budget Survey (HBS) implemented by the National Statistics Office of Georgia (Geostat).* Given the availability of the individual level (micro) data, we were able to enhance the scope of the analysis compared with that presented in Rutkowski (2008), which was carried out based on the aggregate HBS data.

4. *The paper begins in Section I by analyzing recent labor market developments in Georgia, including the impact of the 2008 crisis.* Section II examines different dimensions of a skills mismatch in Georgia and its consequences. Section III looks at the link between labor market outcomes – both at the individual and household levels – and poverty. Section IV concludes and outlines possible policy options to address the skills mismatch and to improve the labor market outcomes.

---

<sup>1</sup> The paper benefited from comments by Asad Alam (Country Director), Meskerem Mulatu (Country Sector Coordinator), Pedro Rodriguez (Lead Economist) and Ramya Sundaram (Senior Economist, Task Team Leader) and from comments made by the participants of the labor market workshop held in Tbilisi on November 24, 2011.

## I. Recent Labor Market Developments

5. **Georgia has had persistently weak employment outcomes in recent years.** Prior to the crisis, unemployment was high and the employment rate was low (Rutkowski 2008). The 2008 crisis caused further deterioration of labor market conditions: employment fell and unemployment sharply increased. In 2010, employment was almost 5 percent lower than before the crisis (2007) and unemployment was 22 percent higher (Table 1).

6. **The years before the crisis saw sharp growth in real wages.** Wages declined in 2010. Still, real wages are currently about one-third higher than before the crisis, and twice as high as in 2005 (Table 1). The real wage growth has been a positive development from the poverty perspective. However, wages have grown well in excess of labor productivity (GDP per workers). Labor productivity is currently less than 10 percent higher than before the crisis and 38 percent higher than in 2005. This gap between real wage growth and labor productivity growth implies a substantial increase in unit labor costs. Labor has become more expensive given its productivity. This may have a negative impact on labor demand, investment, and the competitiveness of Georgian firms.<sup>2</sup> Rapid wage growth despite limited improvements in labor productivity requires further research. One possible explanation is that employers had to raise wages in order to recruit and retain the most skilled workers, whose pool is limited.

7. **Despite periods of strong economic growth, high unemployment persists in Georgia.** Even during the period of economic upturn preceding the 2008 crisis the unemployment rate hovered around 13 percent. This means that employment in Georgia is relatively unresponsive to economic growth. During the period 2005-2010, GDP grew at an average annual rate of 5.1 percent, and employment at a rate of negative 1.4 percent. Output growth is achieved primarily through growth in productivity, and in Georgia, the labor content of economic growth is low. As mentioned above, growth in labor productivity translates into real wage growth, rather than into a faster pace of job creation. This is a short- to medium-term pattern. In the longer term, economic growth and productivity growth, if sustained, can be expected to engender investments and job creation, and thus will contribute to the reduction in unemployment (provided that wage growth will be realigned with labor productivity growth).

---

<sup>2</sup> The competitiveness of Georgian firms depends also on the evolution of unit labor costs in Georgia's regional competitors. The analysis of this issue is beyond the scope of this paper.

**Table 1. Recent labor market trends, 2005-2010**

Year-over-year % growth

	2005	2006	2007	2008	2009	2010	2010/ 2007
Population	1.0	0.8	-0.2	-0.1	0.6	1.0	101.5
Unemployment a)	8.1	-1.4	-5.1	21.1	6.3	-5.7	121.5
Employment	-2.1	0.1	-2.5	-6.0	3.4	-1.7	95.5
Real wage	22.4	25.8	19.5	37.7	0.8	-3.7	133.7
Labor productivity b)	12.0	9.3	15.2	8.8	-6.9	8.1	109.5
GDP	9.6	9.4	12.3	2.3	-3.8	6.2	104.6

a) ILO/LFS.

b) Labor productivity = GDP per worker

Source: Geostat; Bank staff calculations.

**8. The current employment outcomes point to a severely depressed labor market.** At over 18 percent, the unemployment rate is very high by European standards (Table 2). It is still higher when persons who would like to work but ceased looking for jobs once their efforts proved futile, or “discouraged workers” are considered. An augmented unemployment rate is almost 3 percentage points higher than the standard one. This means that one in five persons who could work does not in Georgia. As a result of high unemployment, the employment/working age population ratio<sup>3</sup> is rather low. Only 58 percent of the working age population is employed in Georgia (Table 2). However, with a labor force participation rate of 70 percent, the economic inactivity affecting many EU countries is not a problem in Georgia. People cannot afford to be inactive, but unemployment remains high.

<sup>3</sup> The employment/working age population ratio is a summary measure of the utilization of labor resources.

**Table 2. Main labor force indicators, 2010<sup>a)</sup>**

Percentages

	Employment/ population ratio	Unemployment rate	Labor force participation rate
All workers	57.5	18.2	70.3
Urban	46.2	28.4	64.6
Rural	69.1	9.2	76.2
Men	63.9	19.9	79.7
Women	51.7	16.4	61.9
15 – 24	24.0	36.4	37.8
25 – 54	67.0	17.4	81.1
55 – 64	66.3	9.9	73.6

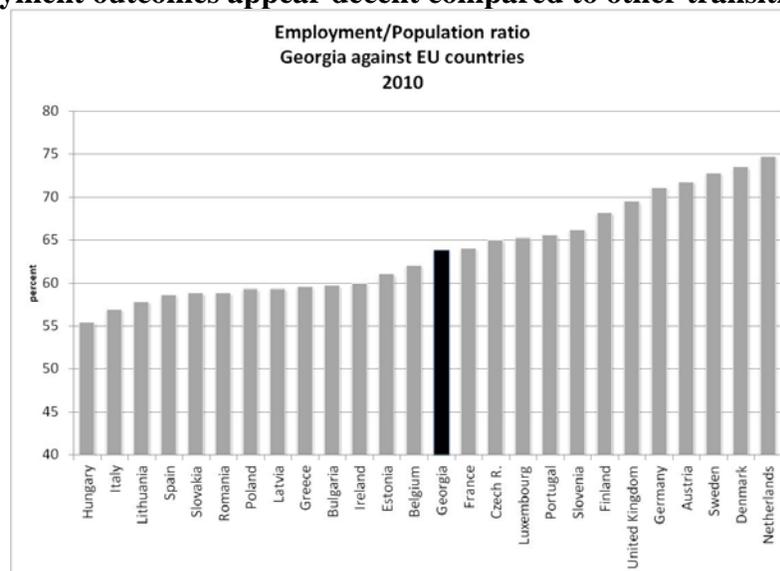
a) Figures presented in the table may differ from those presented in official sources due to differences in definitions. However, the differences are negligible (do not exceed 0.2 percentage points), and do not affect the conclusions.

Note: Persons aged 15-64

Source: HBS 2010; Bank staff calculations.

**9. Employment rates in Georgia appear to compare favorably with other European countries.** Figure 1 shows that the employment rate in Georgia is higher than in many EU new member states for those aged 20-64, although it is still substantially lower than the best performing European economies. For example, the employment rate in Georgia is almost 10 percentage points lower than in Denmark. However, these figures do not illustrate how many employment activities in Georgia minimally contribute to the country's output and economic well-being because of their low productivity. For example, while agriculture accounts for about 50 percent of total employment, it accounts for only 10 percent of Georgia's GDP. While not contributing substantially to the economy overall, agriculture provides employment of last resort for those who cannot find jobs elsewhere, and eventually work as subsistence farmers.

**Figure 1. Employment outcomes appear decent compared to other transition economies**



Note: Persons aged 20-64.

Source: HBS 2010 for Georgia, Eurostat for EU countries; Bank staff calculations.

**10. While rural areas face concerns of hidden unemployment, the major concern in urban areas is open unemployment.** In rural areas, many resort to subsistence farming, but are largely underemployed. Meanwhile, in urban areas, job opportunities are extremely scarce. The unemployment rate in urban areas, at 28 percent is dramatically high (three times as high as in rural areas). And only 46 percent of the urban population of working age is employed (Table 2). The employment outlook in urban areas is indeed bleak.

**11. Unemployment is particularly high among youth in Georgia due to poor labor market conditions.** The youth unemployment rate is 36 percent, more than twice as high as for prime-age workers (Table 2).<sup>4</sup> And young workers (15-29) account for 40 percent of all unemployed (34 percent in urban areas and 54 percent in rural areas as shown in Figure 2, Panel A). These figures indicate that entry into the labor market is difficult. High youth unemployment in Georgia predominantly reflects depressed labor demand (although, as we will show later, a skills mismatch also contributes to youth unemployment). New labor market entrants (as opposed to incumbents) suffer from the lack of job creation in the country.<sup>5</sup> Poor employment prospects for young people contribute to poverty, create frustration and give rise to social tensions. Hence,

<sup>4</sup> As a rule, the youth unemployment rate is about twice as high as the overall unemployment rate. This is because young workers change jobs more frequently (they often hold temporary jobs) and also because of the relatively small size of youth employment (many young people are out of the labor force due to participation in education). The problem is thus that the youth unemployment rate is very high in Georgia, not that it is higher than among prime age workers.

<sup>5</sup> High youth unemployment is often explained by strict labor regulations and thus, high hiring and firing costs, which hinder job creation and hiring. However, labor regulations in Georgia are very flexible by international standards and therefore cannot be a factor behind youth unemployment (Rutkowski 2008).

high youth unemployment poses not only an economic and social, but also a significant political problem.

**12. The low employment rate among youth in Georgia is also affected by low economic activity.** Only 24 percent of youth are employed in Georgia (Table 2). Although many young people in Georgia are economically inactive because they are enrolled in education, approximately 31 percent of youth (persons aged 15-24) are not in education, employment or training (known as NEET). This figure is two to three times higher than in most EU countries (European Commission 2010), where the share of NEET rarely exceeds 15 percent. The high share of NEET is yet another indication that the productive potential of young people is grossly underutilized in Georgia.

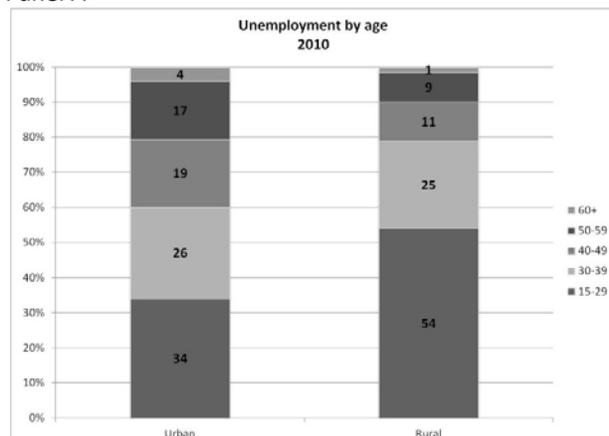
**13. Many of the unemployed are highly educated.** Over 50 percent of all unemployed have a secondary school diploma, and as many as 40 percent have a higher education degree.<sup>6</sup> In urban areas, the proportion of unemployed with higher education is still higher, accounting for 46 percent of all unemployed (Figure 2, Panel B). In contrast to most EU countries, where unemployment is heavily concentrated among less educated workers, those with less than secondary education represent a minority among the unemployed in Georgia. High unemployment among workers with tertiary education reflects relative scarcity of jobs requiring tertiary education in Georgia. This phenomenon is known as *overeducation*. High unemployment among highly educated workers carries considerable individual and social cost, implying a loss of human capital investment. The skills of these workers are not utilized, and they tend to erode during unemployment. Skill erosion is a serious problem in Georgia as unemployment tends to be of long duration, and skills deteriorate the longer a worker is unemployed (see below).

---

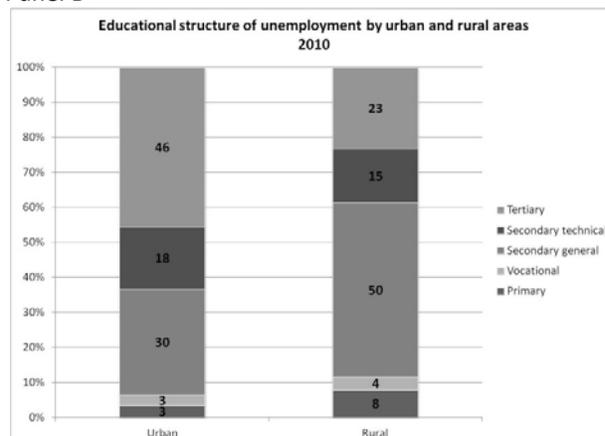
<sup>6</sup> This proportion is somewhat lower among the young unemployed (less than 30 years old), of which one-third have a higher education diploma.

**Figure 2. Many of the unemployed are young and highly educated**

Panel A



Panel B

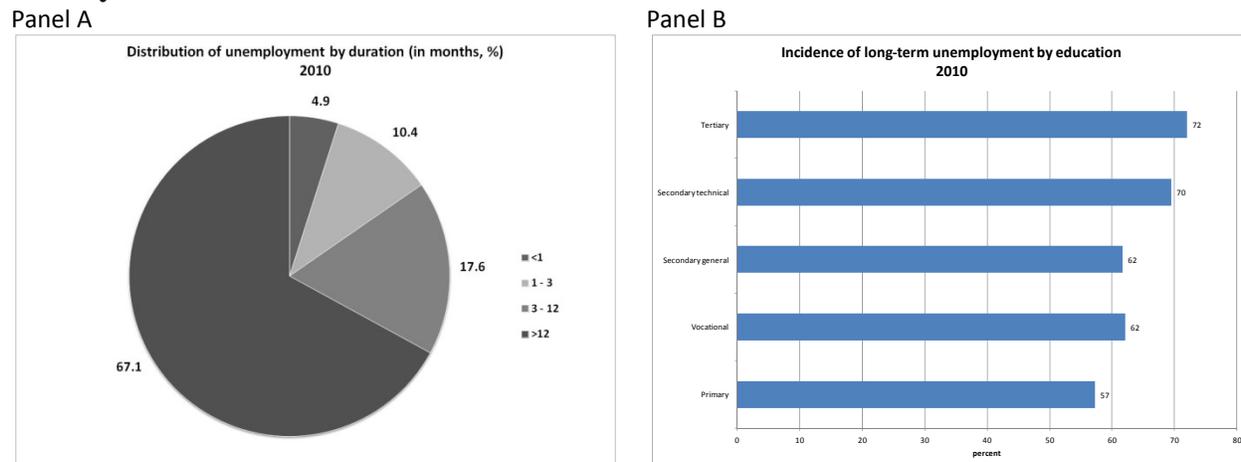


Source: HBS 2010; Bank staff calculations.

**14. Unemployment in Georgia is of long duration.** Two-thirds of the Georgian unemployed are jobless for more than a year (Figure 3, Panel B). In comparison, in European countries with well performing labor markets, the share of long-term unemployment is less than one-third. The high incidence of long-term unemployment in Georgia means that the chances to escape unemployment is low, as outflows from unemployment to jobs are limited and inflows into unemployment are modest. Less than 5 percent of the unemployed are jobless for less than one month (this proportion proxies inflow into unemployment). Accordingly, high unemployment in Georgia reflects low outflows from unemployment rather than high inflows. Once unemployed workers cannot find new jobs.

**15. Unemployment duration is particularly long for highly educated workers.** The incidence of long-term unemployment among workers with tertiary education exceeds 70 percent. In contrast, the share of long-term unemployed among workers with vocational education is 62 percent, and the duration of unemployment among workers with primary education is even less (Figure 3, Panel B). In most European countries the pattern is reverse: more educated workers spend less time searching for jobs than the less educated. The Georgian pattern clearly points to limited demand for highly educated labor.

**Figure 3. High incidence of long-term unemployment, especially among workers with tertiary education**



Source: HBS 2010; Bank staff calculations.

**16. The outflows from unemployment to jobs are low in Georgia due to weak labor demand and a mismatch of skills.** These two types of unemployment - demand deficiency unemployment and structural unemployment - are likely to coincide. High unemployment in Georgia reflects both limited net job creation and the skills mismatch (Rutkowski 2008).<sup>7</sup> Despite high formal education many of the unemployed lack skills sought after by employers. There are job vacancies that the employers cannot fill because of skill shortages. While, the deficient labor demand is the primary cause of high unemployment in Georgia, the skills mismatch is a contributing factor (Rutkowski 2008). Measures to promote labor demand were discussed in previous work (Rutkowski 2008). This paper focuses on the skills mismatch and its consequences.

**17. Public employment services are not available in Georgia.** The State Employment Agency was created in 2006, but dissolved one year later. Some donor-financed training is provided to the unemployed, and the Ministry of Economy organizes training courses on an ad hoc basis. But, active labor market programs are not provided to the unemployed on a regular basis. In this context, the bulk of jobseekers (83 percent) look for jobs using personal networks (relatives, friends). Other job search methods include using newspapers and internet (12 percent), and directly approaching employers (3 percent).

**18. Overall, labor is grossly underutilized in Georgia.** In rural areas, where open unemployment is relatively low, workers are employed in low productivity subsistence agriculture. In urban areas, open unemployment looms large, and persists despite economic

<sup>7</sup> A special survey of labor demand done in 2007 showed that the vacancy rate (the ratio of vacancies to employment) is low in Georgia pointing to weak labor demand. Unfortunately, data on vacancies is not collected in Georgia on a regular basis, making it difficult to assess the strength of labor demand. Nonetheless, it is fair to assume that the high unemployment rate continues to be caused primarily by the weak labor demand, while structural factors play a secondary role.

growth. Duration of unemployment is long and chances to find a new job are low. New entrants to the labor market, including youth, are the most vulnerable to unemployment. Moreover, unemployment in Georgia is concentrated among highly educated workers. The next section examines the skills mismatch and the consequences of overeducation.

## II. Skills Mismatch and Its Consequences

19. **A skills mismatch occurs when the supply of skills does not match the demand for skills.** Specifically, when the skills possessed by workers differ from the skills required by employers. There are no direct measures of the demand for and supply of skills available for Georgia. In this paper, we use education and occupation as proxies for skills.<sup>8</sup> To analyze the skills mismatch we compare the structure of jobs by education and occupation with that of the labor force. The analysis points to a discrepancy between the traditional employment structure in Georgia, which is indicative of limited demand for highly skilled labor, and a large supply of workers with tertiary education. The modern sector of the Georgian economy is too small to absorb all the workers with tertiary education of a given profile. As a consequence, many highly educated workers are unemployed or employed in less skilled jobs. This implies that returns to higher education are limited. At the same time, many workers with higher education diplomas seem to lack some important employability skills. Despite high unemployment, employers often cannot find workers with the required skills. Thus, overeducation (also known as a vertical mismatch) seems to correspond with underskilling, or a skills gap (see Box 1 for a presentation of different types the skills mismatch and the relevant terminology).

20. **Overeducation does not imply that the supply of workers with higher education should be limited.** A pool of well-educated young workers is an important asset. It can attract investment, support the creation of productive jobs, and spur economic growth. The point is that these workers need to have skills, and not only diplomas, that make them attractive to potential investors and employers.

---

<sup>8</sup> Both educational and occupation represent broad skill categories, with a considerable variation in actual skills within these categories. However, more precise measures of skills can be obtained only by means of special surveys not available for Georgia.

**Box 1. Types of skill mismatch**

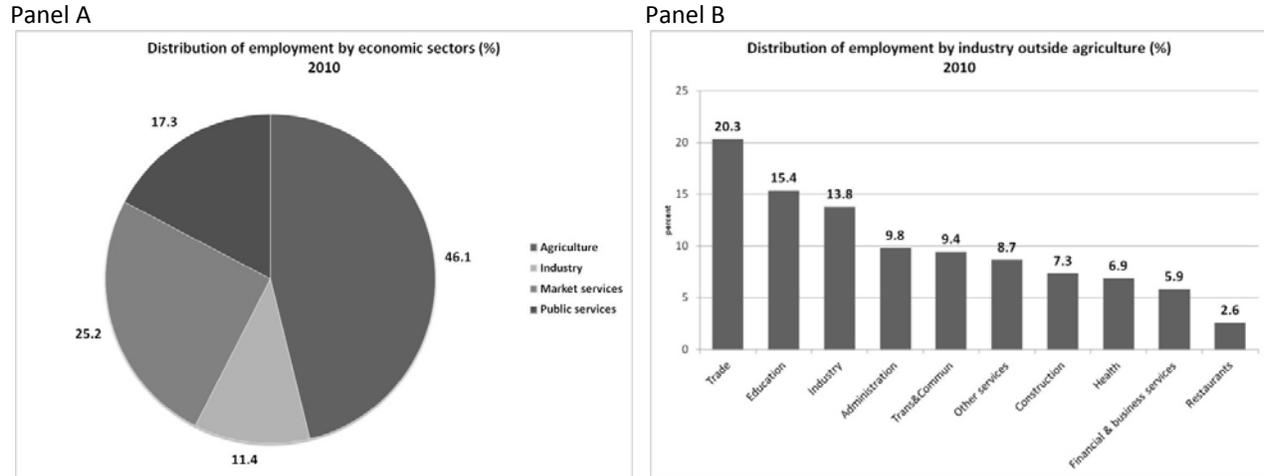
Overeducation	To have completed more years of education than the current job requires.
Undereducation	To have completed fewer years of education than the current job requires.
Overqualification	To hold a higher qualification than the current job requires.
Underqualification	To hold a lower qualification than the current job requires.
Overskilling	To be unable to fully use one's skills and abilities in the current job.
Underskilling	To lack the skills and abilities necessary to perform the current job to acceptable standards.
Skill shortage	Demand for a particular type of skill exceeds the supply of available people with that skill.
Skill surplus	The supply of people with a particular skill exceeds the demand for it.
Skill gap	The level of skills of the person employed is less than that required to perform the job adequately or the type of skill does not match the requirements of the job.
Economic skills obsolescence	Skills previously used in a job are no longer required or are less important.
Physical (technical) obsolescence	Physical or mental skills and abilities deteriorate due to atrophy or wear and tear.
Vertical mismatch	The level of education or skills is less or more than the required level of education or skills.
Horizontal mismatch	The level of education or skills matches job requirements, but the type of education or skills is inappropriate for the current job.
Crowding out/ bumping down	Better qualified workers are hired to do jobs that less qualified workers could also do, thus replacing (crowding out) less qualified workers from traditional employment possibilities for their level of skill. Bumping down refers to this process working from top to bottom, pushing less qualified workers to even lower level jobs. At the extreme some lower level workers may become unemployed.

Source: CEDEFOP (2010).

**21. Demand for skills is driven by industrial and employment structures.** The Georgian employment structure is traditional, with agriculture accounting for 46 percent of total employment (Figure 4, Panel A). The industrial sector is small, representing only 11 percent of total employment. The market service sector is relatively large (25 percent of employment), but is dominated by trade, which in a large part is a low value-added activity. The public services sector is also large, and activities such as education, health care and administration account for 17 percent of total employment. The modern business and financial services play a minor role as their share in non-agricultural employment is less than 6 percent (Figure 4, Panel B). Thus, the majority of jobs in Georgia are located in the traditional, low-productivity sectors, while only a

minority is in modern, high-productivity sectors. This traditional employment structure limits the demand for highly educated workers.

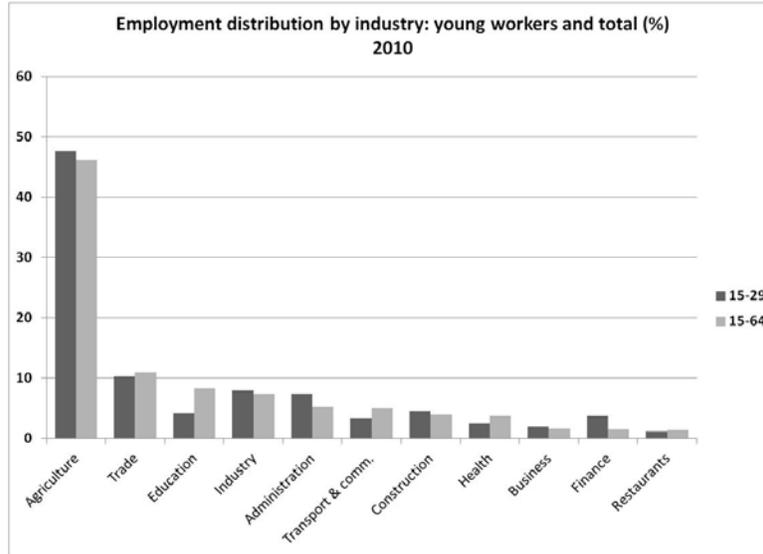
**Figure 4. Traditional employment structure dominated by agriculture**



Source: HBS 2010; Bank staff calculations.

**22. The employment structure changes only gradually in Georgia.** Younger workers are employed roughly in the same industries as older workers. For example, the percentage of young workers and older workers employed in agriculture is virtually the same (Figure 5). A trend towards modernization of the employment structure is reflected in the fact that younger workers are more likely to work in the financial services industry, and somewhat less likely to work in the trade industry than older workers. However, this shift in the demand for skills from the “traditional” towards “modern” skills is quite limited, and jobs held by young workers and older workers do not vary greatly.

**Figure 5. Employment pattern among young workers is similar to that among older workers**



Source: HBS 2010; Bank staff calculations.

**23. Georgia has a large supply of highly educated workers.** At 31 percent, the percentage of workers with tertiary education is high, not only for middle-income countries like Georgia, but also for high-income European countries. Only 9 percent of workers have less than secondary education, implying that the bulk of workforce have secondary education. Highly educated workers are concentrated in urban areas with every second worker having a higher education diploma (Figure 6). Even in rural areas, one worker in six has a tertiary education.

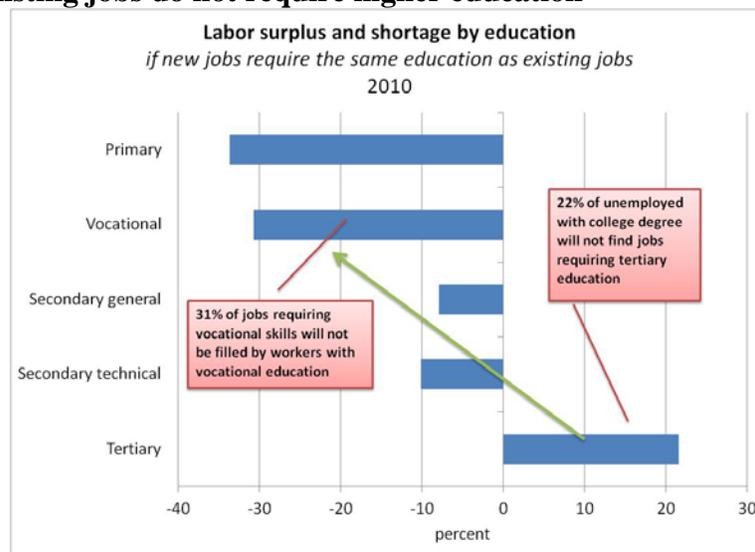
**Figure 6. Highly educated workforce**



Source: HBS 2010; Bank staff calculations.

24. **There is clearly a mismatch between the demand for highly educated workers and their supply.** Given Georgia’s industrial structure, relatively few jobs require higher education. The demand for college graduates in agriculture or trade – the two largest industries in Georgia -- is limited. At the same time, a significant portion of the workforce has a tertiary education. The supply of highly educated workers well exceeds the demand. To show the magnitude of the skills mismatch imagine that the economy creates enough jobs to provide employment to all of the unemployed, and the new jobs require the same education as existing jobs. Under such a scenario, 22 percent of the unemployed with a tertiary degree would not find jobs requiring their degree (Figure 7).<sup>9</sup> At the same time, not enough workers with vocational training exist to fill the large proportion of jobs that would require vocational skills. Currently, workers with tertiary education fill many jobs requiring vocational skills. In order to turn this pessimistic scenario into an optimistic one, Georgia needs to accelerate the creation of highly skilled jobs in the modern sector of the economy. At the same time, the educational system needs to equip workers with the required skills, so that workers are able to perform high productivity jobs. <sup>10</sup>

**Figure 7. Most existing jobs do not require higher education**



**Note:** Jobs held by workers with primary education are largely in the agricultural sector.  
 Source: HBS 2010; Bank staff calculations.

25. **Highly educated workers do not have the skills needed in the labor market.** There is a large pool of jobless workers with tertiary and secondary education, which could suggest that employers should not have problems finding workers with skills to perform necessary labor.

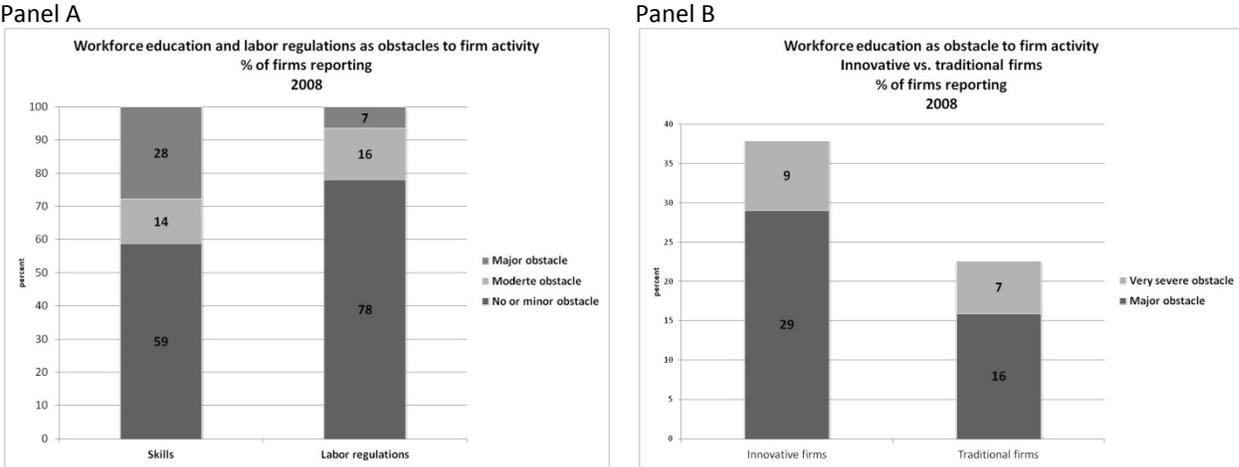
<sup>9</sup> This is a lower bound estimate because many workers with a tertiary education are currently employed in jobs that do not require a tertiary degree.

<sup>10</sup> In India, the rapid development of the ITC sector was conditioned by the availability of the workforce with the adequate skills, providing an example that such a scenario is feasible.

However, many Georgian employers complain that hiring workers with required skills is difficult. The 2008 IBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS) shows that close to 30 percent of Georgian employers see inadequate workforce skills as a major obstacle to the operation and growth of their firms (Figure 8, Panel A). For comparison, labor regulations are seen as a major obstacle by less than 10 percent of Georgian employers. Thus, despite a large supply of highly educated workers, skills are a major constraint.

**26. Innovative and growing firms suffer from skill shortages the most.** Among innovative firms, almost 40 percent report workforce skills as a major obstacle, compared to 23 percent of traditional firms who report workforce skills as a major obstacle (Figure 8, Panel B).<sup>11</sup> Firms that innovate and expand as a rule require more skilled workers than traditional, stagnant firms. Moreover, their demand for skills is likely to change faster than that of traditional firms as a result of technological and organizational progress. The severity of skill shortages faced by innovative and growing firms is a diagnostic indicator of the quality of labor supply. In the eyes of Georgian employers, highly educated workers are not necessarily highly skilled. This implies that skill shortages, if not addressed, may become an important constraint to the modernization and growth of the Georgian economy.

**Figure 8. Many Georgian employers see inadequate workforce skills as major obstacle to operation of their firms**



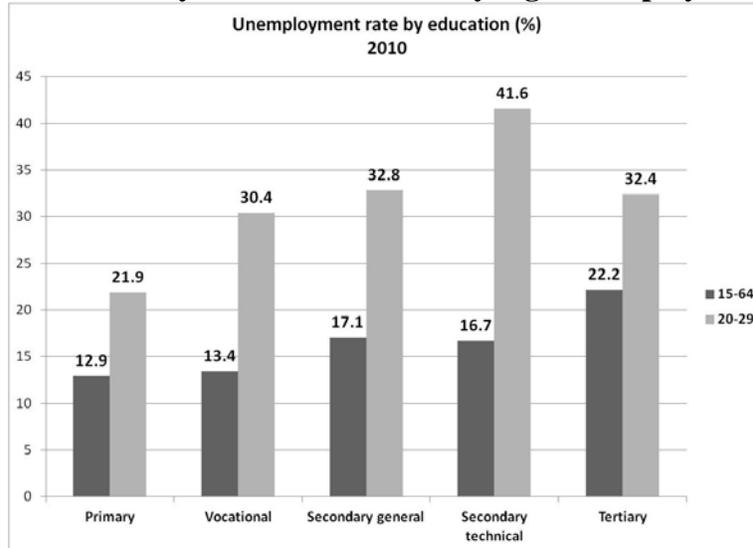
Source: EBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS) 2008; Bank staff calculations.

**27. The unemployment rate among workers with tertiary education is very high in Georgia, which is consistent with overeducation.** Figure 9 shows that workers with a tertiary education are more likely to be unemployed than their less educated counterparts. The same pattern roughly persists in the young generation (20-29). Thus, high unemployment among workers

<sup>11</sup> Firms were identified as “innovative” if they introduced new products or services in the last 3 years. Otherwise they were identified as “traditional”. Although the criterion used may be not very precise, it helps us to make the main point that innovative firms are affected more by skill shortages than traditional firms.

with tertiary education is not driven by the obsolete skills of older workers, but has a structural character.

**Figure 9. Workers with tertiary education face a very high unemployment rate**

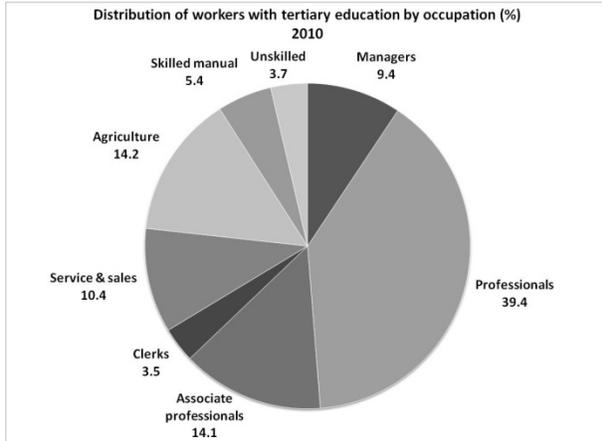


Source: HBS 2010; Bank staff calculations.

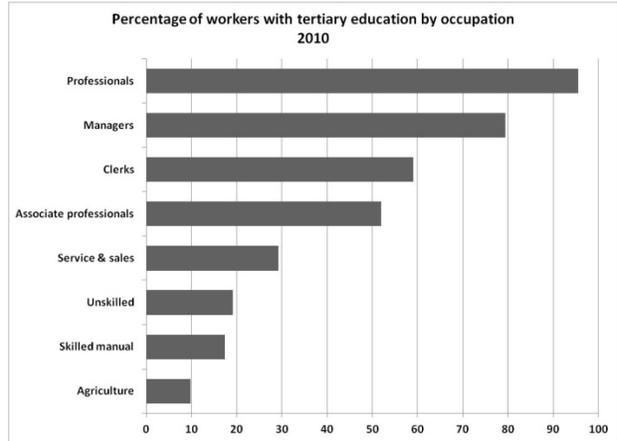
**28. Overqualification is common in Georgia.** A large proportion of workers with tertiary education work in occupations that do not require a tertiary degree and take less skilled jobs. Overqualification is a direct consequence of overeducation. Highly educated workers are compelled to take less skilled jobs because there are not enough jobs requiring high skills (Figure 10). Only one in two workers with a tertiary education works as a professional or a manager; the rest work in occupations that do not require a university diploma (Figure 10, Panel A). Many highly educated workers are employed in agriculture (14 percent), as manual workers (10 percent) and as salespersons (10 percent). Looking at overqualification by type of employment, almost 30 percent of salespersons and 20 percent of unskilled workers have college/university diplomas (Figure 10, Panel B). These figures indicate that overqualification is a considerable problem in Georgia. A significant proportion of the workforce has invested in qualifications that are not needed and higher than those required in the jobs that they perform.

**Figure 10. Workers with tertiary education often take less skilled jobs**

Panel A



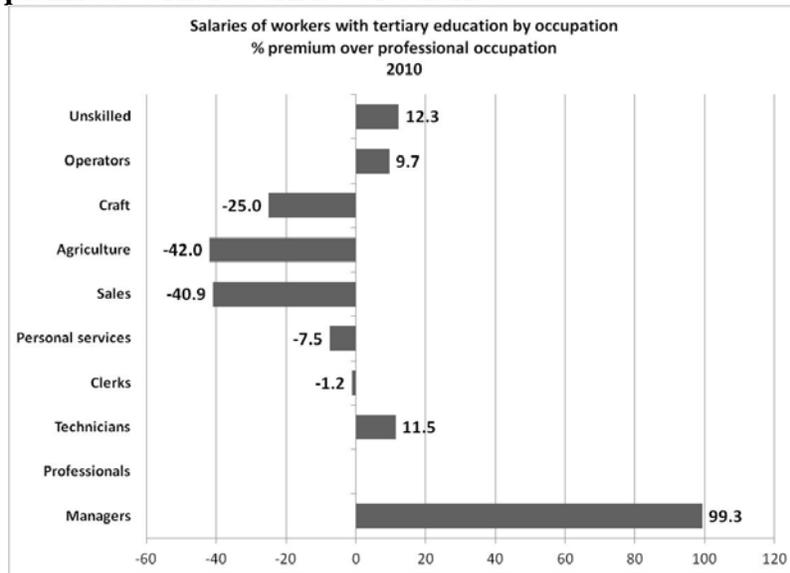
Panel B



Source: HBS 2010; Bank staff calculations.

**29. Highly educated workers who take less skilled jobs earn lower salaries than their professional counterparts.** Thus, a consequence of overeducation is lower returns to education. Figure 11 shows that in some cases the wage penalty for university graduates being forced into less skilled jobs can be substantial. Salespersons with tertiary degrees earn, on average, 40 percent less than persons with tertiary degrees who work as professionals; and manual craft workers on average earn 25 percent less. However, unskilled workers (laborers) with a tertiary education degree appear to earn somewhat more (12 percent) than professional workers. In this case, higher wages compensate for lower job status. Such peculiarities notwithstanding, overeducation generally equates to lower salaries.

**Figure 11. Overqualified workers earn lower salaries**



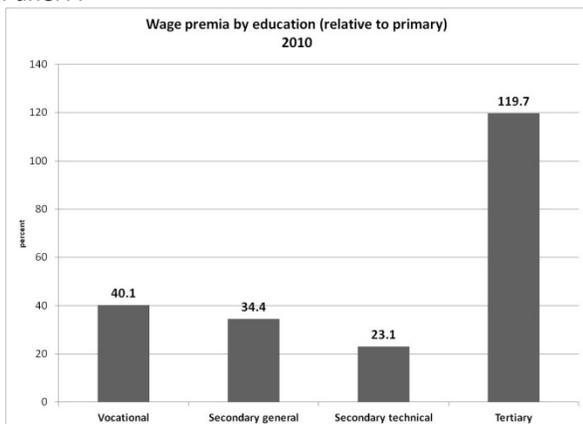
Source: HBS 2010; Bank staff calculations.

**30. Highly educated workers earn significantly higher wages than less educated workers.**

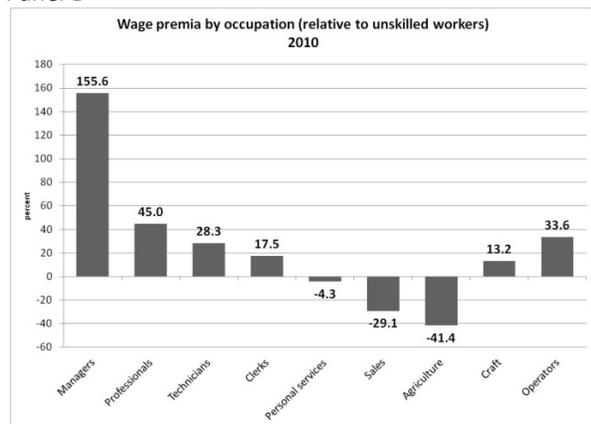
Investment in tertiary education yields substantial monetary returns, but only for those employed. University graduates receive wages from 50 to 70 percent higher than workers with secondary education (Table 3, see also Figure 12, Panel A). More precisely, estimation of a standard earnings function indicates that a wage premium to tertiary education over secondary education is around 60 percent, after controlling for sex, age, urban/rural location and (potential) labor market experience (see Annex). However, these returns are significantly lower when high joblessness among workers with a tertiary education is considered.

**Figure 12. Highly educated workers earn higher wages, but the wage premium for professional skills is low**

Panel A



Panel B



Source: HBS 2010; Bank staff calculations.

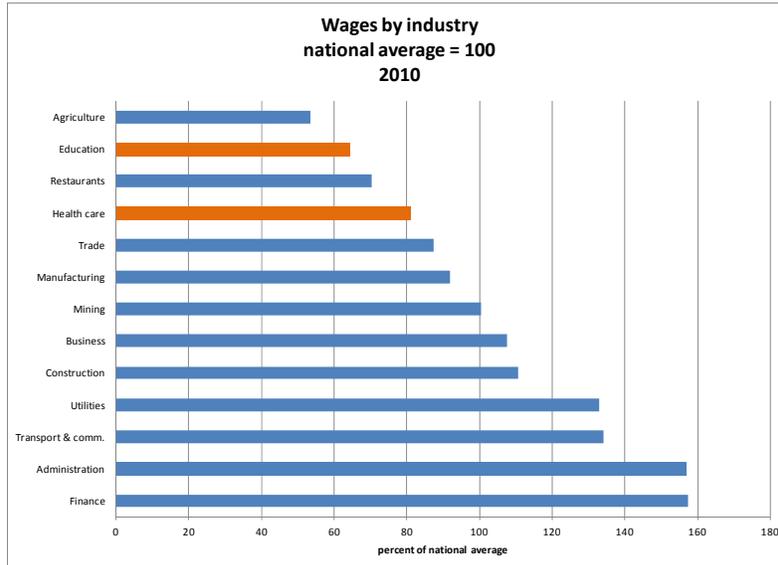
**31. Wages of professionals in Georgia are relatively low.** Professionals are a sub-group of workers with tertiary education. Virtually all professional workers have a university degree, but there are workers with university degrees, for example managers, who are not classified as professionals.<sup>12</sup> Panel B of Figure 12 shows that on average professional workers (e.g. engineers, economists, lawyers, doctors, or teachers) earn only 45 percent more than unskilled workers (laborers). In comparison, professionals in Poland earn over twice as much as unskilled workers. While the average wage premium for professional skills is low in Georgia, the average masks high within-group wage variation. Professionals, such as teachers, earn low salaries, while financial services professionals or public administrators may earn very high salaries.

**32. The premium for professional skills is low largely because a significant proportion of professional workers are employed in low-paying industries, such as education and health care.** At the same time, relatively few professionals work in well-paying industries, such as manufacturing or financial and business services. As many as 44 percent of all professional workers work in the education sector, where the average wage accounts for only 64 percent of the national average (Figure 13). Another 12 percent work in the health care sector, where the average wage accounts for 80 percent of the national average. Only 11 percent of professionals work in financial and business services, where wages are well above the national average. The manufacturing sector employs as few as 3 percent of professionals workers, indicating that manufacturing in Georgia is not skill intensive. The same logic is likely to apply to workers with secondary technical education. Those who work as technicians enjoy a relatively high wage premium (Figure 12, Panel B). But, many workers with secondary technical education work in low-paying jobs, which results in the overall low premium for secondary technical education (Figure 12, Panel A).

---

<sup>12</sup> We are applying International Standard Classification of Occupations (ISCO), according to which professional workers who hold managerial positions are classified as managers rather than professionals. Professional workers include engineers, lawyers, economists, medical doctors, and other occupations that require university level education.

**Figure 13. Many professionals work in low-wage industries, such as education and health care**



Source: HBS 2010; Bank staff calculations.

**33. Returns to university education are uncertain due to high unemployment and large wage dispersion.** Two factors need to be taken into account when interpreting the data on returns to education in Georgia: the dispersion of wages, including within educational groups (within-group wage variation); and the probability of having a job and thus, earning wages for different educational groups. Once these two factors are taken into account the returns to university education are found to be low and uncertain.

**34. Once the pattern of joblessness is taken into account, the returns to education in Georgia fall dramatically.** Using the Heckman selection model, we estimated the university wage premium to be just 25 percent over secondary general and 36 percent over secondary technical education (see Annex for a detailed presentation of the regression results).<sup>13</sup> Therefore if university educated workers who are currently unemployed (or inactive) entered the labor market their wages would be significantly lower (in relative terms) than those received by their employed counterparts.

**35. A similar picture emerges when examining returns to one year of schooling.** When the standard Mincerian earnings function is estimated using the OLS, one additional year of schooling increases earnings on average by 10.7 percent, implying that the rate of return to

<sup>13</sup> The Heckman model corrects for selection bias. It is used here to correct for the fact that persons who work represent a non-random sample of all persons of working age; that is, persons who work are different with respect to some important characteristics from those who do not work. The Heckman technique first estimates a model for the probability of working (the selection equation for entering the labor market), and only then estimates the conditional expectation of wages given that the person works. The Heckman selection model yields unbiased estimates of returns to education, while the OLS parameter estimates tend to be biased (unless the correlation between the error terms in the regression and in the selection models is close to zero).

schooling is quite high by European standards.<sup>14</sup> However, the rate of return to schooling falls to 6.8 percent when estimated using the Heckman selection model (see Annex for details), implying that in fact the expected returns to schooling are relatively low. The monetary incentives to invest in tertiary education are relatively weak. In the context of the Georgian labor market, modeling the selection into work is critical for the correct, unbiased estimation of returns to education. If the probability of working is not taken into account, the rate of returns to schooling is significantly overestimated.

**36. By European standards, wage inequality is high in Georgia.** The Gini coefficient for wages is equal to 0.407, which points to wage inequality higher than in virtually all EU countries.<sup>15</sup> In most EU15 countries, the Gini coefficient for wages ranges from 0.2 to 0.3; it is higher in the EU New Member States where it is around 0.35. The Gini coefficient is still higher in the FSU countries where it ranges from 0.35 to 0.5 (Cholezas and Tsakloglu 2007, Newell and Socha 2007).<sup>16</sup> A bottom decile Georgian worker earns only one-third of the median wage, whereas in most EU countries, bottom decile workers earn 50 to 65 percent of the median wage. At the same time, the top decile worker earns 2.4 times as much as the median worker, whereas in most EU countries the top decile worker earns less than twice the median wage (Rutkowski 2001). Consequently, the wage differential between top paid workers (top decile) and the lowest paid workers (bottom decile) are huge in Georgia. The decile ratio, which is the ratio of the top decile to bottom decile amounts to 7.1, indicating considerable wage inequality. On average, in the EU, the top decile workers earn no more than four times as much as the bottom decile workers. High earnings inequality has a negative impact on social welfare, undermining social cohesion and leads to social exclusion.

**37. Wages of university-educated workers are highly unequal, while wages of less educated workers do not vary as dramatically.** Table 3 shows the difference between the wages of the top and bottom quartile worker (i.e. the inter-quartile range) for different educational groups in Georgia. For workers with tertiary education this difference is much larger than for workers with secondary education. A well paid (top quartile) university educated worker earns 350 Lari (1.3 times the median wage) more than his/her poorly paid (bottom quartile) counterpart with the same education. For secondary school graduates, the wage differential between well and poorly paid workers is only 180-200 Lari, which is less than 60 percent of that for university graduates. University graduates thus face a considerably higher uncertainty as to their prospective wages than secondary school graduates. Still, even poorly paid (bottom quartile) workers with tertiary education earn, on average, 67 percent more than those with secondary education. Expectedly,

---

<sup>14</sup> The dependent variable is log earnings, where earnings equal wages and salaries earned by the dependent workers, and income earned by the self-employed.

<sup>15</sup> The Gini coefficient is a commonly used summary measure of the inequality of income distribution. A value of 0 expresses perfect equality where everyone has equal shares of income and a value of 1 expresses maximum inequality where only one person has all the income.

<sup>16</sup> Armenia is an extreme case with the Gini coefficient exceeds 0.5, indicating extremely high wage inequality.

well paid (top quartile) workers with tertiary education earn much more than those with secondary education (on average 70 to 85 percent). Hence, once they find a job, university graduates are definitely better off than secondary school graduates.

**Table 3. Summary of wage distribution by education, 2010**

Lari

Education	Percentiles of wage distribution					Inter-quartile range
	p10	p25	median	p75	p90	
All workers	100	160	300	500	710	340
Primary	40	80	130	220	400	140
Vocational	70	120	222	380	600	260
Secondary general	71	120	200	320	540	200
Secondary technical	75	120	200	300	480	180
Tertiary	115	200	300	550	800	350

Inter-quartile range = top quartile (p75) – bottom quartile (p25)

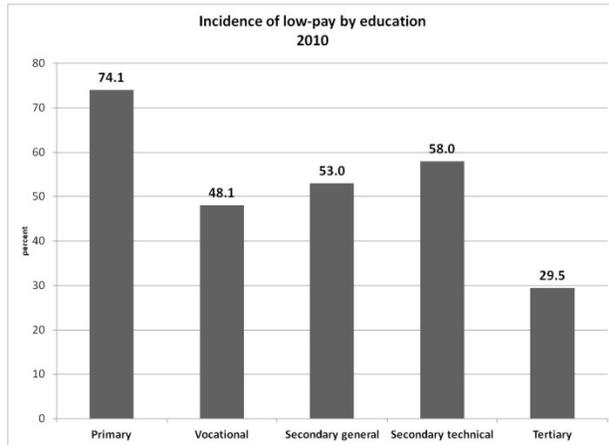
Source: HBS 2010; Bank staff calculations.

**38. High wage inequality translates into a high incidence of low-pay.** A large proportion of Georgian workers earn wages that are below a socially defined low-pay threshold. Usually low-pay is defined in relative terms as less than two-thirds of the median wage. According to this criterion, about 40 percent of Georgian wage-workers are low-paid. In most EU countries the incidence of low-pay varies between 10 and 20 percent, and higher rates are rare. Figure 14 presents the data on the incidence of low-pay by education (Panel A) and occupation (Panel B). The high incidence of low pay is a reflection of high earnings inequality and is likely to lead to increased poverty and social exclusion.

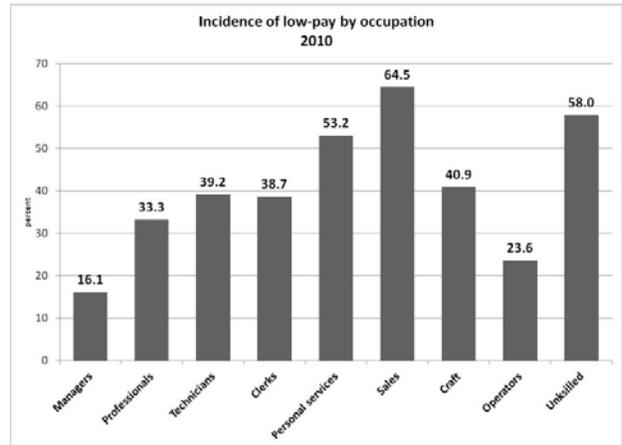
**39. The incidence of low-pay affects workers of all education levels, but is the highest among less educated and less skilled workers.** The incidence of low-pay among less educated and skilled workers reaches extremely high proportions, with 60 percent of workers with secondary general education and 66 percent of sales persons being low-paid, or paid much less than other workers. In absolute terms, the incidence of low-pay is extremely high among well educated and highly skilled workers as well. As many as 30 percent of workers with tertiary education and 33 percent of professionals are low-paid (Figure 14). This lowers the value of university education and professional skills and is therefore likely to breed frustration among highly educated professional workers. High earnings inequality and consequently high incidence of low-pay has a negative impact on social cohesion.

**Figure 14. Incidence of low-pay is high even among highly educated workers**

Panel A



Panel B



Note: Low-pay is commonly defined as less than two-thirds of the median wage.  
Source: HBS 2010; Bank staff calculations.

### III. Labor Market Status and Poverty

**40. Unemployment and earnings inequality are high in Georgia.** This section examines the relationship between labor market status and poverty by analyzing the incidence of poverty depending on worker and jobs characteristics, and determining the profile of the working poor. It also looks at the impact of household work intensity and earnings on poverty. Poverty in this section is defined in relative terms as the bottom quintile of consumption (per equivalent adult) distribution. Whereas the unemployed face an elevated risk of poverty; the employed are the single largest group among the poor. Thus, poverty in Georgia is largely associated with low labor earnings, rather than unemployment. The working poor are mainly employed in agriculture. Work intensity plays a critical role in determining the consumption status: the risk of poverty falls sharply with the number of earners in the household. Households where no one works are most likely to be poor; unfortunately such household are quite numerous in Georgia.

**41. Unemployment dramatically increases the risk of poverty in Georgia.** The poverty rate among the unemployed is 28 percent, nearly twice as high as among the employed. Discouraged workers (who ceased looking for a job and are customarily counted as inactive rather than unemployed) are as likely to be poor as the unemployed (Table 4). Persons who are out of the labor force (inactive) face a somewhat higher risk of poverty than the employed, but a much lower one than the unemployed. It is worth noting that the poverty incidence among the employed, although lower than among the non-employed, is non-negligible. One out of seven persons who have a job is poor. This indicates that the problem of the working poor is an important one in Georgia.

**Table 4. Labor force status and poverty, 2010**

Percent		
Labor force status	Incidence of poverty	Share in poverty
Employed	14.9	41.0
Unemployed	28.3	15.0
Discouraged	27.3	2.9
Inactive	18.4	31.8
Undetermined <sup>a)</sup>	28.9	9.3

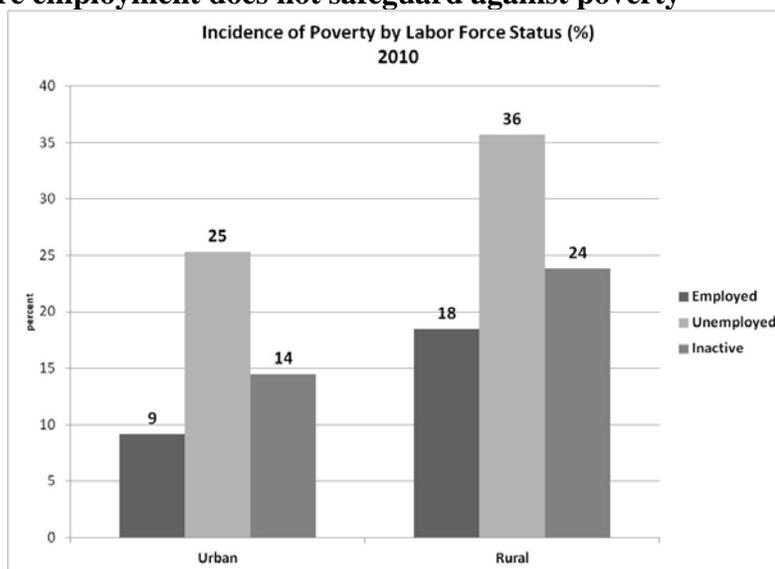
a) Mostly inactive or unemployed.

Note: Persons are categorized as poor if they are in the bottom quintile of consumption (per equivalent adult) distribution.

Source: HBS 2010; Bank staff calculations.

**42. Unemployment increases the likelihood of poverty in urban areas more than in rural areas.** In urban areas the poverty rate among the unemployed is almost three times as high as among the employed, while in rural areas it is twice as high (Figure 15). This mirrors the fact that in urban areas employment reduces the risk of poverty much more than in rural areas, as rural jobs do not safeguard against poverty.

**Figure 15. Unemployment elevates the risk of poverty but more so in urban areas than in rural areas, where employment does not safeguard against poverty**

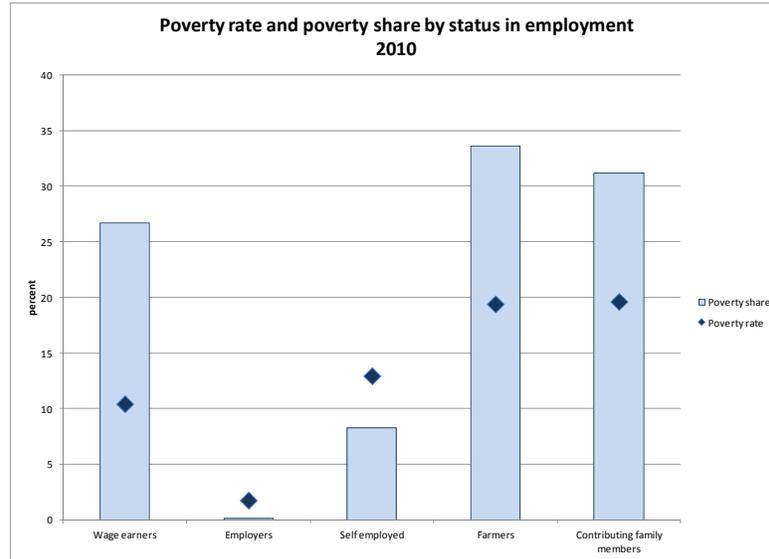


Source: HBS 2010; Bank staff calculations.

**43. The employed are the largest single group among the poor.** The employed represent 41 percent of all the poor, whereas the unemployed (including the discouraged workers) represent only 18 percent (Table 4). This has important policy implications. The reduction in unemployment, however desirable, will only partly contribute to the poverty reduction in Georgia. The key for poverty reduction is addressing the in-work poverty through increasing labor productivity. People in Georgia are employed and poor because they earn little engaged in low-productivity activities. Poverty in Georgia is not only the result of the scarcity of job opportunities, but also the result of low-productivity associated with a traditional employment structure.

**44. The working poor are mostly farmers and their contributing family members.** Farming households jointly account for 65 percent of the working poor (Figure 16). This reflects both the high incidence of poverty among farmers and their family members (about 20 percent), and the fact that farmers represent a large share of total employment in Georgia. Wage earners are also a large group of the working poor, representing 27 percent of the total working poor. The self-employed face a higher risk of poverty than dependent workers (13 percent versus 10 percent), but this is a relatively small group and therefore represents only 8 percent of the working poor. These results entail that poverty reduction in Georgia requires industrial restructuring and the modernization of the economy. First, a modern high value added sector of the economy needs to grow in order to provide productive job opportunities. Second, jobs need to be reallocated away from low-productivity agriculture to more productive industries in the modern sector.

**Figure 16. Farmers and their contributing family members represent the largest group of the working poor**



Source: HBS 2010; Bank staff calculations.

**45. In terms of personal characteristics, the working poor are predominantly prime age women with secondary general education.** The risk of poverty for female workers is slightly higher than for male workers, and women account for 53 percent of the working poor (Table 5). Young workers are most likely to be poor (poverty rate of 19 percent), but represent only about 10 percent of the working poor, whereas prime age workers represent 62 percent of the poor (with the poverty rate of 15 percent). Another large group among the working poor is older workers. Over 50 percent of the working poor have secondary general education and 17 percent have only primary education. This suggests that the lack of technical and job-specific skills force workers into low-paying jobs, and is conducive to poverty.

**Table 5. Worker characteristics and poverty, 2010**

Percent

Labor force status	Incidence of poverty	Share in poverty
<i>Sex</i>		
Men	14.7	47.4
Women	15.2	52.7
<i>Age</i>		
15-24	18.5	9.7
25-54	15.3	61.8
55-64	15.1	17.8
65+	11.4	10.7
<i>Education</i>		
Primary	26.4	16.9
Vocational	15.7	4.8
Secondary general	20.1	51.2
Secondary technical	12.8	15.7
Tertiary	5.8	11.3

Note: Persons are categorized as poor if they are in the bottom quintile of consumption (per equivalent adult) distribution.

Source: HBS 2010; Bank staff calculations.

**46. The jobs held by the working poor usually require few skills and are located mostly in rural areas.** Agricultural and unskilled workers jointly account for almost 80 percent of all working poor in Georgia, with the risk of poverty being the highest among the unskilled workers (25 percent compared with 20 percent for agricultural workers; see Table 5). In addition to agriculture, working poor work mainly in the market services sector, especially in the trade industry (14 percent).<sup>17</sup> The poverty rate is the highest among workers holding irregular jobs; however they represent a relatively small share of the working poor because irregular jobs are not common. For example, the incidence of poverty among workers with fixed-term contracts is 24 percent, compared with 13 percent among workers with permanent contracts, but the latter account for three-fourths of the working poor (Table 6).

**47. Despite high unemployment and often low salaries, highly educated workers are rarely poor.** The poverty rate among workers with tertiary education is less than 6 percent, and among professionals it is less than 4 percent. Overall, workers with a tertiary education account for 11 percent of the working poor. Acquiring this education is not wholly independent of family background, as persons from more affluent families are more likely to obtain tertiary education and therefore already less likely to be poor. However, all in all, acquiring tertiary education is an effective poverty protection strategy in Georgia. The channels through which tertiary education

<sup>17</sup> Market services are distinguished from public services (such as education, health and administration) and include trade, personal services, business services, etc.

can influence household income include family size and composition, the number of earners in the household and, joint earning potential.

**Table 6. Job characteristics and poverty, 2010**

*Percent*

Job characteristics	Incidence of poverty	Share in poverty
<i>Location</i>		
Urban	14.9	39.6
Rural	21.8	60.4
<i>Occupation</i>		
Managers	2.1	0.5
Professionals	3.7	3.0
Technicians	7.4	3.8
Clerks	7.0	0.8
Personal services	15.6	4.3
Sales	10.8	4.3
Agriculture	19.8	67.7
Craft	13.2	4.0
Operators	10.0	2.8
Unskilled	24.6	9.0
<i>Sector</i>		
Agriculture	20.1	68.4
Industry	12.9	8.6
Market services	11.0	14.2
Public services	7.2	8.8
<i>Job type</i>		
Permanent	13.2	75.4
Seasonal	23.8	12.0
Fixed term	23.9	10.2
Causal	34.0	2.4
Full-time	13.3	73.2
Part-time	22.2	26.8
<i>Wage category</i>		
Low	17.2	70.7
Middle	7.1	24.4
High	2.1	4.9

Notes:

Low wage  $\leq$  .67 median wage, middle wage  $\leq$  1.5 median wage, high wage  $>$  1.5 median wage.

Persons are categorized as poor if they are in the bottom quintile of consumption (per equivalent adult) distribution.

Source: HBS 2010; Bank staff calculations.

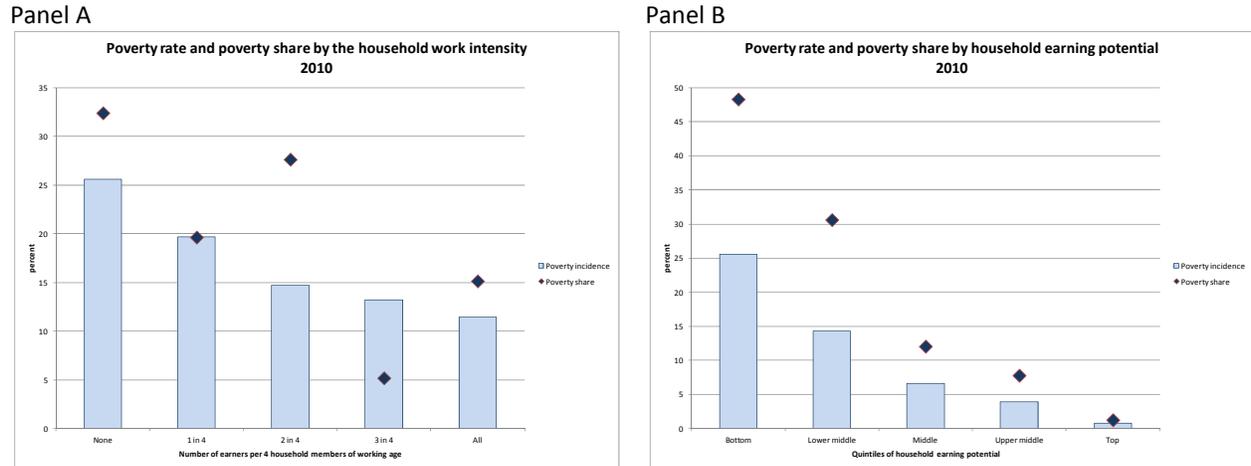
**48. Wages and household income status are strongly linked in Georgia.** Low-paid workers are often poor. The poverty rate among low-paid workers is 17 percent, compared with 7 percent among workers having middle-paying jobs (Table 5). And 70 percent of the working poor have low-paid jobs. While having a low-paid job raises the risk of poverty, it does not necessarily lead to poverty. After all, the majority of low-paid workers are *not* poor (are not in the bottom quintile of the consumption distribution). This is because low-paid workers are often secondary earners (e.g. youth) in well-off families. Low-paid workers in poor households, most likely to be workers employed in rural areas and in agriculture, pose a particular policy problem. Accordingly, the growth in agricultural productivity and thereby earnings would have the biggest impact on poverty reduction.

**49. Income and poverty are a result of labor market outcomes of all household members of working age.** So far we have examined the relationship between the individual's labor market status and poverty. We now analyze the relationship between the household's – rather than individual's - labor market outcomes and poverty. We will focus on the role played by work intensity and the earning potential of the household. **Work intensity** of the household is defined as the extent to which members of the household of working age are employed, and is the number of earners in the household relative to the number of household members of working age. The work intensity of the household varies between 0 when no one is employed and, 1 when all household members of working age are employed. **Earning potential** of the household captures average productivity of household members, and is defined as total labor income earned by the household divided by the number of household members who are employed. We expect household income to increase – and thus the risk of poverty to fall - with both work intensity and earning potential of the household. However, the relationship is not straightforward. For example, households with high earning potential may decide to lower work intensity (the substitution effect dominates over the income effect), while households with low earning potential may be forced to increase work intensity in order to compensate for low potential.

**50. Households with more earners are less likely to be poor.** Accordingly, increasing work intensity of the household is a means to escape poverty (Figure 17, Panel A). Workless households (where no one is employed) expectedly face the highest risk of poverty (26 percent), while households with high work intensity (where all persons of working age are employed) face the lowest risk of poverty (12 percent). The poverty rate among the dominant type of household (nearly one-third of the population), where one in two household members is employed, is 15 percent. The biggest reduction in the likelihood of poverty occurs when one person becomes employed in a household where no one is employed, and when a second person becomes employed in a one-earner household. The poverty rate drops by almost 6 percentage points when the work intensity index increases from zero to  $\frac{1}{4}$ , and by 5 percentage points when it increases from  $\frac{1}{4}$  to  $\frac{1}{2}$ . In contrast, further increases in the number of earners do little to reduce the risk of poverty. The poverty rate among the workless households is not that high and the poverty rate among households with high work intensity is not that low in Georgia. In other words, an

increase in work intensity brings about only limited reduction in the likelihood of poverty. A possible explanation for this pattern is that work intensity is particularly high in households with low earning potential. In households whose members earn low wages, more people need to work to secure a decent income and keep the family out of poverty. For the poor, joblessness is not an affordable option.

**Figure 17. Poverty is the results of low work intensity and low earning potential**



**Notes:**

Work intensity = the proportion of household members of working age (15+) who are employed.

Earning potential = total labor income earned by the household (excluding farming) per employed household member.

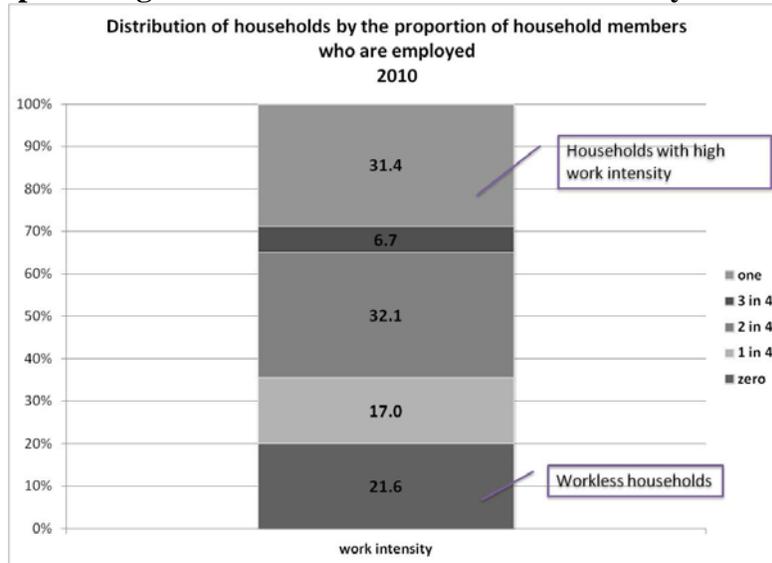
Source: HBS 2010; Bank staff calculations.

**51. The proportion of households with low work intensity is high in Georgia.** Workless households represent as many as 22 percent of all households, and households where less than half of the members of working age are employed represent an additional 17 percent. Thus, work intensity is low in two out of five households. Such low work intensity is not surprising given the lack of work opportunities and high joblessness. Joblessness is associated with poverty: over 50 percent of all poor households are those with low work intensity. However, in the remaining poor households, work intensity is not low, as at least half of household members of working age are employed. Thus, the association between poverty and work intensity is not strong in Georgia (as also shown in the previous paragraph). Low work intensity does not necessarily lead to poverty and high work intensity does not necessarily protect from poverty.

**52. The earning potential of the household has a stronger effect on poverty than the work intensity.** An increase in the earning potential brings about a notable reduction in the likelihood of poverty. The reduction is particularly sharp when households move from the bottom quintile of the distribution of earning potential to the lower middle (second) quintile, and from the lower middle to the middle (third) quintile. Households with low earning potential (bottom quintile) have a 26 percent poverty rate, when they move to the lower middle group (2<sup>nd</sup> quintile) the poverty rate falls by as much as 11.3 percentage points (Figure 17, Panel B). Households that increase their earning potential so as to move from the lower middle group (2<sup>nd</sup> quintile) to the

middle group (3rd quintile) reduce the risk of poverty by 7.7 percentage points to a level of less than 7 percent. Accordingly, households that strive to improve the productivity of their members by investing in education and skills have the biggest chances to escape poverty. But for this household level strategy to be fully successful it must be accompanied by policies to enhance productive job opportunities.

**Figure 18. A high percentage of households with low work intensity**



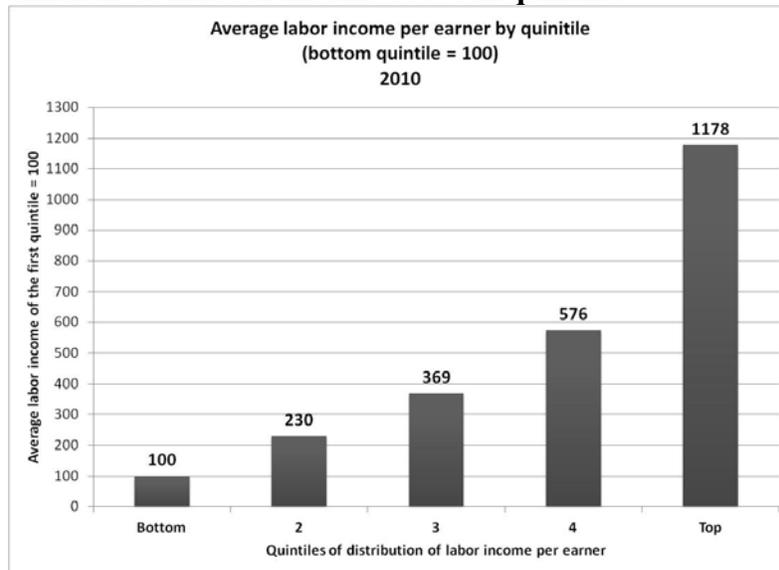
Source: HBS 2010; Bank staff calculations.

**53. Households have to substantially increase their earning potential to escape poverty.** As previously mentioned, the likelihood of poverty fall the most when households move from the bottom to the lower middle quintile of the distribution of labor earnings (per earner). This is a large distance in relative terms, although not in absolute terms. The average labor earnings of the lower middle quintile household are more than twice as high as those of the bottom quintile households (Figure 19). Thus, in order to move out of poverty, a bottom quintile household would need to more than double its earning potential (although from a very low base). This is quite a challenge. On the other hand, the difference between the average labor earnings (per earner) of the second and first quintile accounts for only about 40 percent of the median labor income. So, the challenge does not appear to be insurmountable. Households that can invest in skills and enhance their earning potential, such as younger and better educated households, and whose members can find work in more productive branches of the economy are more likely to succeed.

**54. There is a negative relationship between work intensity and earning potential of the households.** Work intensity is higher in households with low earning potential and lower in households with high earning potential. This implies that the income effect dominates the substitution effect. Households in Georgia tend to convert higher earnings into more “leisure”,

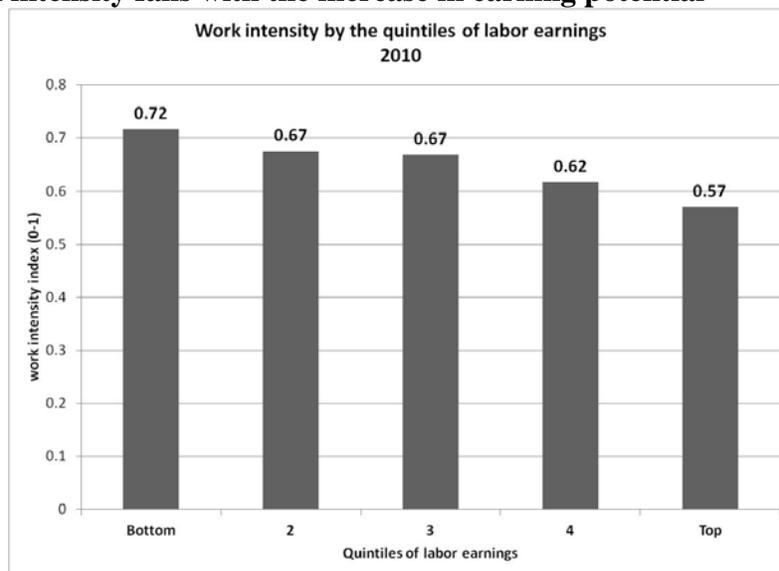
or lower their work intensity. For example, in households with the lowest earning potential, roughly 3 out of 4 family members of working age are employed. In contrast, in households with the highest earning potential, only 2 out of 4 family members are employed (Figure 20). The fact that Georgian households offset their low earning potential by increasing work intensity somewhat lessens income disparities. However, the negative correlation between work intensity and earning potential is weak. Work intensity is only slightly reduced with the increase in earning potential.

**Figure 19. Large differences in labor income between quintiles**



Source: HBS 2010; Bank staff calculations.

**Figure 20. Work intensity falls with the increase in earning potential**



Source: HBS 2010; Bank staff calculations.

**55. This section demonstrated that both the individual's and household's labor market status has a significant effect on the probability of (relative) poverty.** From the perspective of an individual, the biggest risk factors are unemployment, or low-skilled and low-productivity employment. Low-paid workers face an increased risk of poverty, but the vast majority of low-paid workers live in non-poor families. From the perspective of the household, the biggest risk factors are unemployment (or inactivity) of all household members, and the low earning potential of the household. These results imply that the improvement in labor market conditions, that is more and better jobs, is key for poverty reduction in Georgia.

## IV. Conclusions and Policy Implications

**56. The two main labor market problems in Georgia are high unemployment in urban areas and low productivity employment in rural areas.** Demand for labor is severely depressed. Jobs are scarce in urban areas. In rural areas, workers are mainly employed in subsistence agriculture. High unemployment has persisted despite a relatively long period of strong economic growth, which points to its structural character. High incidence of long-term unemployment and low outflows from unemployment to jobs point in the same direction.

**57. Unemployment in Georgia is particularly high among young workers with tertiary education.** In addition, many workers with tertiary education are employed in less skilled jobs that do not require university or college level skills. This points to **overeducation**, also referred to as a vertical skills mismatch. On the one hand overeducation is the result of people investing in acquiring tertiary education and thus, a high share of highly educated workers. On the other, it reflects low demand for highly skilled labor in Georgia. The low demand for high skills is a result of the traditional employment structure, dominated by agriculture, and the small size of the modern, high value-added sector of the economy.

**58. Overeducation coincides with a skills gap in Georgia.** Despite high unemployment, employers find recruiting workers with required skills difficult. Workforce skills are a major obstacle especially for modern and growing firms. This points to a different dimension of the skills mismatch in Georgia: the skills possessed by the unemployed fall short of those sought after by the employers. Some of the unemployed are underskilled in spite of having a university diploma. Even more importantly, many of the unemployed have just secondary general education and lack any technical, job-specific skills. The education system does not equip workers with the skills demanded by the market.

**59. Overeducation does not mean that the supply of workers with higher education should be limited.** Having a pool of well-educated young workers can be an important asset, which could attract investment, support the creation of productive jobs, and foster economic growth. What matters is that these workers have not only diplomas, but also have skills that are relevant and attractive to potential investors and employers.

**60. High unemployment and low-productivity employment contribute to poverty.** High unemployment means that many households are characterized by low work intensity or do not work. The analysis in this paper shows that the incidence of poverty among such households is very high. Low-productivity translates into low wages. Households with low earning potential were found to face a high risk of poverty. Thus, employment by itself does not protect from poverty in Georgia; productivity of employment is critical for avoiding poverty.

**61. To reduce poverty Georgia needs to create more and better jobs.** More highly skilled jobs in the modern sector of the economy are required to absorb the unemployed highly educated

young workers. Job creation outside agriculture should be fostered in order to reallocate labor away from subsistence farms to more productive activities in the industry and services sectors.

**62. However, creation of more and better jobs requires a favorable investment climate, sustainable long-term economic growth and industrial restructuring.** The solution of Georgia's labor market problems lies in the expansion of the modern, high value-added sector of the economy. Only when such a sector is large enough to provide attractive job opportunities to highly educated workers will investment in skills begin to pay-off.

**63. For high productivity jobs to be created, workers need to have the right skills, not only diplomas.** The modern sector will expand if workers have the skills that make investments in high value-added activities profitable. This means that the education sector in Georgia needs to change so as to provide high quality education and become more responsive to the changing labor market demands. Graduates need to have not only degrees, but also the skills and competencies required by employers in modern firms. It is necessary to foster the demand for highly skilled labor, but the demand will materialize only if there is an adequate and swift supply response.

**64. While the long-run solution to unemployment and poverty lies in strengthening the demand for and enhancing the supply of highly skilled labor, the medium run solution lies in improving the matching of supply to demand for labor.** Policies to alleviate a skills mismatch include developing labor market information to guide career choices; developing job matching and career guidance services; ensuring education and training systems are responsive to the changing labor market needs; and increasing training and skill development opportunities.

**65. Labor market information to guide career choices.** In order to make informed career choices students and their parents, as well as education and training institutions, need to have information on the evolving occupational structure of labor demand. This information needs to be easily accessible and in a user-friendly format. Main indicators include employment, unemployment, wages and job vacancies by detailed occupations. Data for a particular occupation should be presented relative to the average (e.g. wages or electricians or nurses relative to the average wage), preferably in a regional break-down.<sup>18</sup> Naturally, one would like to determine the demand for different occupations in the future. However, considerable analytical capacity is necessary to make the projections of the future occupational demand. Moreover, such projections are often inaccurate due to the rapid technological and structural changes. A rational alternative is to use the *recent trends* in occupational demand as an acceptable proxy for the short term *future changes* in the demand for skills. A number of

---

<sup>18</sup> Service Canada developed a labor market information system that is regarded as a best practice (see Bryson 2007). It provides detailed information on employment prospects and wages and salaries for different occupations ([http://www.labourmarketinformation.ca/standard.aspx?pcode=lmiv\\_main&lcode=e](http://www.labourmarketinformation.ca/standard.aspx?pcode=lmiv_main&lcode=e)) and on job futures (<http://jobfutures.ca/en/home.shtml>). It also has a feature that enables users to compare occupations ([http://www.labourmarketinformation.ca/standard.aspx?pcode=lmiv\\_main&lcode=e](http://www.labourmarketinformation.ca/standard.aspx?pcode=lmiv_main&lcode=e)).

countries established *Labor Market Observatories* with the aim of enhancing the scope of labor market information available to main stakeholders (students, jobseekers, educational institutions, employers).<sup>19</sup> Collection of information on the demand for skills and the supply of skills in the local labor markets is, as a rule, one of the core functions of *Labor Market Observatories* (Tyrowicz, 2011). Furthermore, graduate tracer surveys are increasingly used in a number of countries to determine the employment outcomes of graduates of different tertiary educational institutions by the field of study. The results of these surveys provide information on the relative performance of different institutions and on the employment outcomes (job prospects and wages) associated with a given field of study. Thanks to this prospective students have a better idea of which institutions and fields of study to choose in order to improve their employment outlook. The bottom-line is that adequate labor market information plays an important part in alleviating a skills mismatch.

**66. Job matching and career guidance services.** In most countries these services are provided by Public Employment Services along with private providers. Their objective is to improve the matching of workers with jobs and thus to reduce the skills mismatch. The effectiveness of these services hinges on the availability of information on the skills demanded by employers and on the proper assessment of the aptitudes and skills possessed by jobseekers. It further hinges on the capacity of employment services to collect information on job vacancies and maintain a good working relationship with the employers. In Georgia, Public Employment Services exist only in a nascent form. These can be developed to improve the efficiency of the job matching process.

**67. Education and training system.** Improving the responsiveness of the education system to the changing labor market needs is a substantial process. One important way of bringing the worlds of education and work closer together is by enhancing the relationships between skill providers and employers. Employers need to be involved in determining the content of curricula to ensure its relevance to the needs of the market. But the content of the curricula should not be driven entirely by the employers' agenda, as employers tend to focus on short-term skill needs and to demand graduates possess relatively narrow skills required in existing jobs. They also tend to overemphasize the importance of practical skills and experience, as opposed to theoretical skills. In short, they want students to be job-ready, but all too often ready for specific jobs that might be obsolete in the near future. While understandable, this approach is too narrow and short-sighted. Schools need to prepare students not only for their first job, but also for future jobs they will hold and for their broader role in society. And these future jobs are bound to differ in terms of skills requirements from their current jobs. The only way to prepare students for a long working life is to provide them with a solid foundation of generic skills, including the critical learning-to-learn, analytical and problem-solving skills. Thus, a balance needs to be struck between providing students with generic skills vital for their future job careers and technical and vocational skills required by employers in existing jobs (World Bank 2011).

---

<sup>19</sup> Tyrowicz (2011) provides a description of the functioning of Labor Market Observatories in Poland.

**68. Skills development opportunities.** Currently the VET system is underdeveloped in Georgia. While there are shortages of workers with technical and vocational skills, the opportunities to acquire or upgrade these skills are limited. For many firms, skill shortages are a major obstacle to their activity. This gap should be filled not only by the education system, but also by a training system that provides workers with a possibility to adjust the skills they have to the market needs. This is particularly important in the world of global competition and rapid technological progress. If workers are to remain competitive in the labor market, if they are to change jobs more frequently, and if they are to have longer work careers, they need to have an opportunity to update and adjust their knowledge, skills, and competencies. A system of lifelong learning is necessary to support a more productive and competitive workforce and a more dynamic and efficient labor market.

## Annex

### Results of earnings regressions

	Dependent variable: Log monthly labor earnings			
<i>Schooling</i>				
Years of Schooling	0.10*** (-30.79)	0.10*** (-28.63)		
Primary			-0.28*** (-5.52)	-0.24*** (-4.98)
Vocational			0.05 (-1.52)	0.03 (-1.07)
Secondary technical			0.05*** (-2.74)	0.02 (-0.97)
Tertiary			0.48*** (-29.6)	0.46*** (-27.84)
Experience	0.01*** (-4.99)	0.02*** (-7.62)	0.01*** (-5.6)	0.02*** (-8.5)
Experience <sup>2</sup>	-0.00*** (-6.91)	-0.00*** (-8.37)	-0.00*** (-7.67)	-0.00*** (-9.31)
Female	-0.49*** (-37.48)	-0.35*** (-23.54)	-0.49*** (-37.64)	-0.35*** (-23.45)
Urban	0.29*** (-22.25)	0.23*** (-17.67)	0.29*** (-22.04)	0.23*** (-17.34)
Industry dummies	No	Yes	No	Yes
c	4.07*** (-74.36)	3.59*** (-57.38)	5.25*** (-200.84)	4.74*** (-109.39)
Observations	13534	13534	13534	13534
R2	0.20	0.27	0.20	0.28
t-statistics are in parentheses				
* p<0.10, ** p<0.05, *** p<0.01				

<b>Heckman selection model - two-step estimates</b>		
<b>Regression model with sample selection</b>		
<b>Dependent variable: Log monthly labor earnings</b>		
<i>Schooling</i>		
Years of Schooling	0.07*** (-12.21)	
Primary		-0.16*** (-3.29)
Vocational		-0.06 (-1.58)
Secondary technical		-0.09*** (-2.86)
Tertiary		0.22*** (-5.03)
Experience	-0.01** (-2.09)	-0.01** (-2.14)
Experience^2	0.00 (-0.07)	0.00 (-0.54)
Female	-0.40*** (-22.86)	-0.37*** (-15.13)
Urban	0.14*** (-6.19)	0.11*** (-3.45)
c	5.23*** (-35.87)	6.16*** (-40.96)
<b>Selection model</b>		
<i>Schooling</i>		
Primary		-0.28*** (-8.57)
Vocational	0.55*** (-12.93)	0.27*** (-8.68)
Secondary general	0.28*** (-8.57)	
Secondary technical	0.65*** (-18.94)	0.37*** (-20.29)
Tertiary	0.98*** (-29.19)	0.70*** (-43.26)
Children	0.01 (-0.46)	0.01 (-0.46)
Age	0.11*** (-26.75)	0.11*** (-26.75)
Age2	-0.00*** (-26.35)	-0.00*** (-26.35)
Female	-0.29*** (-17.16)	-0.29*** (-17.16)
Urban	0.48*** (-35.31)	0.48*** (-35.31)
HH relation	Yes	Yes
Marital status	Yes	Yes
c	-3.28*** (-34.81)	-3.00*** (-33.15)
<i>Mills</i>		
Lambda	-0.42*** (-8.50)	-0.50*** (-6.16)
Rho	-0.51	-0.59
Sigma	0.82	0.85
Observations	47097	47097
Censored observations	33563	33563
Uncensored observations	13534	13534
Wald chi2(5)	1049.86	
Wald chi2(8)		1055.6
Prob>chi2	0.00	0.00
z-statistics are in parentheses		
* p<0.10, ** p<0.05, *** p<0.01		

## References

- CEDEFOP (2010). Skill mismatch in Europe. Briefing Note. Available at: [www.cedefop.europa.eu](http://www.cedefop.europa.eu).
- Cholezas, Ioannis and Panos Tsakloglu (2007). Earnings Inequality in Europe: Structure and Patterns of Inter-Temporal Changes, IZA DP. 2636.
- European Commission (2008). New Skills for New Jobs. Anticipating and Matching Labour Market and Skills Needs, Brussels.
- European Commission (2010). Employment in Europe 2010 (Chapter 3). Available at: [http://ec.europa.eu/employment\\_social/eie/index\\_en.html](http://ec.europa.eu/employment_social/eie/index_en.html).
- GTZ (2010). Matching Vocational Education in Georgia with Labour Market Needs, Tblisi.
- Newell, Andrew and Mieczyslaw W. Socha (2007). The Polish Wage Inequality Explosion, IZA DP. No. 2644.
- OECD (2008). Employment Outlook, Paris. (data on the incidence of low pay)
- Rutkowski, Jan J. (2001). Earnings Inequality in Transition Economies of Central Europe: Trends and Patterns During the 1990s, World Bank, Social Protection Discussion Paper No. 0117, Washington, DC.
- Rutkowski, Jan (2008). Labor Market in Georgia: Lack of Jobs or Structural Mismatches? mimeo, World Bank, Washington, DC.
- Tyrowicz, Joanna (2011). Labor Market Observatories in Poland. Background Paper prepared for the World Bank, Warsaw.
- USAID and IOM (2011). Supplying Workforce to the Georgian Labor Market, Tblisi.
- World Bank (2011). Fueling Growth and Competitiveness in Poland Through Employment, Skills, and Innovation, Technical Report, Washington, DC.



