ASSESSING IMPLICATIONS OF INDUSTRY 4.0 ON JOBS AND SKILLS IN HIGH-GROWTH INDUSTRIES OF UZBEKISTAN

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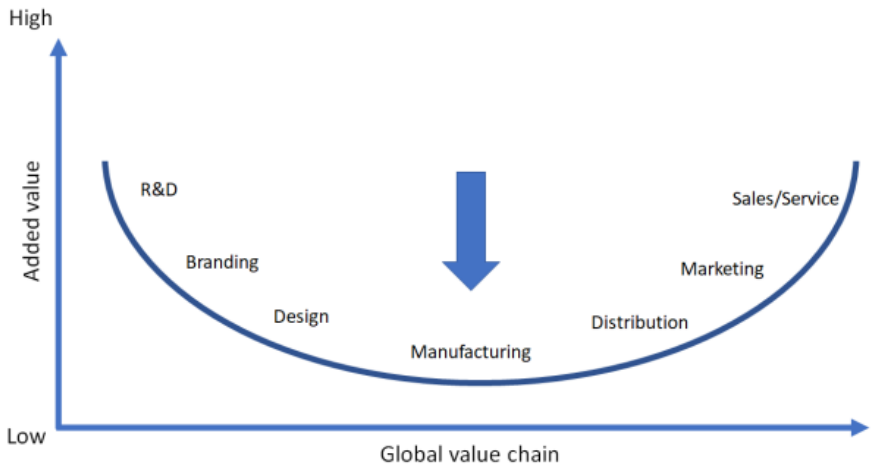
Abstract: This paper discusses job opportunity in the market of Uzbekistan in the era of Industry 4.0. Moreover, provides detailed comparison of digital labor market of countries such as Uzbekistan, Pakistan and Azerbaijan.

Key words: Digitalization, Labor force, Global value chain, Industry 4.0

With the advent of industrial technologies 4.0, Foreign Direct Investment and Global Value Chain may change. labor-intensive work in developing countries can be replaced by labor-intensive technologies, such as robotics and artificial intelligence, in developed countries, which will reduce the comparative an advantage in production under the GVCs that could lead to re-shoring of production from developing to developed countries (UNCTAD, 2018a) [1]. From the point of view of developed countries, Industry technologies 4.0 can strengthen their comparative advantage in industries that require skilled and capital-intensive resources, including intangible components which have become more prevalent due to digital technologies (UNCTAD, 2018a) [2]. All of these effects together can deepen "smile curve" of GVCs with developed countries end up adding more value while developing countries losing their share of value addition within GVCs (UNCTAD, 2018a) [3]

On the other hand, it can be argued that companies' FDI decisions are based not only on labor costs, but also on multiple factors such as market access, favorable policy environment and incentives whether will be re-shored also depends on more implementation-related factors, such as switching costs, inertia and coordination complexity associated with re-shoring (UNCTAD, 2018a) [4]

Figure-1. Deeping of global value chain smile curve



Source: UNCTAD compilation based on (UNCTAD, 2018a.

In addition, digital technologies could also encourage the participation of more firms in GVCs through bridging distances and reducing costs related to trade and assembly (WTO, 2019) [5].

In terms of production, technological change and innovation affect inequality through jobs, wages and profits in a long chain reaction throughout the economy (Auerswald, 2010; [6] Van Reenen, 2011[7]; Acemoglu and Autor, 2011a[8]; Vivarelli, 2014[9]; Brynjolfsson and McAfee, 2016[10]. Technological change creates, destroys, and changes jobs, resulting in winners and losers in the process, and international trade transmitting these effects between countries. It also affects wages and profits, which affects inequality between employees, between them and capital holders. Similar to previous industrial revolutions, the expected facets of the Fourth Industrial Revolution is about productivity. Through the development of AI, the Internet of Things and Big Data, the Fourth the Industrial Revolution can achieve this through better management of the workforce. At the heart of this is a large amount of data collected through wearables, GPS, user ratings and ratings and registers in computers and systems information about the performance and behavior of workers in combination with analyzes carried out using algorithms and AI (Stefano, 2018) [11]. While the use of technology for such HR analytics methods can be based on real business needs and have potential improve productivity and increase the benefit of employees, there are several concerns that must be taken into account such as:

4IR adoption:

- Internet of Things (IoT) is the technology that most firms across the countries intend to adopt – at 54-90% throughout sectors.
- COVID-19 has accelerated the adoption of 4IR technologies, particularly in the IT-BPO industry[12]

4IR impact on jobs:

- 4IR technologies could actually create more jobs than they displace. Net job gains are estimated at 11-29% of today's industry workforce.
- Job creation effects will be uneven, however, with such jobs likely to be concentrated in roles currently dominated by male workers.
-As 4IR changes the nature of work, new job roles will emerge – e.g., 3D printing specialists; cybersecurity engineers.

4IR impacts on tasks and skills:

- Time spent on analytical tasks is expected to increase in all industries analyzed across all countries.
- "Creative thinking and design" as well as "adaptive learning" skills will become more valued by employers in all industries in five years' time. Below figures analyzes the digital labor market of countries such as Uzbekistan Pakistan and Azerbaijan.

Future trade gains and the prospects for trade-led development in developing countries will depend on how good they are at absorbing these technologies and

applying them to existing industry. To be “trade ready” in the digital economy, they will need two sets of capabilities. The first is routine skills, know-how, and competencies that are essential for the manufacturing sector and to create new products and processes interfacing manufacturing and services, as in conventional industrialization. Given that much of e-commerce is selling traditional goods and services online, the lack of ability to produce many varieties of industrial output will directly affect the level of participation and share of gains. A second set of capabilities is the skills, knowledge, and technical know-how of particular significance to Industry 4.0. This means data scientists, RPA engineers, and people specialized in particular sectoral technologies. Over time, all industrialization will face transformational pressures to become digital industrialization. That is why it will be important to develop interdisciplinary skills that combine technical expertise with specific plant management expertise to run hybrid production systems. A dual focus on both kinds of capabilities is needed to adapt and retain jobs while at the same time promoting local industrial content.

Figure 2 Understanding and adoption of 4IR technologies

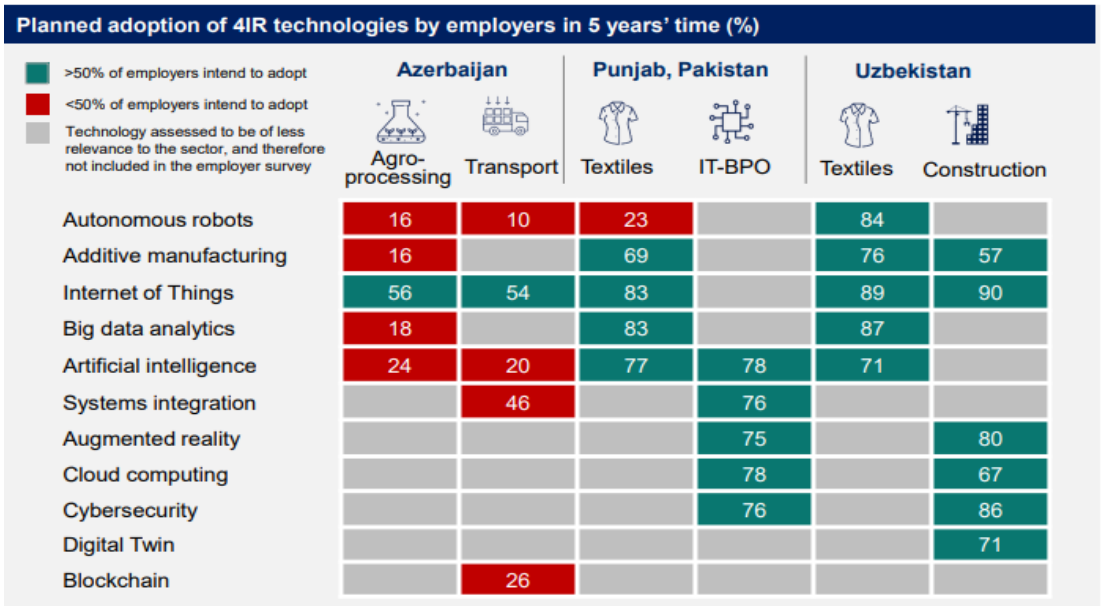
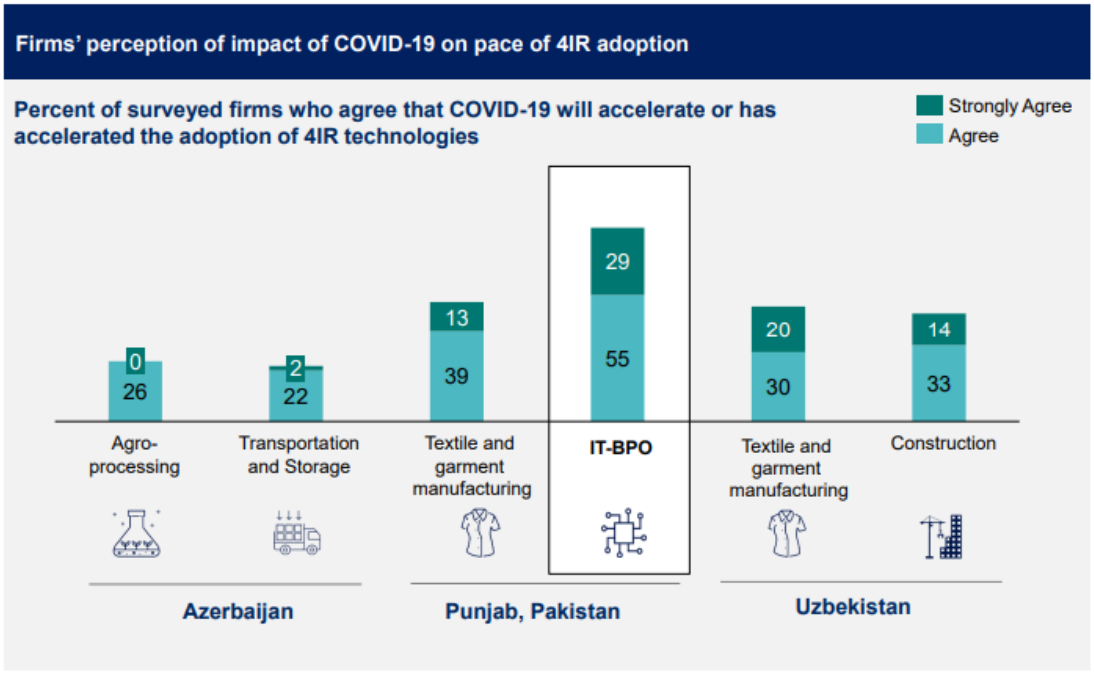
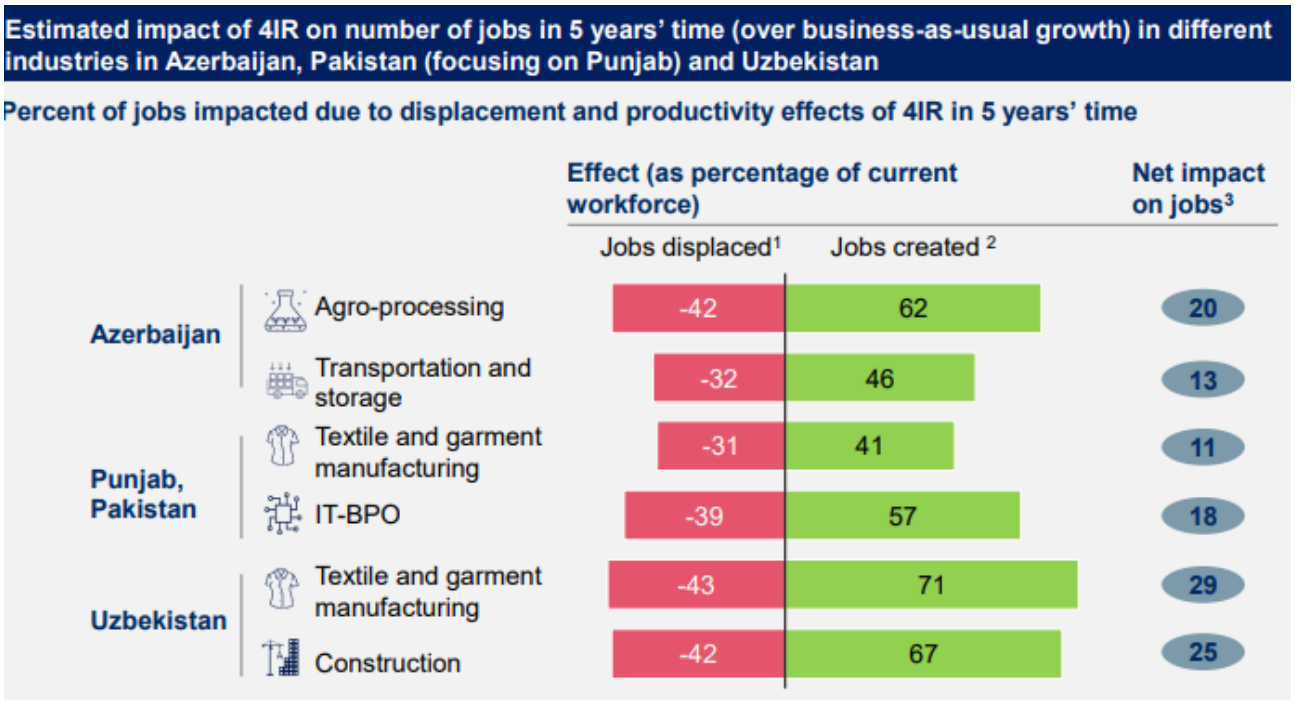


Figure-3 Understanding and adoption of 4IR technologies



COVID-19 has accelerated the adoption of 4IR technologies, particularly in the IT-BPO industry. Preceding the Coronavirus emergency, Industry 4.0 business pioneers were centered around acquiring upper hand, expanding efficiency, diminishing expenses, supportability, development. The principal objective was to work on the working of well-working organizations. Numerous makers currently center basically around endurance and on diminishing the harm brought about by a pandemic. The monetary emergency for makers is as of now prompting a critical decrease in superfluous consumption and less required venture. A significant number of the industry 4.0 speculations that have been arranged are at present being dropped, ordered as pointless ventures. Organizations that had scaled Industry 4.0 use cases before COVID-19 ended up better situated to react to the crisis A consumer packaged-goods (CPG) company in Asia had assembled an advanced twin of its inventory network before COVID-19, for instance [13]. It had the option to utilize that to run numerous situations during the pandemic, setting itself up for abrupt closures of assembling areas or interruptions in natural substance supply. On the contrary side of the globe, a personal-protective equipment (PPE) producer in North America, during the time spent expanding its ability by introducing another assembling line, had the option to commission the line involving increased reality-based distant help for project execution[14].

Figure 4 Understanding and adoption of 4IR technologies

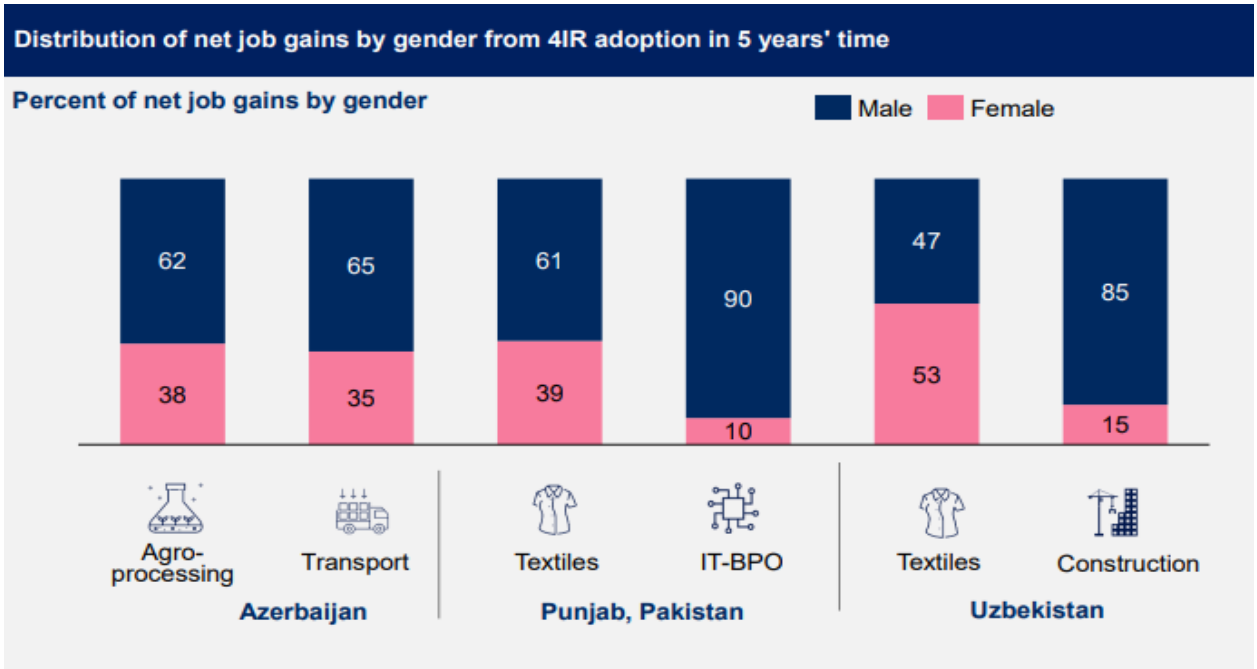


1 Job reductions due to labor-substitution effects of 4IR.

2 Additional labor demand stimulated by revenue increases brought about by 4IR-enabled productivity gains.

3 Combination of displacement and income effects.

Figure 5 Understanding and adoption of 4IR technologies



Source: (Figures 1,2,3,4,5) Employer surveys conducted were by ADB and declared on Regional workshop on16 February 2022.

As is clear, from the analysis online job listings in the three countries reveal a range of emerging job roles linked to technology. In order to expand this field high-speed internet is required even in remote parts of the countries. By doing this Governments will be able to create more jobs in the market. Uzbekistan should accept some policies to motivate manufacturing organizations to design their spaces with the latest technologies.

Digital industrial policies are extremely important to reinforce the focus on capabilities. They can help countries control and check cross-border data flows, promote consumer protection and safety of online transactions, and protect individual privacy. But although such policies are harbingers of hope, they will also face several limitations. A first limitation is the choice of industrial policy instruments, since many of them entail trade-offs and concerns of privacy and development may be deeply intertwined. For example, data localization is often advocated as an industrial policy option to retain data control and promote local industries (by sharing the data), while some countries also see it as an important tool to ensure individual privacy. Regardless, what is not clear is how data sovereignty – which relies on a country's efforts to create large-scale digital infrastructure to route its internet traffic and requiring companies to store all information generated within national boundaries – can really help create technical protection from data misuse.

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