

Impact of Digitalization on Labor Market & Employment – Worker Perspective

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Policy Brief 1

Impact of Digitalization on Labour Market & Employment – Worker Perspective¹

Target Audience: Ministry of Education, Science, Culture and Sport of Georgia
Ministry of Internally Displaced Persons from the Occupied Territories,
Labour, Health and Social Affairs of Georgia

1. Summary of recent study findings

The effect of digitalization on employment and labour markets has become an important area of policy inquiry over the past decades. 2019 World Development Report² argues that work is constantly reshaped by technological progress, the latter is changing the ways companies operate and the skills they are looking for in employees. A recent study by World Bank on the “Empirical evidence for broadband as a skills-biased technology”³ gives valuable insights regarding this issue in Georgian context. The study assessed impact on firm profits, turnover, expenses, employment, wages, hours and labour productivity on a sample of companies in various regions of Georgia. A control and a treatment group of companies were selected to assess the impact of broadband availability on these outcomes.

While the study proposes two theories with slightly varying implications for the labour market one thing is clear: just like in the rest of the world, the positive effects of technology are strongly skills-biased. In other words it strongly benefits the highly skilled workers and not that much the workers at the lower end of skills distribution⁴. There are two possible explanations to this:

- a) firms pay more to highly-skilled workers to compensate for increase in productivity (induced by ICT/digitalization) – and
- b) firms replace lower-skilled workers with (fewer) highly-skilled workers.

The study also finds that availability of broadband has a significant positive effect on wages. Important to note that this effect is observed in larger and more productive firms, while in smaller firms the effect is not statistically significant.

These findings indicate that increased take-up of broadband (e.g. digitalization) by firms is good news for highly skilled workers as they benefit from increased productivity and increased wages. However, the dividends of digitalization do not apply to the low-skilled and unskilled workers. Even more, the latter maybe be at risk of job loss.

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² <https://www.worldbank.org/en/publication/wdr2019>

³ Publication forthcoming

⁴ For more info on Skills-Biased Technological Change (SBTC) see Card D. <http://davidcard.berkeley.edu/papers/skill-tech-change.pdf> and Sanders M. et.al. <http://collections.unu.edu/eserv/UNU:1071/rm2000-012.pdf>

2. Implication for the labour market

If we assume that more firms in Georgia will turn to digitalization, implications of technological change on workers and employment will require serious consideration from policy-makers. The findings above point towards two major implications for the labour market:

→ Widening the wage gap between the low and highly skilled workers exacerbating the segmentation of labour market into primary (highly qualified, well paid jobs) and secondary (low qualified, low paid jobs) markets, the phenomenon often referred to as labour market polarization⁵;

→ Increasing number of unemployed low skilled workers;

These implications are due to the skills-biased technological change discussed in the first section. According to the efficiency wage theory⁶, since, technology will improve the productivity of highly skilled workers firms might find it profitable to increase their wages in excess of market clearing. This will widen the gap between the high and low skilled workers, whose salary levels are by definition already far apart. This would respectively lead to higher degree of polarization and deepening the divide between the “primary” and “secondary” labour markets. This is not good news for a country where labour market polarization is already pretty strong (see table 1).

Table 1: Distribution of workers by occupations in Georgia, 2018

Occupation (ISCO)	2018
High Paying	19.3%
Legislators, Senior Officials & Managers	3.6%
Professionals	9.3%
Associate Professionals	6.4%
Middle Paying	13.3%
Clerical Support Workers	3.6%
Service & Sales Workers	9.7%
Low Paying	20.1%
Craft & Related trades workers	7.6%
Plant & Machine Operators	5.5%
Elementary Occupations	7%

Source: Labor Force Survey, National Statistics Office of Georgia, author’s calculation

Note: distribution of workers is presented without “agricultural workers”, which represent 46.9% of all workers in Georgia and predominantly are subsistence farmers. If the latter are included they should be added to “low paying” occupations, which would make the polarization even more extreme.

The low skilled workers are disadvantaged in another way too. Namely, as the alternative theory suggests (and as evidenced by the recent study) firms are inclined to substitute low-skilled workers with fewer high skilled ones. In other words, more low-skilled individuals will become unemployed. This will increase the competition within the group of low and unskilled and make their employment prospects even grimmer. Thus, their employment

⁵ See Goos et.al. (2009) <https://www.aeaweb.org/articles?id=10.1257/aer.99.2.58>

⁶ See Katz (1986) <https://www.nber.org/papers/w1906>

chances are decreasing firstly because their skills are not good enough and secondly, because their group is increasing in size. The abundance of low skilled workers creates a certain “race to the bottom” in wages since the only way these workers can compete with each other is by offering their service for lower price than others.

3. Policy Responses

1. Scale-up training & skills development measures

Broadly speaking a policy response to the implications described above is to provide more opportunities for training and skills development of the labour supply. This would mean changes in the education system, as well as in the training within companies.

From Education to Learning – as recent literature indicates the effect of technologies on labour market is not simply that it will eliminate some jobs (low quality ones) and create others (more innovative and high quality ones), but rather that the biggest effect will be reconfiguration of positions and tasks that workers carry out at work. In other words, we don't only need to know what “new” positions will emerge as a result of technological change, but understand how technology augments or replaces existing tasks. Thus, it is becoming ever more important to train people in specific skills rather than in specific occupations! There is already plenty of analysis about the skills which will be highly sought after in the digital era (complex reasoning, creativity etc.) Respectively, education system in Georgia has to embrace this development and change the approach from not just educating the students but giving them the ability to “learn” independently.

On-the-job training – While changes in the education system will equip future workforce with necessary skills, workers (especially the low-skilled) currently on the labour market need support so as they don't become redundant. Companies they work for know the best how exactly they should be up skilled to stay valuable for the employers and become competitive on the labour market. However, companies (especially the small ones) often lack resources to train their workers and even when they can afford it the risk of “poaching” by their competitors (e.i. positive externality) might hold them back from such investments. Due to the presence of such a market failure, governments around the globe have experimented with various policy measures. Continental European countries like Germany and Austria have introduced dual education system⁷, where companies invest massively in training the apprentices (future employees). These countries have opted for strong industrial relations and sectorial regulation of wages, which decreases the risk of “poaching” and provides incentives to employers to continue paying their apprentices. Countries with more liberal market regulations, however, have not been successful in reproducing the dual system. Alternatively, they have pioneered other schemes like Training Levies and Individual Training Accounts. Training Levy Scheme in UK⁸ was introduced in 2017. All employers with a pay bill of more than GBP 3 million each year pay a levy of 0.5% of the total annual pay bill. They can then address the apprenticeship fund to pay their training providers. Smaller employers pay 5% of the training costs, with the rest being subsidized by the government, while companies with less than 50 workers get their apprentice training fully subsidized from the state. As for the Individual Trainings Credits system is was introduced in Singapore⁹ in 2016. A Skills Future Credit (SFC) system provides every individual aged 25 and above a credit of 500 Singaporean dollars.

⁷ <https://www.bmbf.de/en/the-german-vocational-training-system-2129.html>

⁸ <https://www.gov.uk/government/publications/apprenticeship-levy/apprenticeship-levy>

⁹ <https://www.skillsfuture.sg/>

The system aims at encouraging individual ownership to skills development and lifelong learning. The latter examples might be of particular interest to Georgia, where labour and industrial relations are rather liberal.

2. Find out more about technology-induced change of various job profiles in different sectors – as mentioned earlier major effect of technological development will be the reconfiguration of working positions/tasks. In order for educational institutions to know how exactly to meet the new training needs, they need to know how the job profiles are changing. This would require a different approach to “labour demand” studies currently implemented in Georgia. These studies should not only focus on finding out what vacancies will be posted in the nearest future, but also how the job profiles will be affected by digitalization and what are the sector differences in this regard. The latter also calls on improving the functioning of Labour Market Information System (LMIS)¹⁰ in Georgia, which primarily operates through cross-sectional surveys and has very weak skills anticipation component.

3. Rethinking Wage policy – policies aimed at retraining and up-skilling would provide positive effect on bringing more workers to the high-quality jobs. However, they cannot close the gap between the low and highly skilled workers, simply because the labour market polarization is inherent to modern service economies. Acknowledging the problem of rising inequality most of the European societies have started discussing the idea of basic minimum income – basic income provided irrespective of employment status to compensate for technological unemployment. While “basic income” is a fresh policy idea and there is not much evidence about its effectiveness, it could be more interesting for Georgia to examine the idea of “minimum wage” – another policy instrument to decrease the inequalities. Nevertheless, introduction of minimum wage requires careful consideration of local socio-economic condition and estimation of its impact on general economy.

¹⁰ <http://www.lmis.gov.ge/Lmis/Lmis.Portal.Web/Default.aspx>