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UZBEKISTAN AGRI-FOOD JOB DIAGNOSTIC

Europe and Central Asia Region

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Europe and Central Asia Region



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Washington, DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

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This food processing plant in Samarkand Region produces juices, concentrates and mash from local fruits and vegetables for local and overseas markets. It cooperates with over 1,000 farmers from several provinces, who supply their produce to the plant.

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Abbreviations and acronyms

ADB	Asia Development Bank
AMP	Agriculture Modernization Project
BCI	Better Cotton Initiative
CIS	Commonwealth of Independent States
EBRD	European Bank for Reconstruction and Development
ECA	Europe and Central Asia
EU	European Union
FAO	United Nations Food and Agriculture Organization
GAO	Gross Agricultural Output
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GSP	Generalized System of Preferences
HDP	Horticulture Development Project
IAMO	Leibnitz Institute for Agricultural Development in Transition Economies
ILO	United Nations' International Labor Organization
IMF	International Monetary Fund
L2CU	Listening to the Citizens of Uzbekistan
MOA	Ministry of Agriculture
MOEDPE	Ministry of Economic Development and Poverty Eradication
MOELR	Ministry of Employment and Labor Relations
MOF	Ministry of Finance
OECD	Organization for Economic Cooperation and Development
SSCU	State Statistics Committee of Uzbekistan
UNIDO	United Nations Industry Development Organization
USAID	United States Agency for International Development
WB	World Bank
WEF	World Economic Forum

EXECUTIVE SUMMARY

Jobs are among the most important economic and social concerns in Uzbekistan.

Agriculture creates many jobs in the country, but these jobs are often considered unattractive and predicted to decline based on global trends. The Covid-19 outbreak has brought some new attention to the value of jobs in agriculture, which has been more resilient to the economic effects of the outbreak than tourism, services, and construction. This Report argues that this new attention to agricultural jobs in Uzbekistan should outlive the Covid-19 outbreak.

The value of agricultural jobs goes beyond their number.

Agricultural employment has a stronger effect on poverty reduction than any other employment, as 80 percent of the Uzbekistan's poor reside in the rural areas. They can be highly inclusive for rural women and youth, being available in close proximity to their homes, and for small dehkans farms, who already have a lot of experience with horticulture production. When production factors, i.e. land, labor and capital, are able to move more freely to more productive and profitable activities, than is currently the case in Uzbekistan, jobs in the agricultural sector can generate income comparable or even higher than that from non-agriculture. Productive employment in agriculture contributes to higher food security and improved nutrition and is critical to lead to higher profitability of food industry and light manufacturing, which stimulates creation of more productive jobs, including for former farm workers willing to take on off-farm jobs.

This Report takes stock of the job situation in Uzbekistan's broader agri-food sector and shows pathways for increasing sustainable employment.

It lays out a roadmap for operationalization of the implicit job agenda of the recently adopted Agricultural Strategy for Uzbekistan. The current employment in the agri-food industry, estimated at 4.2 million people and 30 percent of total employment, has scope for further expansion. In 2019, primary agriculture created 27 percent of agri-jobs in the economy, while the food industry, light manufacturing, and food services together added a meagre 3 percent. The illustrative scenarios presented in the Report show that public policies and investments can help the agri-food sector increase employment between 19 and 32 percentage points in 2030 compared to 2019, allowing annual creation of 0.7-1.3 million jobs, more than enough to absorb 600,000 young newcomers to Uzbekistan's labor market (due to demographic reasons). Future jobs in the agri-food sector have the potential to be not only larger in numbers but also better in quality. Particularly the horticulture sub-sectors with strong comparative advantages and market opportunities has a potential for more productive and sustainable jobs. Those jobs will be inclusive, being available to women and youth not only in Tashkent and other large cities, but also in rural areas and secondary towns. And, they will be critical to raise people's incomes and lift them out of poverty, as well as helping the agri-food sector enhance food security and supporting economic growth through its strong spillovers to regional and rural economies.

The presented agricultural job outlook rests on two critical assumptions. The first and major one is a continuation of the already ongoing shift of farmland away from cotton and wheat production to more labor intensive and more profitable agricultural products. In this Report the cotton and wheat growing areas are assumed, as an illustrative example, to decline from the current 65 percent of irrigated land to at least 45 percent in 2030. This shift is expected to boost agricultural employment in quantity (700 thousand more workers by 2030) and quality. Without it, agricultural employment would instead fall. A future decline in the cotton and wheat growing areas does not mean lower production of these commodities, which are important for food security and, as this Report shows, for strong spillovers for job creation in downstream food and cotton processing industries. The reduction in growing areas needs (and can) to be compensated by an increase in cotton and wheat yields and overall farm productivity, which is the second assumption of the job outlook. The current level of adoption of modern technology, including digital tools and technologies, is low, offering the opportunity for agriculture sector from their adoption to increase profitability, thereby increasing demand for labor.

Due to the strong upstream and downstream links, more productive agriculture would help create more jobs in food and light manufacturing. These industries would benefit from larger volumes of raw materials at lower cost and released farm labor available for taking jobs in downstream industries. The job outlook by 2030 predicts about 640 thousand more workers in food and light manufacturing, creating most of new jobs in fruit and vegetable processing, meat processing, dairy, feed production, and finished textile and wear apparel production. Many of these jobs will be accessible for women living in rural areas and secondary towns.

Creating job opportunities in the agri-food sector that are economically viable, sustainable and contributing to rural household income requires support of the government. Jobs are largely created by the private sector, but the government has an important role to play to help the private sector to create more jobs, while proactively supporting participation of dehqan farms and vulnerable people in the formal labor market. The state-led and capital-intensive growth practiced in the past has not proven successful in creating jobs. The old model should give way to inclusive economic growth that is private-sector-led and labor-intensive and supported by an enabling state. The transition to such new growth model has already started in Uzbekistan, but it needs to be augmented by further improvement in the enabling policy environment for the private sector and more investments in targeted public programs to increase agri-food sector employment.

Table 1 presents the spectrum of public action in Uzbekistan's agri-food sector to deliver more jobs. They include actions, presented separately for primary agriculture, food industry, and light manufacturing, to: (i) promote growth in response to consumer demand through public policies and public investments; (ii) facilitate inclusion of women; and (iii) enhance inclusion of small dehqan farms and firms. Some of these actions are already being taken, as part of the Agricultural Strategy's implementation, but some are still lacking as reflected in Table 1. Next steps should focus on quality implementation of the ongoing activities and on the launch of lagging/missing actions to help deliver more sustainable jobs in Uzbekistan.

Table 1. Spectrum of actions in the agri-food sector of Uzbekistan to deliver more jobs

	Primary agriculture	Food industry	Light manufacturing
Promote growth in response to consumer demand, through:			
(a) Public policies	<ul style="list-style-type: none"> - Relax restrictions on agricultural land use, facilitate a move to vibrant land rental market, and strengthen farmland tenure security (**) - Refrain from taxation of farm-gate prices of agricultural outputs (**) - Continue the recently adopted focus on export-orientation and competitiveness (*) 	<ul style="list-style-type: none"> - Improve investment climate and competition in the food sector, including through privatization (**) 	<ul style="list-style-type: none"> - Protect the rights of farmers in cotton-textile clusters and private investments of the owners of the clusters (**) - Fully eliminate the use of forced labor in cotton production to end the boycott of Uzbek cotton by global retailers (*) - Support adoption of labor safety requirements/standards on textile/garment factories and GAP/BCI for cotton production acceptable to international markets (***)
(b) Public expenditures	<ul style="list-style-type: none"> - Support adoption of GAP by farmers to improve their productivity and protect environment through investments in infrastructure and AKIS (***) - Invest in infrastructure for supporting adoption of digital technologies (***) - Upgrade skills of farmers through advisory and extension services (***) - Strengthen public and private sector capacities to improve sanitary and phytosanitary measures and guarantee food safety (***) 	<ul style="list-style-type: none"> - Provide incentives for investments in secondary cities (**) - Support voluntary productive partnerships (clusters) with farmers (**) - Support reskilling and upskilling of workers (**) - Strengthen public and private sector capacities to promote marketing and labeling and ensure food safety (**) 	<ul style="list-style-type: none"> - Provide incentives and support investments in high-value textile and garment production in secondary cities (*) - Support reskilling and upskilling of workers (**)

	Primary agriculture	Food industry	Light manufacturing
Facilitate inclusion of women	<ul style="list-style-type: none"> - Promote horticulture production (*) - Invest in improved vocational training and formation of skills demanded by the market (**) - Upgrade skills of women and youth, through extension services and communication (***) - Improve access to affordable finance (**) 	<ul style="list-style-type: none"> - Develop secondary cities to create food industry's jobs near rural areas (**) - Reduce the cost of formality (**) 	<ul style="list-style-type: none"> - Develop secondary cities to create textile/garment jobs near rural areas (**) - Reduce the cost of formality (**)
Facilitate inclusion of small farms and firms	<ul style="list-style-type: none"> - Improve inclusion in policy dialogue and program design (**) - Support collective actions and access to farmland to enable small farmers to integrate into modern food value chains (***) - Improve access to affordable finance (***) 	<ul style="list-style-type: none"> - Promote productive partnerships between farmers and food processors (**) 	

Note: (*) good progress has been already achieved; (**) there are good plans and some initial progress achieved, yet the quality implementation is lacking and/or scale up is delayed; (***) concrete actions are only being developed or the issue is not yet on the radar of policy makers.

Source: World Bank (WB) assessment.

1 SETTING UP THE CONTEXT

1 Jobs are among the most important economic and social concerns in Uzbekistan. In 2019, about 1.4 million working age individuals in Uzbekistan were reported to be out of jobs (a 9.4 percent unemployment rate). The last decade of relatively high economic growth¹ in the country has been ‘jobless’ as it has not created a sufficient number of jobs to even absorb new entrants to its labor market due to demographic reasons. During 1996-2016, formal employment rose from 8.2 million to 12.3 million jobs, which, on a net annual basis, created 280,000 new jobs against 600,000 youth entering the labor market annually². The Asian Development Bank (ADB) predicts that the number of young individuals entering the labor force every year will continue to increase until 2030³. Successfully integrating these job seekers to the labor market is critical to support Uzbekistan’s transition into a rapidly growing and diversifying economy.

2 Job creation has been one of the biggest priorities of the government since the launch of the economic reforms in 2017. In his speech to the newly elected Senate in January 2020, President Shavkat Mirziyoyev called for at least 600,000 jobs to be created during the next ten years to meet the job demands by the youth, making job creation the biggest challenge for the country. Thus, the urgency and extent of the challenge is well recognized by the authorities, responding to the priorities of people as shown in the results of the *Listening to the Citizens of Uzbekistan* (L2CU) survey (Figure 1)⁴. The topic of jobs and the need for jobs has become even more important after the Covid-19 outbreak.

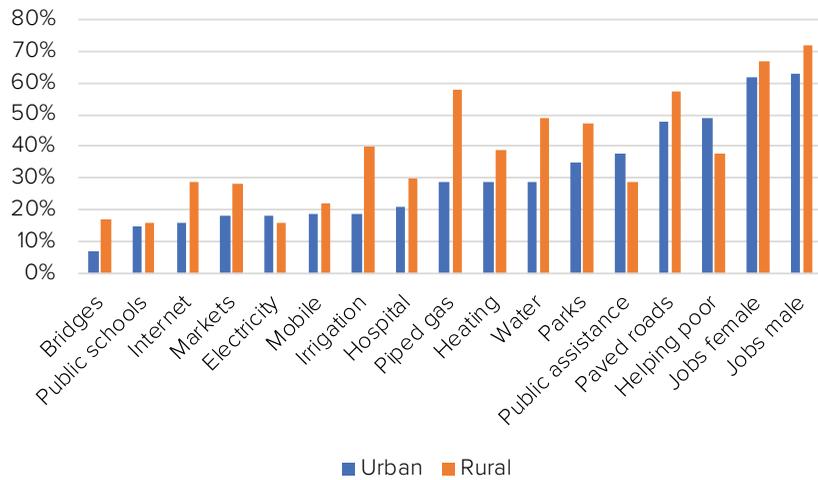
3 Agriculture is the largest sector of and the largest employer in Uzbekistan’s economy, and has a large role to play in reducing poverty and inequality through job creation. In 2019, agriculture accounted for 28 percent of GDP and 27 percent of the labor force. An estimated 9.6 percent of Uzbekistan’s population (3.2 million people) lived below the \$3.2/day poverty line in 2019, which is the international definition for lower

¹ Gross domestic product (GDP) per capita grew by 165 percent between 1996 and 2016, and Uzbekistan’s real GDP growth over the last two decades averaged 6.5 percent a year.

² World Bank Group. 2018. *Growth and Job Creation in Uzbekistan: An In-Depth Analysis. Macroeconomics, Trade and Investment Global Practice*. Washington, D.C.

³ ADB. 2020. *Uzbekistan Diagnostic Study: Quality Job Creation Cornerstone for Sustainable Economic Growth*. Manila, Philippines.

⁴ A collaborative effort led by the WB in cooperation with the authorities, non-governmental organizations, United Nations International Children’s Emergency Fund, the European Union (EU), and the U.S. Agency for International Development (USAID).

Figure 1. Uzbekistan: Local “urgent” development priorities

Source: L2CU Survey (2019).

middle-income countries⁵. About 80 percent of these poor live in rural area and their livelihoods largely depend on agriculture⁶. In 2020, due to the Covid-19 outbreak, poverty in Uzbekistan is projected to increase after a long-term decline⁷. The global empirical evidence shows that the growth in agriculture has led to two-three times greater poverty reduction than in any other non-agricultural sector, and the largest impact has originated from being employed in agriculture⁸. Thus, jobs in agriculture are among the most poverty reducing and inclusive, and Uzbekistan is not an exception to this rule.

4 **The agriculture sector has recently received a boost from the adoption of the Strategy for Agriculture Development in Uzbekistan during 2020-2030 (Agricultural Strategy hereafter)**⁹. The Agricultural Strategy’s vision is to develop a competitive, market-based and export-oriented agri-food sector that will increase farm incomes, create new jobs, enhance food security and ensure sustainable use of natural resources. This vision is supported by nine priorities: (i) enhance food security of the population; (ii) create favorable environment for agribusiness and value chains; (iii) decree state involvement in sector management and enhance investment attractiveness; (iv) encourage rational use of natural resources and environmental protection; (v) develop modern public institutions; (vi) gradually diversify state expenditures; (vii) develop research, education, and advisory services; (viii) develop rural areas; and (ix) develop transparent statistics and information systems.

⁵ 2019 L2CU survey.

⁶ WB. 2020. *Second Systematic Country Diagnostic of Uzbekistan: Towards a Better Future*. Draft report, concept note stage. Washington, D.C.

⁷ WB estimate.

⁸ WB. 2020. *Harvesting Prosperity: Technology and Productivity Growth in Agriculture*. Washington, D.C.

⁹ The Agriculture Strategy was approved by the Decree of the President of Uzbekistan No. PP-5853 on October 23, 2019.

5 **The Agricultural Strategy was written from the lens of sector development rather than job creation *per se*.** It does not provide concrete pathways for job creation and the role that agriculture can play in creating future jobs is not fully recognized in Uzbekistan. Primary agriculture is rarely mentioned as a sector where new decent jobs¹⁰ could be generated, although in 2019 about 27 percent of labor force was employed there. Most official projections predict agricultural employment to decline¹¹, citing the global long-term declining trends¹². Most future jobs are projected to be created in manufacturing and service sectors located in Uzbekistan's urban areas. It is also overlooked that more productive primary agriculture is critical to help create jobs in input supply industry, food processing, and light manufacturing¹³ - the entire agri-food system. The stronger the primary agriculture is, the more business opportunities can be created for related upstream and downstream industries with decent job opportunities in rural areas.

6 **This Report shows a tremendous opportunity for Uzbekistan to generate more jobs in primary agriculture over the next ten years, leading to job creation in the entire agri-food system.** Uzbekistan is a country, with the significant agricultural market distortions related to land use control, crop placement, and farm price taxation, which have reduced the demand for labor in the past and which are largely absent in a large majority of other countries. Adoption of modern technologies in Uzbekistan's agriculture is very low, keeping land and labor productivity as well as overall farm profitability at low levels; at the same time, it offers opportunities to rapidly increase profitability by adopting these technologies, including through public investments in agricultural knowledge and information system (AKIS). Addressing these issues, which is quite doable, would generate enormous economic gains, including the increase in labor demand over the medium run. In general, significant opportunities for job creation in Uzbekistan's agri-food sector can be induced with the following actions:

- a. *Shift more of farmland away from cotton and wheat production, while increasing cotton and wheat yield productivity.* Despite the recent reforms and shifts of some farmland from production of cotton and wheat to production of a wide range of horticulture products¹⁴, 65 percent of productive farmland in Uzbekistan is still locked into production of cotton and wheat. These crops are much less profitable and less labor intensive than most horticulture products. So, they drag down the average agriculture sector productivity and the average demand for labor force, except a

¹⁰ The International Labor Organization (ILO) defines "decent work" as follows: "Decent work reflects the aspiration of men and women everywhere to obtain productive work in conditions of freedom, equity, security and human dignity. *Decent work encompasses respect for basic rights, access to employment, safe and healthy working conditions, and social security.* ILO. 2006. Sector Note on Decent Work in Agriculture. Available at: https://www.ilo.org/sector/activities/action-programmes/agriculture/WCMS_161569/lang--en/index.htm

¹¹ The Agricultural Strategy itself anticipates an increase in farm jobs to slow down from 2 percent in 2019-2021 to 1 percent in 2022-2030.

¹² According to FAOSTAT, global farm employment in 1995 was 41 percent. In 2005 it declined to 35 percent, falling to 27 percent in 2016. Currently in high-income countries, farm employment rarely exceeds 5 percent.

¹³ Light manufacturing, consisting of textile, apparel, and leather industries, is a part of the broader agri-food system in Uzbekistan. Cotton, which is the raw material for these industries, account for more than 30 percent of arable land and it competes with food crops.

¹⁴ In 2015, the cotton growing area was 1.3 million ha. In 2020 it declined to 1.0 million ha. The decline in wheat area during this period was smaller, from 1.44 million ha in 2015 to 1.30 million ha in 2020.

significant seasonal demand for cotton pickers. Increasing yields of cotton and wheat by 3 percent a year, which is a reasonable target, would allow reducing the growing area under cotton and wheat from 65 percent in 2019 to 45 percent in 2030. This would boost job creation in more labor-intensive subsectors without undermining the textile industry and the country's food security.

- b. *Shift narrative of agriculture from a low to high productivity sector.* Agriculture is perceived by many to be a sector with low productivity, thereby being assumed to be unable to offer decent employment. Yet, in Uzbekistan agricultural labor productivity has been on average higher than overall labor productivity. As this Report shows, it is even higher when disaggregated by commodity and measured in actual hours and days worked rather than by number of workers. The result is well aligned with the recent global literature¹⁵ that shows that in many countries the gap between farm and non-farm productivity shrinks significantly when productivity is measured in actual time worked and when adjusted for skill difference and for cost of living in rural versus urban areas. A wider adoption of new technologies and digital tools could drive agricultural productivity much higher.
- c. *More productive agriculture would benefit the entire agri-food sector.* More productive agriculture will produce more raw materials at lower prices, boosting profitability of food and cotton processing as well as food services. This would, in turn, increase demand for labor along the entire agri-food system, providing job opportunities for rural population in the close proximity of their homes.

7 Generating more agri-food sector jobs is critical for Uzbekistan's rural areas and its labor force. In addition to the so-far slow creation of urban jobs¹⁶, the education and skills of Uzbekistan's rural population are often inadequate to compete for high-skill jobs in urban areas in the near future, even if they were sufficient jobs available. Currently the average labor productivity in agriculture exceeds that in both construction and services, where most rural laborers work when they move to urban areas. Thus, the expectation that people are better off in terms of jobs and income in urban areas for the untrained labor segment are unfounded. Thus, the agri-food sector is well positioned, in the short to medium term, to absorb more rural people, including migrants, who are otherwise engaged in low skill works overseas.

8 This Report argues for paying more attention to the role of agriculture in job creation in Uzbekistan. It could be considered that the Report lays out a roadmap for operationalization of the implicit job agenda that is underlying the Agricultural Strategy. It begins with setting up the framework for job creation in rural Uzbekistan in Chapter 2 and a brief discussion of the concept of job creation, which goes beyond the number of jobs (quantity) and includes quality, inclusiveness, and sustainability. Chapter 3 presents the current situation with jobs in primary agriculture of Uzbekistan. This chapter fills a large knowledge gap by presenting disaggregated data and analyses to improve understanding of the nature and quality of agricultural jobs. Chapter 4 discusses the future of agricultural

¹⁵ WB. 2020. *Harvesting Prosperity: Technology and Productivity Growth in Agriculture*. Washington, D.C.

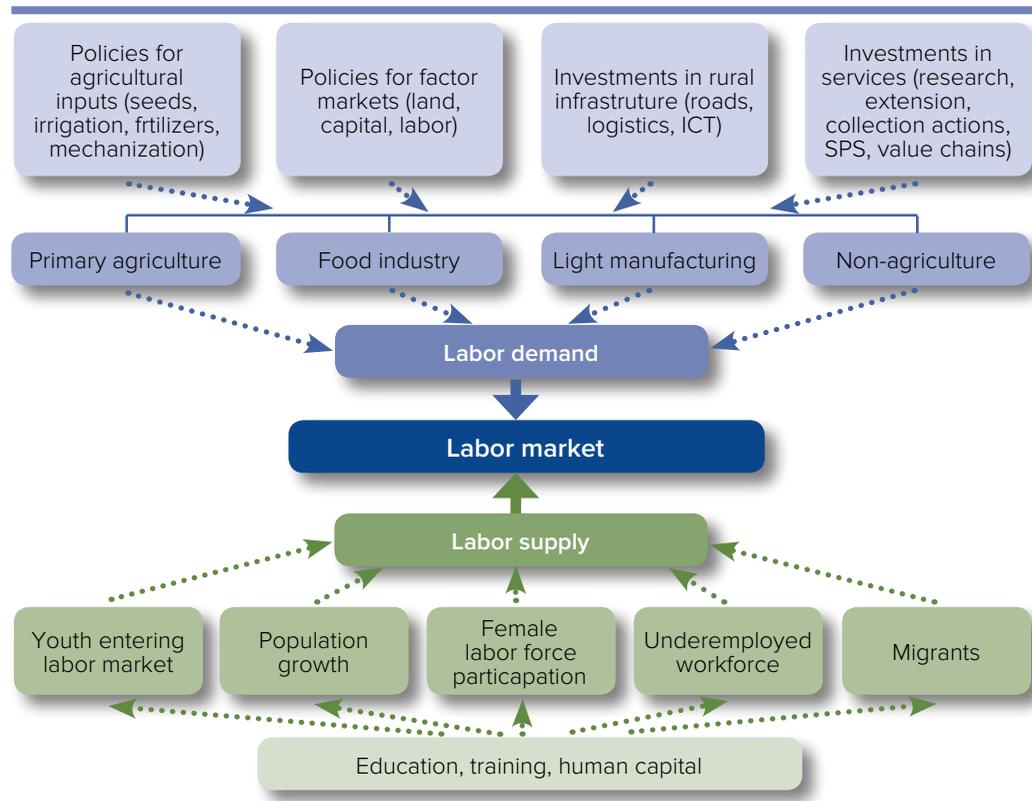
¹⁶ World Bank Group. 2018. *Growth and Job Creation in Uzbekistan: An In-Depth Analysis*. Macroeconomics, Trade and Investment Global Practice. Washington, D.C.

jobs by 2030. Chapter 5 presents a jobs diagnostic in food and light industries (such as textile and apparel), which are closely linked to the success of agriculture, while Chapter 6 discusses an outlook for job creation in these industries. Chapter 7 presents conclusions and recommendations on priority actions for Uzbekistan's government to help create private sector jobs in the agri-food sector.

2 CREATING GOOD JOBS IN THE AGRI-FOOD SYSTEM: GLOBAL EXPERIENCE

9 **Agriculture and associated food industries are the world largest provider of jobs in the low and middle-income countries.** High growth in agriculture and the agri-food system can help raise labor demand in the rural labor market, reducing unemployment and underemployment. Growth can be induced by public policies related to efficient functioning of factor markets and inputs and investments in public goods (Figure 2). Rural labor supply, rural labor demand, and rural labor market are interconnected and influence each other.

Figure 2. Framework for job creation in rural Uzbekistan



Source: World Bank staff.

usually consisting of youth entering labor market, female inclusion, integration of returning migrants and underemployed labor, and overall population growth, would respond to this demand. Public policies such as education, extension services, and training available in rural areas would improve quality of rural labor (e.g., their human capital), making it better positioned to get better paid jobs on- and off-farm.

10 **The concept of quantity of jobs is well understood – the more the better.** As mentioned above and will be discussed more in the following chapters, agriculture in Uzbekistan can generate more jobs over the next decade until it reaches a turning point of the long-term agricultural employment's decline experienced by most countries as part of the structural transformation.

11 **Global experience shows that when the number of agricultural jobs start declining, many farm workers, leaving agriculture, often move to jobs within the broader agri-food sector.** The same is expected in Uzbekistan. As the country urbanizes and people's incomes rise, demand for non-food goods and services will also rise, while food expenditures will decline as a share of total spending¹⁷. To help produce non-food goods and services, farm workers will be leaving agriculture as job opportunities elsewhere become more attractive, as part of structural transformation occurring worldwide. Many of these new off-farm jobs could be generated down and up the agricultural stream. With the demand for aggregation, storage, processing, logistics, exports, food preparation, restaurants and other services increasing, many employment opportunities will emerge off-farm, but within the larger agri-food system and associated light manufacturing industries.

12 **Quality of jobs is what matters most in the long run.** Most people work because they cannot afford not to. Agricultural workers in many low-income countries work irregular hours in low-quality, low-productivity jobs, and many are underemployed. Quality of jobs is about high productivity, income, formality, and inclusion, so to be attractive, agriculture would need to deliver these quality aspects.

13 **Economies grow when more people find work, when they get better at what they do, and when they move from low productivity work to better, decent, and more productive jobs¹⁸.** The economies that today have the highest income per capita are also those that have shown the most impressive increases in labor productivity growth. This increase in productivity has led to creation of 'better' or higher-paying jobs (Table 2). In emerging and developing economies, productivity growth has been a primary source of income growth and poverty reduction. Higher productivity allows entrepreneurs, such as farmers and agribusinesses, to receive higher profits, thereby generating higher incomes and pay higher wages to hired workers. But if wages grow faster than labor productivity, the production costs will rise, and production would eventually become uncompetitive.

14 **Agricultural labor productivity needs to be measured carefully to provide guidance about the true level of productivity.** Agriculture is often perceived as a low productivity and unattractive sector to work in. To demystify this perception, productivity should be disaggregated by commodity, as some products are more productive and profitable, thereby more desirable to produce than others. Recent survey evidence from

¹⁷ Food spending in total household expenditures in Uzbekistan averaged 60 percent in 2019. For comparison, in high-income countries, they are 15-20 percent.

¹⁸ WB. 2019. *Pathways to Better Jobs in IDA Countries*. Washington, D.C.

Table 2. Productivity and wages, cross-country comparison, av. 2016-2018

Countries	Agricultural GDP per worker (in constant 2010 \$)	GDP per capita (in constant 2010 \$)	Gross monthly minimum wages, in nominal \$
Low income	618	723	95
Low middle income	2,790	4,554	180
Upper middle income	4,822	8,239	450
High income	35,375	42,810	1,750

Source: L2CU Survey (2019).

around the world indicates that on a per-hour-worked basis, rather than simply using national accounts data on the number of people employed in agriculture, and accounting for differences in human capital, agricultural labor productivity is often similar to that in other sectors. This is not the case when productivity is measured by the number of people employed¹⁹. When accounted for in hours worked and for human capital, the productivity gap is reduced to from 3.5 to 2.2 times in developing countries and from 6.0 to 3.5 times in Sub-Saharan Africa²⁰. The difference in annual and per-hour-worked productivity estimates suggest underemployment in agriculture is due to seasonality and other factors, such as small farm sizes, not low productivity. Small farm size is also relevant to Uzbekistan.

15 Improving agricultural productivity would enable a move for some workers out of agriculture, leaving a more productive agricultural labor force behind. It would better contribute to poverty reduction in contrast to a scenario in which people leave agriculture due to distress following underinvestment. The road out of agriculture runs importantly through a path that increases labor productivity in agriculture²¹. This agricultural job paradox remains underappreciated. It will eventually leave fewer people in Uzbek farming, but they will have better employment conditions, and more and relatively cheap food will be available for those in the rest of the economy.

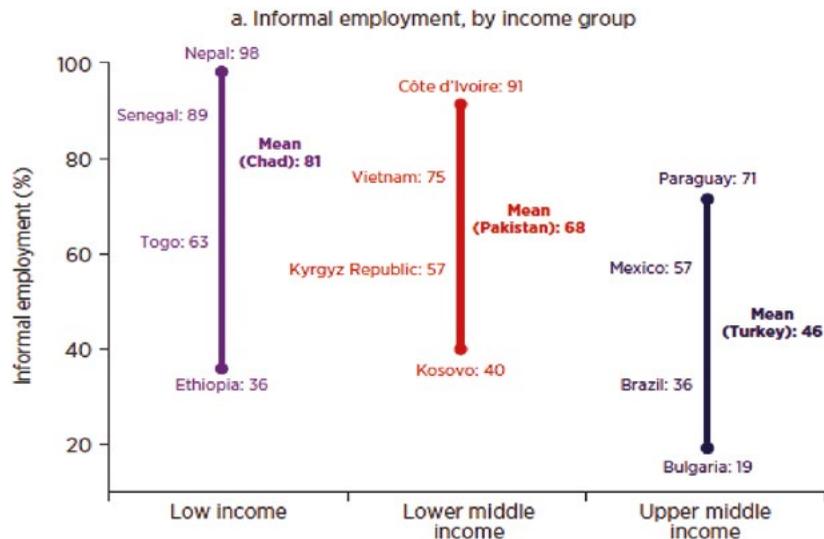
16 Formality and inclusion also increase the quality of jobs. Good work sums up the aspirations of people in their working lives. It comprises opportunities for work that is not only productive and delivers a fair income as discussed above, but also provides security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men. Agriculture can be a good employer in this respect as discussed below, but is also at risk of forced labor, informality, and exclusion.

¹⁹ WBG. 2017b. *Future of Food: Shaping the Food System to Deliver Jobs*. Washington, D.C.

²⁰ McCullough, E. 2015. *Labor Productivity and Employment Gaps in Sub-Saharan Africa*. Policy Research Working Paper 7243, World Bank, Washington, D.C.

²¹ Christiaensen, L., Z. Rutledge, and E. Taylor. 2020. *The Future of Work in Agriculture*. World Bank Policy Research Working Paper 9193, Washington, D.C.

Figure 3. Informality of jobs in selected developing countries



Source: WBG (2019)*.

* WBG. 2019. *The Changing Nature of Work. The 2019 World Development Report*. Washington, D.C.

17 **Informality is hard to tackle but needs to be addressed.** Workers in the informal sector tend to be lower skilled and lower paid, with less access to finance or social safety nets than workers in the formal sector²². They often live and work in crowded conditions and conduct all transactions in cash – factors that enable the spread of disease²³. Globally, informal workers on average are estimated to have incomes 19 percent lower than formal workers and have limited savings²⁴. A larger informal economy is associated with weaker economic, fiscal, institutional, and development outcomes. GDP per capita in countries with above-median informality is about one third to one half of countries below the median informality²⁵.

18 **Informality remains high in many developing countries, despite improvements in the business regulatory environment.** The share of informal workers²⁶ is as high as 90 percent in some countries (Figure 3). Informality remained remarkably stable notwithstanding economic growth or the changing nature of work²⁷. For example, in Peru,

²² Loayza, N. 2018. *Informality: Why Is it So Widespread and How Can It Be Reduced? Research and Policy Brief 20*, World Bank, Kuala Lumpur; Perry, G., W. Maloney, O. Arias, P. Fajnzylber, A. Mason, and J. Saavedra-Chanduvi. 2007. *Informality: Exit and Exclusion*. World Bank, Washington, D.C.

²³ The Covid-19 outbreak raised attention to this vulnerability of informal workers.

²⁴ WB. 2019. *Global Economic Prospects: Darkening Skies*. January. Washington, D.C.

²⁵ WB. 2020. *Global Economic Prospects: Pandemic, Recession: The Global Economy in Crisis*. June. Washington, D.C.

²⁶ Common employment measures of informality are self-employment and informal employment, relative to total employment. The *self-employed* work on their own account, or with or a few partners. *Informal employment* comprises all workers of the informal sector and informal workers outside of the informal sector.

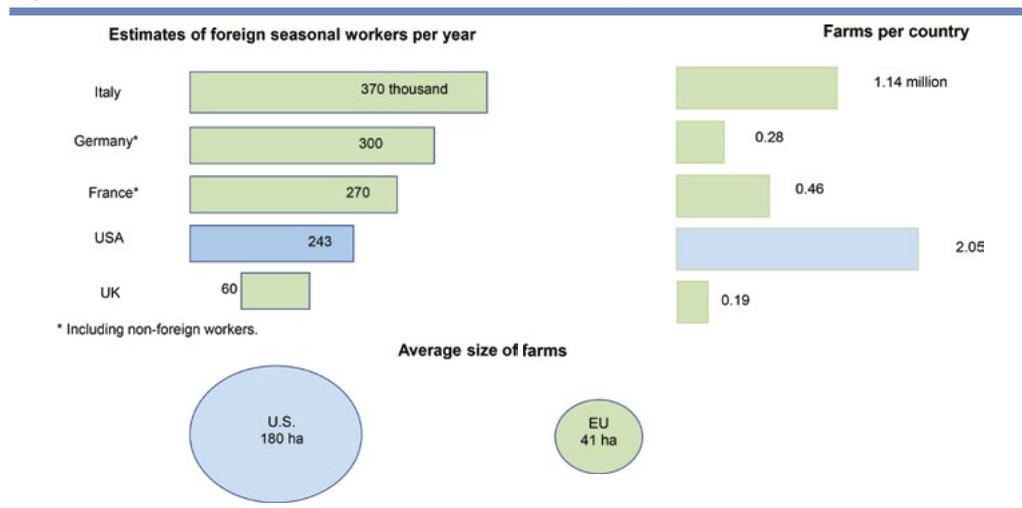
²⁷ WBG. 2019. *The Changing Nature of Work. The 2019 World Development Report*. Washington, D.C.

despite all the attention to the issue, informality has remained constant at about 75 percent over the last 30 years. In Turkey informality is 46 percent though it belongs to the upper-middle income countries. In South Asia, it increased from an average of 50 percent in the 2000s to 60 percent over the period 2010-2016. Addressing informality and the absence of social protection for workers continues to be the most pressing concern for developing countries.

19 **Providing good jobs in small towns and in remote regions is a strength of agri-food sector.** Farming is often the only economically viable activity in rural and remote settings. Off-farm jobs in secondary towns and rural areas are often linked to primary agriculture, being associated with input supply, farm service provision, marketing of agricultural products, and food and cotton processing. In other words, a successful primary agriculture creates spillover effects for a wider economy in these areas. Thus, when created in such difficult geographic areas, these jobs become more 'valuable' for the country and the economy.

20 **High seasonality is another feature of agri-food jobs.** Crop production is highly seasonal leading to peaks in short-term demand for labor. Uzbekistan is familiar with this seasonal labor demand for its cotton harvest: each September-November, about 2 million people are mobilized to pick cotton, many of whom are poor and rely on these harvests as an important element of their livelihood strategy. Seasonal demand for labor during harvest also exists in the higher-income countries. The recent coronavirus pandemic, for example, revealed a big dependence of high-income countries on foreign seasonal labor, who faced travel restrictions to come and pick fruits and vegetables. Italy is estimated to bring 370 thousand foreign seasonal workers each year on its 1.14 million farms (Figure 4). The number of seasonal workers, both foreign and domestic, on German and French farms

Figure 4. Seasonal farm workers in USA and Europe



Source: Wall Street Journal*.

* The French are Very Bad in Picking Asparagus. Virus Imperils European Farming. The Wall Street Journal, April 21, 2020.

is estimated at 300 and 270 thousand, respectively. Many seasonal workers in European Union (EU) farms come from lower income Poland, Romania, Bulgaria or Ukraine, often working for 2-3 months and earning enough cash income to comfortably live the rest of the year in their home country. So, seasonal labor is an intrinsic feature of agriculture, which remains with the rise of the countries' income. It is important to provide protection for these workers and ensure voluntary participation in harvest collection.

21 **The concept of good jobs is also associated with sustainability of jobs, which reflects their resilience towards withstanding or adjusting to automation and mechanization.** Many jobs in agriculture, food processing and textile/wear apparel industry are prone to labor-substituting mechanization, which, however, often makes labor remaining in the sector more productive. Recent advances in robots and artificial intelligence led many experts to believe that large swathes of population would soon become technologically unemployed. In 2017 the McKinsey Global Institute predicted that 800 million people in 46 countries, or roughly a third of the workforce, could lose their jobs to machines by 2030. Older workers were thought to be especially vulnerable because they were engaged in repetitive, unskilled manufacturing, the kind that was easiest to automate. In 2018, Mercer estimated that three-quarters of Chinese workers aged over 50 were at risk of being replaced by robots. In America just over half of older workers ran the same risk, while in Germany and Italy about 60 percent did.

22 **But these dire forecasts did not come to pass, as employment across the high-income countries reached record levels in 2019 before the coronavirus hit²⁸, for two reasons²⁹.** *First*, artificial intelligence failed to advance as quickly as some people thought it would. During the 2010s robots powered by artificial intelligence became more widespread, changing many industries and taking over repetitive jobs. But they were not cheap and still cannot handle many tasks requiring human discretion or empathy. Especially in fruits and vegetable production, robots are not up to the job yet, although they may be soon picking salads and fruits in countries with high income and shrinking labor force³⁰. *Second*, the 2020s showed that the level of employment depends on more than just automation: it also depends on ageing and immigration. As their populations aged, rich countries saw their workforces shrink. Many invested more in robots as they aged, and some let in more migrants, plugging some of the skills gaps and boosting productivity. Countries with relatively slow ageing and lots of robots did best. But those that underinvested in automation, or shut themselves off from the world, were hard hit.

23 **Automation and increased adoption of labor-saving technologies will, however, accelerate, requiring farms and firms to manage workers' skill gaps and better augment labor to complement technologies.** They will need to invest in reskilling and upskilling of their workers enabling them to thrive in the workplace of the future and the ability to continue to retrain throughout their lives. Larger agri-business companies and even farms have capacity and incentives to do it by themselves, but small farms and firms rarely have

²⁸ In 2012, the unemployment rate in advanced economies was 8.0 percent, according to the International Monetary Fund. In 2016, it fell to 6.2 percent, in 2018 to 5.1 percent, and in 2019 to 4.8 percent. The projection for 2020 is the unemployment to increase to 8.3 percent, due to the coronavirus pandemic, falling to 7.2 percent in 2021.

²⁹ Economist. 2019. A Different Dystopia: *The Real Danger to Future Prosperity could be Too Few Robots, not Too Many. An Imagined Scenario from 2030.* July 6 Issue, London.

³⁰ Lewis, N. 2019. *Why Robots will Soon be Picking Soft Fruits and Salads.* CNN Business, September 4, 2019.

capacity and incentives to invest in staff training. This is where the role of the government comes into play. There is an urgent need for the governments to address the impact of new technologies on labor markets through upgraded education policies aimed at rapidly raising education and skills levels of future farmers and workers of all ages, enabling people to leverage their human capabilities³¹. In the agri-food sector, governments need to invest also in AKIS that link education, research, and extension and upgrades skills of current farmers and workers. The next chapters will present how the key dimensions of good jobs outlined above fare in the agri-food system, and light industries context in Uzbekistan, as well as what is the outlook for jobs.

³¹ WEF. 2018. *The Future of Jobs Report*. Insight Report, the World Economic Forum.

One of the biggest intensive gardens in Tashkent Region producing apples, pears, apricots, plums and other fruits employs hundreds of workers for operation and harvesting.



3 JOBS IN PRIMARY AGRICULTURE

Quantity

24 **Agriculture in Uzbekistan employs and provides livelihoods for most of the economically active population.** The State Statistics Committee of Uzbekistan (SSCU) estimates that agricultural employment accounts for 27 percent of total employment. This share was quite stable over 2010-2019³², during which both agricultural and total employment grew by 15 percent (Table 3). Agriculture alone employs more people than industry and trade sectors do together.

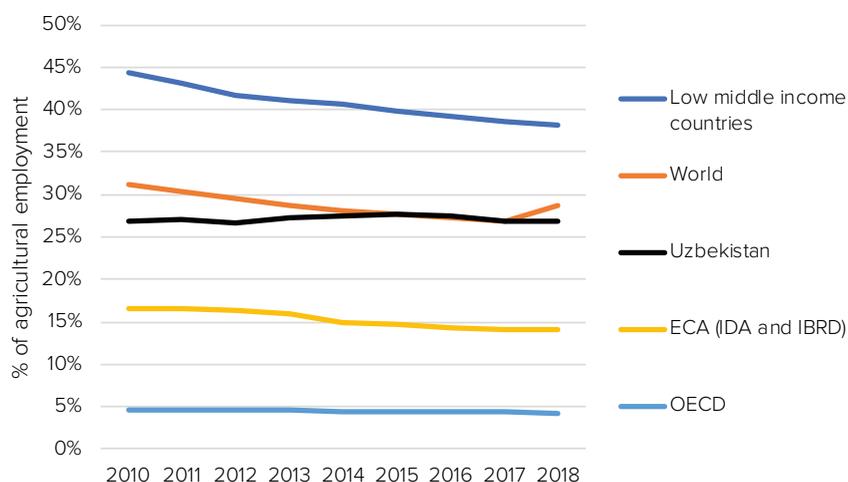
Table 3. Uzbekistan: Employment by sectors, '000 people, 2010-2019

	2010-2012	2013-2015	2016-2018	2018	2019
Agriculture, fishery and forestry	3,200	3,511	3,621	3,575	3,653
Industry	1,639	1,736	1,806	1,796	1,821
Construction	1,069	1,183	1,237	1,194	1,239
Trade	1,270	1,378	1,426	1,385	1,462
Transportation and storage	529	592	638	637	664
Education	1,103	1,105	1,108	1,112	1,154
Health and social services	597	601	603	604	621
Other sectors	2,516	2,694	2,926	2,969	2,996
Total employment	11,924	12,800	13,364	13,273	13,609
% of agri employment	26.8	27.4	27.1	26.9	26.8

Source: SSCU.

³² In addition to the slow urban job creation and weak rural education mentioned in Chapter 1, other reasons of this stable share of agriculture in total labor force have been the use of active measures to reduce rural-urban migration called propiska, and high urban housing costs. They have led to the low rates of internal migration in Uzbekistan.

Figure 5. Farm employment in % of labor force, cross-country comparison, 2010-2018

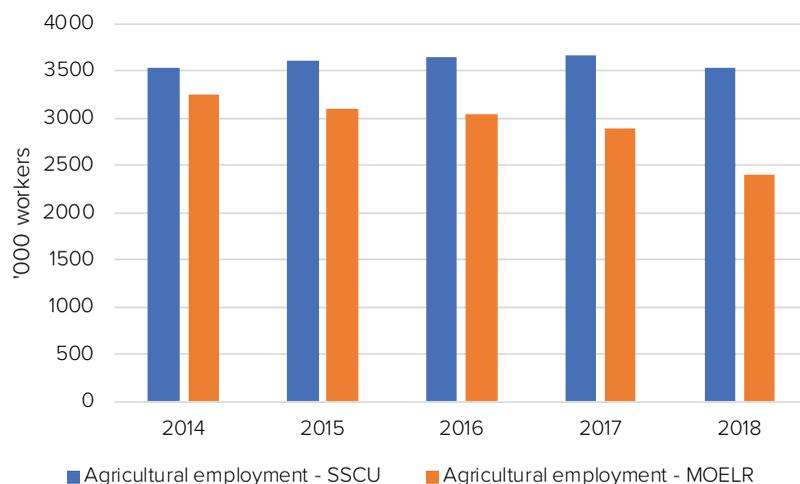


Source: World Development Indicators and FAOSTAT.

25 **The high rate of agricultural employment makes Uzbekistan an agrarian economy.** At 27 percent, the agricultural employment in Uzbekistan is well above that in most countries of Europe and Central Asia (ECA), which averaged 14 percent in 2018 (Figure 5) and above the average of the countries, the members of the Organization for Economic Development and Cooperation (OECD). Uzbekistan’s agricultural employment is close to the world average.

26 **Agricultural employment as a share of total labor force in Uzbekistan was flat in the last decade.** This contrasts with the decline of agricultural employment in the rest of the world, especially in low-middle-income countries, the group in which Uzbekistan belongs. Their agricultural employment declined from 45 percent in 2010 to 38 percent in 2018 (Figure 5). It could be expected that Uzbekistan will experience a decline in agricultural labor over the long run as part of structural transformation and convergence with the rest of the world. This convergence might have already taken place when looking at the employment data from the Ministry of Employment and Labor Resources of Uzbekistan (MOELR). This data shows a decline in agricultural labor from 3.1 million in 2010 to 2.4 million in 2018, contrasting with the relatively flat line reported by SSCU (Figure 6). In this report, however, the SSCU data is used for consistent analyses of productivity and cross-sectoral comparisons carried out in the following chapters.

27 **According to MOELR, 40 percent of farm labor in Uzbekistan is being employed by commercial farms.** The remaining 60 percent are working in dehkan farms (Table 4). This reflects the dualistic Uzbekistan’s farming structure, which as of January 2020 included: (i) 92,554 individual commercial farms and 27,600 organizations engaged in agricultural activities, with an average size of 100 ha, that cultivated 85 percent of the prime irrigated arable land and produce largely cotton and wheat as part of the state order

Figure 6. Uzbekistan: Agricultural employment from different sources, 2010-2018

Source: SSCU and MOELR.

system; and (ii) 4,981,534 smallholder dehkan and household units, with an average size of 0.3 ha, that cultivated 15 percent of the prime irrigated arable land and produced largely horticulture and livestock products.

28 **Most dehkan farms are informal. Dehkan farms are not registered as farms, they do not have banking accounts, and statistics on their numbers vary significantly.** The SSCU reports almost 5 million dehkan farms cultivating 0.5 million ha, out of which 23 thousand had the legal status in 2018. The Farmers Council uses the number of 539 thousand farms cultivating 0.06 million ha, while the Land Cadastre reports 47 thousand farms on 0.014 million ha.

29 **Although many farms are multifunctional, most commercial farms in Uzbekistan grow cotton and wheat.** As of January 2020, slightly fewer than half (40,000 out of 93,600 commercial farms) of them grew cotton and wheat as part of crop rotation and the state production system. The number of large farms specializing on horticulture and viniculture was 31,000 and on vegetables and melons – 5,000. Livestock production was carried

Table 4. Uzbekistan: Agricultural employment by type of farm, '000 people

	2014	2015	2016	2017	2018
Employment in commercial farms	1,412	1,441	1,459	1,469	1,415
Employment in dehkan farms	2,117	2,161	2,188	2,203	2,112
Total agricultural employment (SSCU)	3,529	3,602	3,647	3,671	3,537

Source: MOELR and SSCU.

Table 5. Uzbekistan: Sown areas and employment by major crops, 2019

	Primary crop sown area, '000 ha	Second crop sown area, '000 ha	Estimated number of workers, '000
Grains	1,585	133	344 (317)
Cotton	1,065	0	884 (884)
Potatoes	88	44	236 (157)
Vegetables	216	539	1,583 (453)
Melons	54	22	122 (87)
Fruits and berries*	211	0	169 (169)
Wine grapes	119	0	124 (124)
Fodder crops	262	105	59 (42)
TOTAL	3,599	843	3,522 (2,233)

Note: * Sown area with mature production; () employment in the primary production season.

Source: WB staff estimate based on the data from SSCU and MOA.

out by 14,800 large farms. Dehkan farms focus on horticulture and livestock production, generating 48 percent of crop output, 60 percent of horticulture production, and 92 percent of livestock output.

30 **In the main season, most agricultural employment is in the cotton and wheat subsectors.** They account for 52 percent of labor force, estimated as sown areas by crop, both main and second crops, multiplied by labor intensity norms of the Ministry of Agriculture of Uzbekistan (MOA). Cotton and wheat have the largest share of employment not because they are labor intensive – they, especially grains, are not labor intensive at all compared to horticulture (Figure 7). This is because they still occupy a large share of arable land, 64 percent (Table 5)³³. Among secondary crops, which are grown after the grain harvest, vegetables account for the largest area³⁴ and employment of more than one million people.

31 **In the livestock subsector, most jobs are in cattle and dairy production.** Application of the same methodology for estimating employment in the livestock subsector as in the crop subsector shows total employment of more than half a million workers (Table 6). The most labor-intensive subsector is dairy cattle, which requires daily milking and animal caring. Livestock employment is likely larger in reality, given that the majority of the rural population keeps between one and two cows and several ruminants. This employment is, however, often informal and part-time, tailored for subsistence rather than commercial activities.

³³ The share of cotton and wheat growing areas stay stable over time, despite the recent reduction for cotton from 1.3 million ha in 2015 to 1.1 million ha in 2018. This is due to the decline in total arable land from 4.0 million ha in 2016 to 3.7 million ha in 2019, largely driven by deterioration of irrigation infrastructure.

³⁴ The planned second cropping is usually higher regulated by the annual Resolutions of the Cabinet of Ministers (e.g., No. 1025 for 2020). The presented second crop area is a conservative estimate.

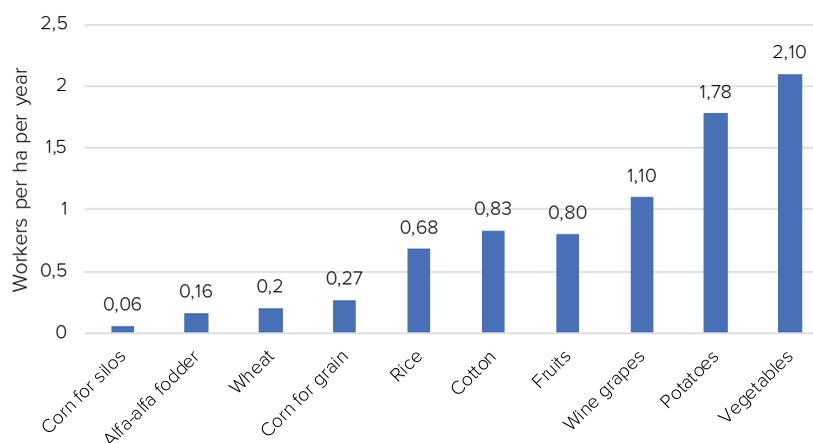
Table 6. Uzbekistan: Employment breakdown in livestock subsector, 2018

	Number of animals, '000	Labor requirement norms, man per year	Estimated number of workers, '000
Cattle	12,841	0.02	256.3
Dairy cows	4,626	0.05	231.3
Sheep and goats	21,581	0.0012	25.9
Poultry	86,375	0.0005	43.2
TOTAL			556.7

Source: WB staff estimate based on the data from SSCU and MOA.

32 **Returning to crop production, the most labor-intensive crops in Uzbekistan are vegetables and potatoes.** On average, their production requires 2.1 and 1.8 workers per hectare a year, respectively (Figure 7). The least labor-intensive crops are wheat and fodder crops such as alfa-alfa and corn for silos.

33 **The policy-induced bias towards growing cotton and wheat in Uzbekistan has significantly reduced potential employment in agriculture.** If 20 percent of the wheat growing areas would have been used to produce vegetables in 2019, the agricultural employment could have increased by half a million or 14 percent, assuming, however, that produced vegetables are sold. The comparison with southern Kazakhstan, just across the border with Uzbekistan, where farms are much more diverse in crop choice, supports this conclusion. The survey of 460 farms in Samarkand region of Uzbekistan and 503

Figure 7. Uzbekistan: Average labor intensity of crop production, 2018

Source: MOA.

Table 7. Comparison of farm crop mix and employment in Samarkand region (Uzbekistan) and Turkestan region (Kazakhstan)

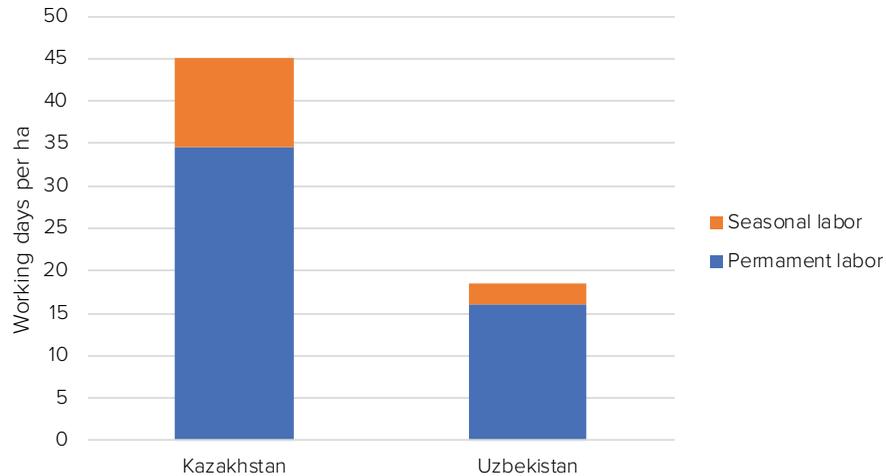
	Kazakhstan	Uzbekistan
Farm specialization (No. of farms)		
<i>Primary crops:</i>		
Cotton and/or wheat	308	310
Wheat and/or vegetable	14	148
<i>Secondary crops:</i>		
Vegetable	131	2
Melons	42	0
All mentioned crops	8	0
Farm labor (workers per ha)		
<i>Permanent workers:</i>		
	0.77	0.21
Members of household and relatives	0.55	0.07
Hired permanent workers	0.22	0.14
Including female workers	0.20	0.01
<i>Seasonal workers:</i>		
	3.65	1.11
Members of household and relatives	0.45	0.01
Hired permanent workers	3.20	1.10
Including female workers	2.17	0.99
Total farm labor	4.42	1.32

Source: WB staff estimate based on the data from SSCU and MOA.

farms in Turkestan region of Kazakhstan, carried out by the Leibniz Institute for Agricultural Development in Transition Economies (IAMO) in 2018, found that larger diversity of crops on farms in Kazakhstan leads to: (i) higher employment per hectare there; and (ii) higher share of permanent workers, which is an indication of higher-quality of jobs (Table 7). The more diverse Kazakh farms employ three (3) times more of permanent and seasonal workers than the less diverse Uzbek farms do.

34 **Farms in Kazakhstan, on average, do not only employ more people, they employ them for longer time and mostly on a permanent basis.** This makes these jobs of higher quality than those in Uzbekistan, which are shorter and highly seasonal. In Kazakhstan, the diverse farm structure, among other things, triggers an average employment of 45 working days per hectare compared to 19 days in Uzbekistan (Figure 8). The length of working hours matters in Uzbekistan, the country with many relatively small farms. If a farmer is not fully and productively employed in agriculture throughout a year, she/he will need to look for off-farm employment, dispersing time, skills and experience, thereby investing less in knowledge and skills required for successful farm management in time of climate change and volatile farm input and output markets.

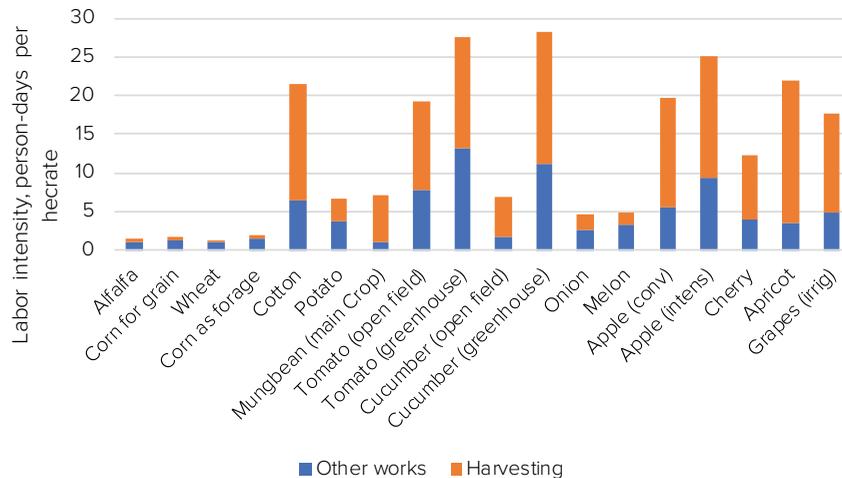
Figure 8. Farm working days in Samarkand region (Uzbekistan) and Turkestan region (Kazakhstan)



Source: WB staff estimate based on the IAMO survey.

35 **The primary data on actual hours and days worked to produce major crops in Uzbekistan collected for this report confirms a wide dispersion of labor intensity by crop.** It also reveals a wide range of labor requirements for the same crop categories, depending on technology and farm practices used. A hectare of intensive apple gardens requires 27 percent more working days than traditional gardens (25 versus 20 person-days) (Figure 9). Greenhouse tomatoes increase the labor demand by 43 percent compared to

Figure 9. Uzbekistan: Labor intensity of selected crops in 2019 (person-days/ha)



Source: WB staff estimate based on the primary farm data.

open field tomatoes, while for cucumbers by 312 percent. Adoption of new technologies in horticulture such as greenhouses and intensive orchards presents a large opportunity to create more jobs in primary agriculture in the near future, in addition to shifting more land to these labor-intensive crops from less labor-intensive ones.

36 **Labor demand for most crops is seasonal and associated with harvesting.** It accounts for 70 percent of time for cotton production and between 60 and 80 percent of time for fruit and vegetable production (Figure 9). When the actual labor use data is used, the number of full-time farmers is estimated at 0.7 million, which is five (5) times lower than total agricultural employment (Table 3). This confirms a high share of part-time and seasonal employment in the sector³⁵. Even part-time/seasonal jobs, however, create wage opportunities for rural poor, and many of these jobs, especially in horticulture, are difficult to mechanize. Most permanent jobs in farming are created in vegetable production, especially in greenhouses, and fruit production, especially in intensive orchards.

37 **Investments in intensive orchards and greenhouses have accelerated only after 2017.** In 2018, only 26,500 ha of orchards were classified as intensive; by 2021, the plan is to expand the area under intensive orchards to 37,000 ha. In 2019, the number of greenhouses was close to 32,000, covering 5,000 ha, a 25 percent increase from 4,000 ha in 2014. The area under greenhouses is projected to grow each year by 100-150 ha, helping create more than 1,000 new jobs annually. This estimate is based on the analysis of investments in greenhouses made by beneficiaries of the World Bank-supported Horticulture Development Project (HDP), revealing that they generated 9.2 jobs per hectare or 21 jobs per one-million-dollars of investments. In the same project, one-million-dollar investments in intensive orchards helped create on average 43 jobs for taking care of young orchards even before they mature and start generating incomes.

Age and Education

38 **The L2CU survey puts most agricultural workers in Uzbekistan into the age category between 25 and 64 years old³⁶.** About 85 percent of farm workers are in this age category (Table 8), which is not much different from other sectors in the country. The 2018 IAMO survey of 460 farms in Samarkand region found the average age of farm managers in Uzbekistan to be 43 years old, with the youngest 21 years old. Uzbek farmers on average are younger than their counterparts in many countries, especially high-income countries³⁷. On the one hand, younger farmers are more likely to exit the sector if off-farm alternatives get more attractive. On the other, they are more receptive for new technologies so much needed to make Uzbekistan's agriculture more productive.

³⁵ In the EU, for example, the number of workers in agriculture (22.2 million) in 2017 was reported to be only three times larger than their full-time equivalent (8.1 million), according to the Eurostat.

³⁶ There are no data available to disaggregate this age category more.

³⁷ In South Korea, for example, in 2019 more than 63 percent of farmers were older than 65 years.

Table 8. Uzbekistan: Age distribution of workers, 2019

Age groups	Agriculture	Industry	Total
15-24	12.9%	13.3%	13.2%
25-64	85.2%	86.4%	86.1%
65+	1.9%	0.4%	0.7%

Source: WB staff estimate based on the L2CU (2019).

Table 9. Uzbekistan: Education of workers, 2019 (in % to total)

	Agriculture	Industry	Total
No formal education	1.0	0.2	0.4
Elementary/Middle school	8.2	4.4	5.2
High school	42.5	24.2	28.0
Vocational education	43.8	51.3	49.7
College and graduate degrees	4.5	19.9	16.7

Source: WB staff estimate based on the L2CU (2019).

39 **Only 44 percent of agricultural workers in Uzbekistan have vocational education compared to 51 percent in the industry sector.** Another 43 percent of agricultural workers have only completed high school and very few have college/graduate degrees (Table 9). Thus, the average education level of agricultural workers is lower than that of industry and overall economy, dragging down agricultural productivity, increasing informality of jobs, estimated in Uzbekistan's agriculture at 45 percent, and requiring the larger public spending on farm advisory and extension services that would compensate a lack of education in the sector.

40 **The lower level of education of farm workers makes it challenging to obtain jobs outside of agriculture.** Creation of urban formal jobs without investments in rural education and training would not result in occupation of these jobs by farm workers. In the short to medium run, there is a need to create more jobs in agriculture and off farm in rural areas where these low skilled workers have more chances for occupying jobs. At the same time, an intensification of vocational training opportunities should be offered for those that are seeking jobs in other sectors.

Productivity

41 **How productive are agricultural jobs?** Productivity of labor is an important consideration for jobs creation and its quality. The creation of productive jobs is key to economic growth and improvement in living standards. The economies today with the highest incomes per capita in the world are also those, which have shown the most increase in labor productivity growth over the past two centuries. The rise in productivity has led to the creation of higher-paying jobs³⁸.

42 **In the context of Uzbekistan, the state production system has severely constrained agricultural employment from being highly productive.** Since 1991, farmers of any scale were allocated the right to use agricultural land and were predominantly required to engage in monoculture production of cotton or wheat. Productivity was limited by land allocations to specific crops without full regard to local growing conditions. Artificially low and state-controlled prices³⁹ and wages for agricultural workers further contributed to lower rural incomes from agriculture. Domestic migration was also severely curtailed, creating rural labor surpluses. These have depressed incentives for greater capital investment and efficiency in agriculture. Throughout this time, small dehkan farming has been much more diverse and makes a large contribution to household consumption. In the summer of 2018, about 68 percent of population reported consuming at least some food over the past two weeks that they or their family had produced⁴⁰.

43 **Reforms since 2017 have targeted some of these issues.** About 300,000 ha of cotton and wheat growing areas were shifted to the production of higher-value and often more labor-intensive horticulture products. State procurement prices of cotton and wheat reached the market level in 2019. Wage rates for cotton harvesting doubled since 2017 and the state production plan and procurement system for cotton were eliminated for 2020 harvest and for wheat for 2021 harvest.

44 **The recent reforms have already helped increase Uzbekistan's agricultural productivity.** During 2017-2019 the average agricultural labor productivity, estimated as a value added divided by number of farm workers using the national accounts data, grew by 13 percent in real soms. The average agricultural labor productivity is above average for the economy. This has been the case even before, despite many market distortions described above. During 2010-2015 the agricultural labor productivity in Uzbekistan was 18 percent above the average economy's productivity (Table 10). The average agricultural productivity exceeds the productivity in construction and trade, accommodation & food services, while trailing behind the productivity in manufacturing by a large margin, especially in recent years. The situation in Uzbekistan goes against a conventional situation in low-income countries where agriculture is a sector that employs most people but uses labor least productively. It has been, so far, an exception from the global agricultural productivity gap.

³⁸ WB. 2019. *Growth Diagnostic in Uzbekistan*. Washington, D.C.

³⁹ WB and IAMO. 2018. *Cotton Taxation in Uzbekistan: Recent Developments and Reform Agenda Ahead*. Washington, D.C. and Halle/Saale.

⁴⁰ L2CU (2019).

Table 10. Uzbekistan: Labor productivity by sector, value added by worker, national accounts, 2010-2019 (in real million soms)

	2010-2014	2015-2019	2019
TOTAL	7.53	13.51	17.50
Agriculture, including forestry and fishing	9.49	15.90	18.30
Industry sector	8.35	18.37	28.64
Manufacturing	10.85	24.73	39.29
Construction	4.61	8.96	12.35
Service sector	6.11	10.10	12.41
Trade, accommodation, and food services	6.19	9.80	11.27
Transportation, storage, and ICT	18.57	25.13	27.61
Other services	4.48	8.07	10.41

Source: SSCU.

45 In global comparison, however, the agricultural labor productivity in Uzbekistan has remained low, despite the recent growth, pointing to the low level of overall productivity in the country rather than to the high productivity of Uzbek farms. In 2016-2018, the agricultural value added per worker in Uzbekistan, expressed in constant 2010 US dollars, was \$4,045 (Figure 10). This was higher than the world's average and higher than that in the neighboring Kyrgyz Republic and Tajikistan, but it was well below the averages for other post-Soviet countries and ECA region in general.

Figure 10. Agricultural labor productivity in selected countries and regions, 2016-2018

Source: World Development Indicators.

46 **Higher labor productivity in other countries is a result of several factors.** They include: (i) freedom of farmers in selecting most profitable commodities to produce; (ii) access of farmers to accurate and up-to-date information on markets, weather, technologies, and farming practices, including through advisory and extension services; (iii) availability of high-quality of seeds tailored for various agro-ecologies and resilient to climate change generated by local agricultural research institutions; and (iv) use of modern machinery and equipment. Uzbekistan has still much to do on all above-mentioned areas to increase its agricultural productivity.

47 **It is important to note that agricultural labor productivity in Uzbekistan varies considerably among commodities and the differences are large.** Labor productivity depends on three factors: (i) land productivity or crop yield; (ii) labor intensity or employment per hectare; and (iii) extent of mechanization, which tends to increase productivity. An average value of gross agricultural output (GAO) of cotton and wheat per hectare, i.e. land productivity, is a lot smaller than the average GAO of most horticulture products (Table 11). The labor productivity gap for cotton vis-à-vis horticulture, measured as GAO per farm worker, is smaller than that of land productivity, but the difference is notwithstanding large enough. Labor productivity in wheat production is high, due to the high rate of mechanization, but because of mechanization it generates few jobs. Potatoes, vegetables, fruits, and grapes have the most desirable combination of high land and labor productivity. They also generate more jobs than cotton and wheat, pointing to a large room for increasing the average labor productivity and profitability in the sector by shifting more land and labor to production of these products.

Table 11. Uzbekistan: Land and labor productivity by commodity groups, national accounts, 2018

	Sown area, '000 ha	Estimated employment, '000 workers	Tot Crops GAO, bill soms	GAO per hectare, mill soms	GAO per worker, mill soms
Grains	1,643	329	4,719	2.9	14.4
Cotton	1,108	920	4,286	3.9	4.7
Potatoes	130	232	9,155	70.3	39.5
Vegetables	600	1,260	9,709	16.2	7.7
Melons	74	119	1,638	22.2	13.7
Fruits and berries	223	178	8,135	36.6	45.7
Wine grapes	113	118	7,041	62.1	59.8
Fodder crops	340	54	420	1.2	7.7
TOTAL	4,231	3,210	45,103	10.3	14.1

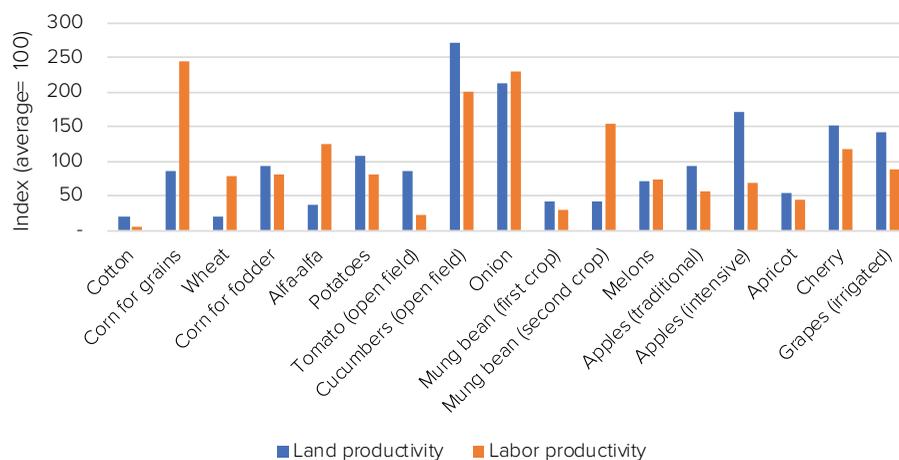
Source: WB staff estimate based on SSCU and MOA.

Table 12. Uzbekistan: Land and labor productivity by commodity, micro data, 2018/2019

	Sown area, '000 ha	Person- days/ha	Value added/ ha, '000 UZS	Value added/ person-day, '000 UZS
Cotton	1,108	53.9	4,793	89
Grains:				
Corn for grains	81	4.4	20,705	4,733
Wheat	1,319	3.3	4,966	1,499
Corn for fodder	158	4.6	22,592	1,546
Alfa-alfa	218	3.8	9,070	2,419
Potatoes	133	16.8	25,984	1,546
Vegetables:				
Tomato (open field)	90	48.0	20,868	435
Tomato (greenhouse)	2	68.7	103,9214	15,129
Cucumbers (open field)	37	17.1	66,207	3,880
Cucumbers (greenhouse)	1	70.4	265,563	3,770
Onion	57	11.6	51,729	4,449
Mung bean (first crop)	53	17.6	10,410	592
Mung bean (second crop)	284	3.5	10,450	2,954
Melons	98	12.0	17,185	1,437
Fruits:				
Apples (traditional)	106	20.7	22,561	1,087
Apples (intensive)	25	31.5	41,751	1,323
Apricot	47	15.0	13,160	878
Cherry	16	16.4	37,077	2,266
Grapes (irrigated)	113	20.0	34,468	1,723

Source: WB staff estimate based on SSCU and the farm budget survey.

48 **Unwrapping agricultural labor productivity beyond the average and measuring it using actual time spent on farming activities provide an even more encouraging picture for Uzbekistan, hinting to opportunities of how the average productivity can be raised further.** While many larger commercial farmers in Uzbekistan work full-time in agriculture, small dehkan farms spend only part of their time in agriculture, being forced by small size of their land plots, on average 0.3 ha, to look for additional off-farm jobs. Much work in agriculture is also seasonal, due to the nature of the sector. Therefore,

Figure 11. Uzbekistan: Land and labor productivity indexes by commodity

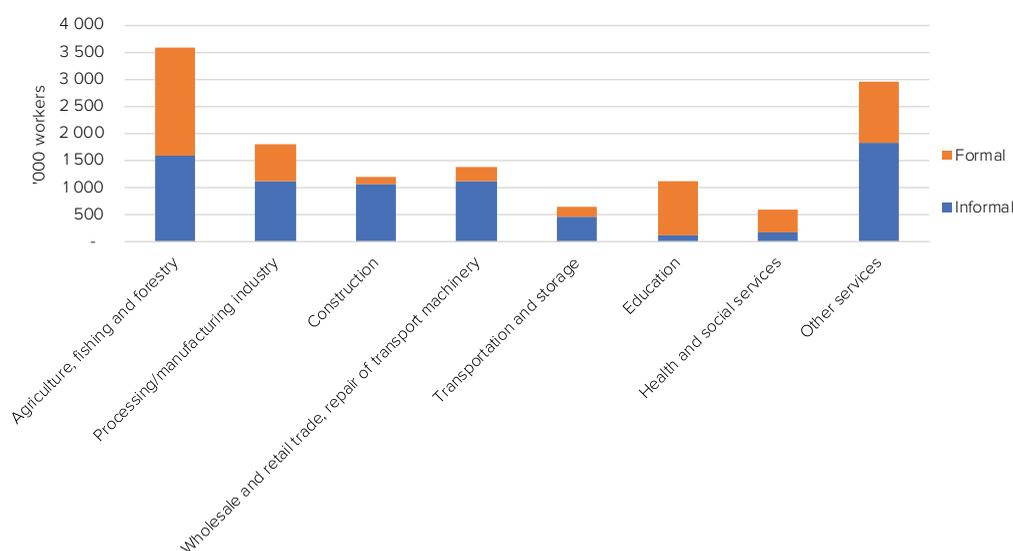
Source: WB staff estimate based on SSCU and the farm budget survey.

the conversion of all workers, full and part-time, into a full-time equivalent is important to understand a true extent of agricultural productivity. Table 12 presents the estimates of land and labor productivity by commodity in 2018/19, using the following methodology. The labor productivity is estimated as value added, defined as gross revenue minus variable costs, divided by actual time spent on production of each commodity measured in person-days. This data is derived from the Cash-Flow Linked Agricultural Risk Assessment (CLARA) database, which was updated for this report⁴¹.

49 **Although the above estimates need to be interpreted with care, as they are not representative and are affected by commodity prices in the selected year, they are still very instructive.** Cotton has the lowest land and labor productivity, much below the average productivity⁴² (Figure 11). Wheat fares relatively well in terms of both productivities, but other grains productivity, for example corn, is much higher. Grain production is already largely mechanized in Uzbekistan, making labor more productive. Best land and labor productivity performers are corn, potatoes, some vegetables, apples, cherry and grapes. Variations among commodities are high, pointing to the importance of differentiating among commodities in making judgement about the quality of farm jobs.

⁴¹ CLARA was developed to bridge the gap between farmers and banks that hinders agriculture sector financing and development. It establishes this necessary connection by having agronomy in its foundation, which every farmer knows, and producing cash flow and financial analysis that every banker understands. CLARA is an automated toolkit, so it brings efficiency gains thanks to speed of loan application processing and process standardization.

⁴² Average land productivity of the selected commodities is 24 million soms, while the average labor productivity per person-day was estimated at 2 million soms

Figure 12. Uzbekistan: Formality of jobs, 2018

Source: WB staff estimate based on the data from SSCU and MOLRE.

Informality

50 **In addition to productivity, another critical aspect of job quality is their formality. Informal jobs do not provide social benefits, workers protection, and labor safety, so they are rightly considered low-quality jobs associated with poverty.** Currently, most jobs in Uzbekistan are informal, estimated at 60 percent in 2018 (Figure 12). Informality is especially high among youth and women. In agriculture, the share of informal jobs is 45 percent, which is among the lowest in the economy but still too high to ignore. Informality is highest in construction, trade/catering, transportation, and storage.

51 **Uzbekistan is not unique in this respect; informality is high in many developing countries as discussed in Chapter 2.** Notwithstanding, understanding the sources of informality and addressing them are critical to improve the quality of jobs. Informality in Uzbekistan seems to have been driven by several factors. In addition to the small number of created formal jobs, the low level of education does not allow workers, especially youth without practical experience, to compete for these formal jobs. More than half of labor force without a college degree in Uzbekistan work informally⁴³. Another reason is constraints faced by the private sector due to taxation policies. They include regulatory burdens, high transaction costs, and mandatory cash surrender rules. Regulations severely constrain private sector growth to limit competition with state enterprises and state production. Larger firms face significantly higher tax and regulatory costs, incentivizing firms to stay small. The tax system places unfair burdens on all firms, for example through corporate taxes and social charges that are sizeable shares of turnover rather than profit. The audit

⁴³ UNDP. 2018. *Sustainable Employment in Uzbekistan: Status, Problems, and Ways Forward*. The United Nations Development Program, Tashkent.

regime is frequently cited in surveys as a major impediment to business activity - at their peak, firms were being audited up to five times a day by tax inspectors measuring turnover. Mandatory encashment rules remain in place and force firms to surrender cash collections every few days. Surrender amounts are not based on actual cash collections, but a norm established by the authorities based on on-site audits of business activity.

52 **An additional reason of high informality in Uzbek agriculture is the land use and tenure insecurity.** *Dehkans* and households, being outside of the state order for cotton and wheat production system, are able to make their production decisions based on market opportunities and livelihood considerations without the risk for land lease to be cancelled. Local *hokym*s still have a lot of discretionary power over land lease's security of the registered farms⁴⁴, making informality for smaller farms an effective mitigation measure against such a risk.

53 **Some of these problems have started being resolved.** In addition to improving the business environment, the government made changes to the tax policy⁴⁵ that helped increase the employment formalization. According to the State Tax Committee, the number of the personal income's taxpayers increased by 571 thousand in the first half of 2019. More tax benefits and subsidies are being provided to *dehkans* and farm households in recent years, with anticipation that they formally register. Small farms are encouraged to join horticulture cooperation and productive partnerships to increase their profitability and increase access to public services and support programs. Starting from September 2020 *dehkan* farms and their workers, among 67 employment types, can register as self-employed to be eligible for pension and public services⁴⁶. Also, more attention is being placed on strengthening farmland tenure security, although attempts still continue to increase regulations of land use and crop placement even for households.

Forced labor

54 **Uzbekistan has a history of systematic use of child and forced labor in the agriculture sector, particularly during cotton harvests.** But it has been making progress to eliminate it. Systematic child labor was eliminated in 2018⁴⁷, while the use of forced labor had been significantly reduced, from an estimated 364 thousand people in 2017 to 102 thousand cases in 2019⁴⁸. The government officially abolished cotton production targets and procurement in 2020, which is expected to remove the main driver of the remaining cases, so Uzbekistan is nearing a system free from forced labor. However, forced labor may remain a risk in areas with labor shortages and during mobilization for public works, and official surveillance to combat illegal practices is particularly needed towards the end of the harvest season.

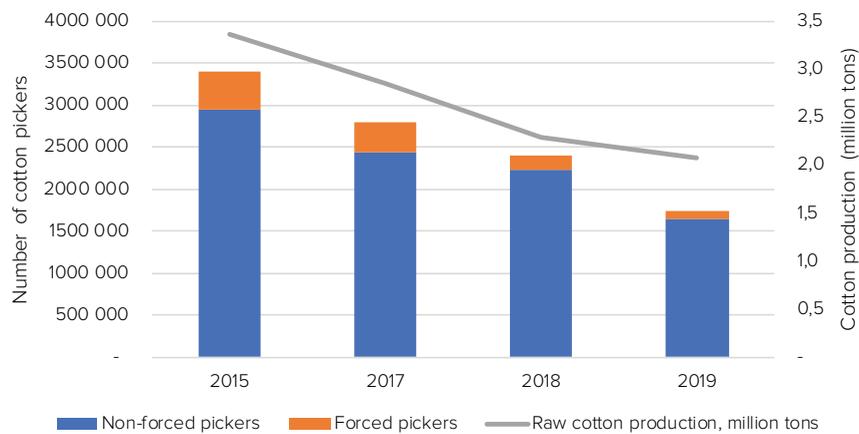
⁴⁴ WB. 2020. *Identifying Land Policy Priorities for Uzbekistan to Support Economic Growth, Social Inclusion, and Environmental Sustainability*. Internal working paper, Washington, D.C.

⁴⁵ In January 2019, the government reduced the personal income tax rate from the maximum 22 percent to the flat 12 percent and reduced the social contributions by 8.5 percent. As a result, the share of taxes in gross wages significantly dropped, from 64 percent in 2014 to 27 percent in 2019.

⁴⁶ Decree of the President of the Republic of Uzbekistan No. PP-4742 "On Measures to Simplify the State Regulation of Entrepreneurship and Self-Employment," dated June 8, 2020.

⁴⁷ ILO's Third-Party Monitoring Report (2019).

⁴⁸ ILO's Third-Party Monitoring Report (2020).

Figure 13. Uzbekistan: Cotton production and use of forced labor

Source: ILO (2020).

55 **Traditionally, cotton harvesting in Uzbekistan has been done by many pickers mobilized from all over the country during the months of September-November.** The number of cotton pickers has declined over time, however. While about 3 million people picked cotton in 2015, this number fell to 1.6 million in 2019 (Figure 13). The share of forced pickers also dropped, from 14 percent in 2015 to 6 percent in 2019. The decline in the number of cotton pickers was a result of the decreased cotton growing area, the declining cotton production (Figure 13), and the higher productivity of cotton pickers triggered by rising wages.

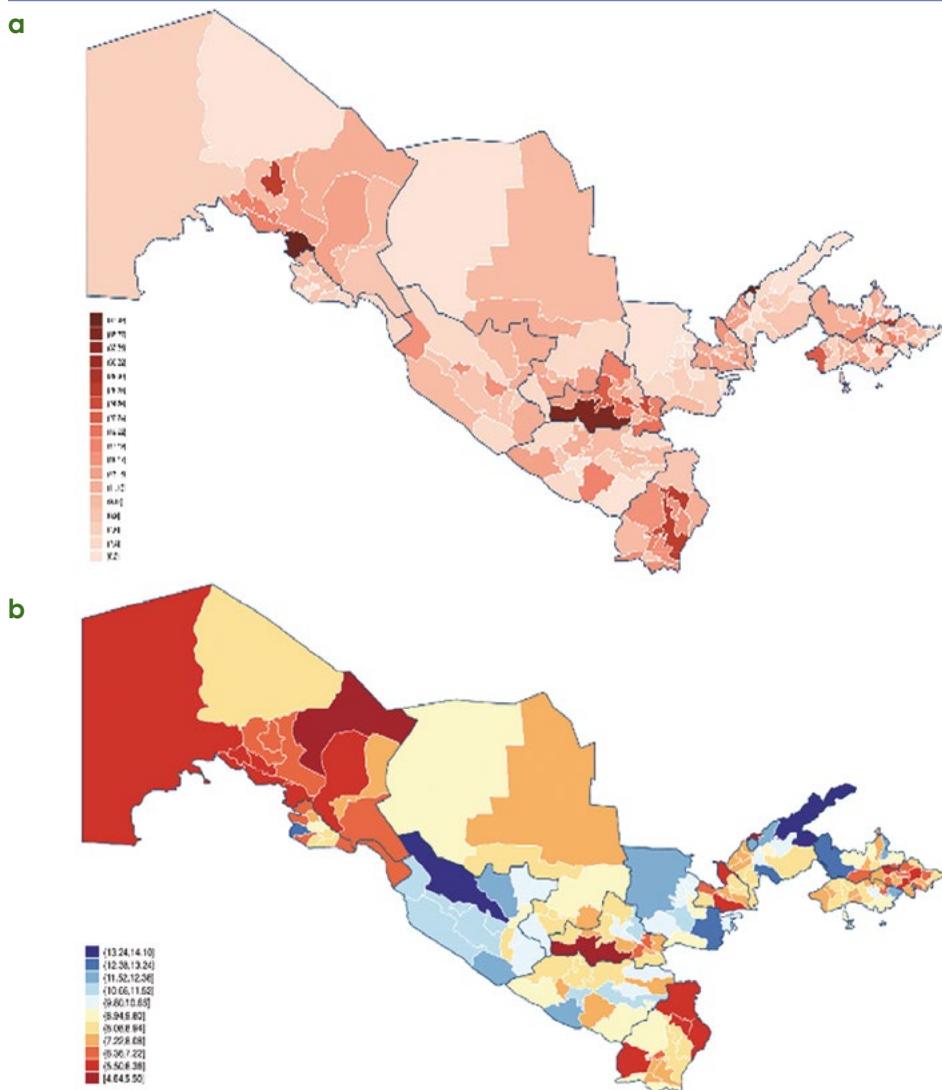
Inclusiveness

56 **Poverty is a rural phenomenon in Uzbekistan. About 79 percent of poor people live in rural areas, largely depending on agricultural jobs.** The regions of Karakalpakstan, Samarkand, and Surkhandarya all have similar poverty rates (at above 15 percent), while the region of Samarkand held nearly 20 percent of the total poor people in 2018 due to its relatively large population (Figure 14)⁴⁹.

57 **The rural-urban divide is large and growing, especially with Tashkent city.** The median wage in Tashkent city was 61 percent higher than the national level in 2018, and 88 percent higher than in rural areas. Published estimates of inflation-adjusted income growth from 2019 show that the city of Tashkent had by far the highest at 12.2 percent against the national average of 5.2 percent. The gap in official estimates of inflation-adjusted “disposable” income grew even faster, rising by 18.3 percent in the city of Tashkent in contrast to 5.7 percent overall. Access to stable jobs is also higher in urban areas: the employment rate among working-aged people was 41 percent in rural areas, 46 percent

⁴⁹ Such regional rankings are very sensitive to the choice of poverty line.

Figure 14. Uzbekistan: Average consumption per capita (a); District-level small area estimates of poverty at \$3.2 per person per day in 2011 PPP (b)

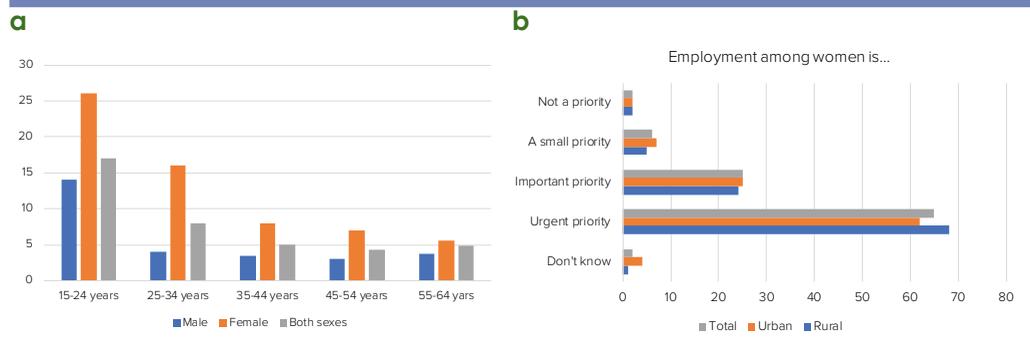


Note: Small area estimates are derived from survey responses in the L2CU Baseline.
Source: WB staff estimate.

in urban areas, and 57 percent Tashkent city in June 2018. Only 17.5 percent of working-age people living in rural areas were employed continuously through the year in 2019 compared to 44 percent in Tashkent.

58 **Families in rural areas with many children, and female-headed households are at greater risk of multi-dimensional deprivation.** These risks are strongly linked to low income levels, sharp income declines, and low probability of upward mobility. Among the

Figure 15. Unemployment (a) and reported urgency of employment among women (b) in June/July 2018



Source: WB staff estimate.

most vulnerable, there is a strong tendency to report difficulties in affording basic utilities and engaging in coping behaviors (such as lower food consumption or asset sales) when incomes fall, which is commonly linked to seasonal fluctuations in the availability of work. Policies, services, and programs that tend to stabilize income fluctuations (such as pensions, social assistance, and savings) disproportionately bypass vulnerable populations.

59 **The labor market has been a crucial weak link in Uzbekistan, limiting strong economic growth from translating into poverty reduction.** Despite limits to the comparability of official labor statistics, a consistent set of challenges with respect to the labor market emerges from alternative sources of information. The national rate of unemployment officially reached 9 percent in 2019. Employment rates are highly seasonal, and the availability to work is the primary driver of fluctuations in income in Uzbekistan (rather than changes in wage rates). Both official sources and L2CU find that the population, who is looking for work but unable to find it, is heavily concentrated among youth and women. The gender gap in labor force participation is even larger. Participation of women is 28 percentage points below that of men (Table 13) – nearly twice the average gap in high-income countries (15 pp) and much higher than in comparator countries such as Russia (10 pp) and neighboring Kazakhstan (12 pp). An overwhelming majority of the population feels that generating employment among women is an urgent priority. The lack of sufficient jobs (for both women and men) was also the most pressing policy priority facing Uzbekistan, according to L2CU respondents (Figure 15).

60 **Women predominate in seasonal agriculture and low-paid jobs in formal and informal sectors, and their average wage is lower than men's.** According to some estimates, only 14 percent of working-age women are employed full time by only one employer⁵⁰. Women represent 35 percent of the urban population (and 27 percent of

⁵⁰ EBRD. 2018. *Uzbekistan Diagnostic: Assessing Progress and Challenges in Unlocking the Private Sector's Potential and Developing a Sustainable Market Economy*. European Bank for Reconstruction and Development, London.

Table 13. Uzbekistan: Employed population disaggregated by gender, 2018

Sector	Total (%)		Sector (%)	
	Women	Men	Women	Men
Total	100.0	100.0	45.7	54.3
Agriculture	27.6	27.7	45.5	54.5
Industry	10.8	14.5	38.5	61.5
Construction	1.7	16.2	8.0	92.0
Transport and communications	1.3	8.9	11.3	88.7
Trade and catering	13.3	9.7	53.7	46.3
Municipal services	3.0	4.3	36.7	63.3
Health, wellness, and social welfare	12.6	2.4	81.6	18.4
Education, culture, arts, science	19.9	6.5	72.1	27.9
Finance, banking, and insurance	0.4	0.5	41.0	59.0
Other	9.4	9.3	45.7	54.3

Source: ADB based on the SSCU data.

the rural population) engaged in full-time work, according to the *L2CU* respondents. Women are mostly engaged in lower-paid social sector jobs (in education, health care, social services, accommodation, catering), while men dominate technical and other more profitable fields (construction, industry, transport, communications, information technology) (Table 13). In 2019, the average male wage was 4.3 million soms, while the average female wage was 1.3 million soms. The average salary for females in rural areas is less than half that paid to their urban counterparts.

61 **For many women cotton picking has been an important income earning opportunity. In 2019, each picker on average participated in cotton harvesting for 23 days and received 2.2 million soms in wages.** Thirty-eight percent of pickers said the wages represented 100 percent of their annual cash income. Sixty percent of the cotton pickers in 2019 were women, with 76 percent coming from rural areas⁵¹. Participation of the poor in cotton harvesting closely mirrored the national poverty numbers. When measured against the poverty line used by the WB for low middle-income countries of \$3.2 per person per day in purchasing power parity, Uzbekistan's poverty rate in 2018 stood at 9.6 percent. The 2019 *L2CU* survey estimates the share of the poor that participated in the cotton harvesting at 10.5 percent. The poverty rate using the upper middle-income country's line (\$5.5 per person per day) – appropriate for the income level Uzbekistan aspires to achieve by 2030—stood at 36.5 percent of the population. The share of the

⁵¹ ILO's Third-Party Monitoring Report (2020).

poor that participated in the cotton harvesting using this threshold was 37.7 percent. The prevalence of forced labor, however, reduces a positive impact on poverty reduction, and therefore should be fully eliminated.

62 Women’s businesses in rural Uzbekistan are of micro and small size. The majority of their products is traded close to home; agro-firms and public institutions are the largest buyers. Businesswomen tend to be 50–60 years old for a number of reasons. For instance, women under 35 are mainly engaged in raising children and performing household chores. In addition, restrictive social norms affect young women entrepreneurs more significantly than older women, and older women may have wider networks, and as a result better access to finance opportunities, etc.

63 More than 60 percent of women in rural areas have completed only general secondary education (grades 9 to 11) or below; only around 8 percent have obtained higher education. Low enrollment figures can be attributed to relatively early marriages, families that prioritize boys’ education, and the high economic costs of obtaining higher education. As a result, rural women often lack technical skills and have low financial capacity and low business literacy⁵².

64 Rural women rarely own land or manage farms. They have access to land only through their household. While inheritance laws and policies are formally gender equal, land titles are typically issued in the name of the household head, usually the eldest man⁵³. The introduction of joint-stock shareholding companies (shirkats) has significantly affected women: Farmers Associations have consolidated farm management, which is perceived to be a male occupation. Even if female participation in farming activities remained high, women are more often incorporated into the agricultural workforce either as casual laborers earning piece-wage rates or unpaid family laborers. On average, only 5 percent of farms are managed by women—ranging from 0.75 percent in the Syrdarya region to 14 percent in the Republic of Karakalpakstan⁵⁴.

65 Full-time agricultural jobs are limited for women. And, their labor rates are 30 to 60 percent lower than men’s. Due to defined gender norms, and since women spend a considerable amount of time on unpaid domestic tasks, they are less likely to have formal jobs or to start their own businesses. Further, daycare coverage in rural areas is just 8 percent (33 percent in urban areas), which limits the opportunities of women with young children to join the labor market.

66 In the agri-food sector, women are mainly engaged in the early stages of value chains, including cultivation, harvesting, and post-harvesting activities. Besides cotton, traditionally picked by women, this is the case even for horticulture value chains that are considered to be internationally competitive, such as for dried apricots, sweet cherries, raisins, and nuts, based on the WB survey⁵⁵. Women mainly work with intermediaries and

⁵² WB. 2019. *Enhancing the Livelihoods of Rural Women in Uzbekistan*. Technical Paper, Washington, D.C.

⁵³ ADB. 2018. *Uzbekistan Country Gender Assessment Update*. Asian Development Bank, Manila.

⁵⁴ WB. 2019. *Enhancing the Livelihoods of Rural Women in Uzbekistan*. Technical Paper, Washington, D.C.

⁵⁵ A screening survey was administered by the WB among 64 businesswomen, who took part in the “Innovations in women’s farming as a driver of growth and competition” conference for female farmers in Tashkent. Sixteen additional interviews were conducted with end buyers and women producers from March to April 2018 to identify most efficient products for women. Key informant interviews were held with end buyers and women producers (49 interviews) and with representatives of commercial banks (7 interviews).

Table 14. Uzbekistan: New women jobs in horticulture value chains, 2020

	Total	Women jobs	Full-time women jobs
Total	31,156	10,341	1,481
Greenhouses	14,255	4,088	1,049
Cold storage	7,742	2,925	175
Processing	3,925	1,484	88
Packaging	1,017	408	47
Laboratories	62	25	23
Intensive gardens	3,694	1,396	83
Others	461	16	8

Source: World Bank.

without contracts. Women primarily sell their products in local markets and are generally disconnected from retailers and exporters. Higher-value activities, such as trade, transport, and marketing, are the domain of male farmers and specialized firms.

67 **But new job opportunities are appearing for women in agriculture since the start of 2017 reforms.** The shift to the outward-oriented policy has enhanced international competitiveness of horticulture, the export of which grew more than twofold, from \$570 million in 2017 to \$1,200 million in 2019. Horticulture has attracted much investment from private and public sectors, which helped create jobs. As of January 2020, the HDP alone, financed by the WB, is estimated to have created 31,156 new jobs in different segments of horticulture value chains, a third of which are occupied by women (Table 14). Most women jobs are in greenhouses (4,088), followed by cold storage (2,925), processing (1,484), and intensive gardens (1,396). Fifteen percent of these jobs are full-time jobs.

68 **This chapter has identified the driving sub-sectors of jobs in agriculture in quantity and laid out the current status of jobs in primary agriculture along the main dimensions characterizing the quality of jobs, specifically productivity, formality, and inclusiveness.** It also discussed issues relating to age and education of the agricultural labor force, as well as the problem of forced labor. The next chapter studies the prospects for increasing the quantity and quality of agricultural jobs during the next decade. It builds on many strengths of Uzbekistan's agriculture sector, strong foundations of the recently launched socio-economic reforms, and the ambitious Strategy for Agriculture Development during 2020-2030 approved in October 2019.

This modern greenhouse in Bukhara Region, which grows tomatoes and cucumbers for export to Russia and Kazakhstan, provides job opportunities for many local women.



4 OUTLOOK FOR JOB CREATION IN PRIMARY AGRICULTURE

69 **The future of jobs in Uzbekistan’s agriculture will depend on several factors.** The sector has a large potential for adding more jobs, at least until 2030, before releasing it to other sectors as occurring in other countries. But employment in agriculture will be attractive only if the sector succeeds in providing remuneration close to that outside of agriculture, and employment is voluntary, formal, and inclusive. Much will depend on the extent of the future agricultural growth, which, in turn, will hinge on the ability of farmers, with the support of public policy and investments, to: (i) raise productivity, including through closing crop yield and livestock productivity gaps; and (ii) allocate the factors of production (e.g., land, labor, and capital) to most profitable uses.

70 **In both instances, success would require the government to play a role, but different from the role it played in the past.** To help farmers close productivity gaps, a combination of: (i) increased public expenditures on agricultural research and advisory/extension services as well as seed/seedling programs, currently at just 0.04 percent of agricultural GDP but planned to be increased under the Agricultural Strategy; and (ii) improved quality of implementation of agricultural public programs and delivery of public services, will be required. A better allocation of the factors of production to most profitable uses would require less administrative and more facilitative government that helps farmers with advice and information to make profitable production and marketing decisions.

71 **The success of Uzbekistan’s agriculture in generating more of better-quality jobs will be also determined by the changes in global food markets and technological change.** Three megatrends are key to watch:

- a. *Agricultural terms of trade:* Historically, global agricultural prices decline, as growth in agricultural production outpaces population growth. The decline in agricultural prices has been deeper than in prices of farm inputs. This leads to the so-called “declining terms of trade for agriculture” and “farm problem” or what is known “farm price disparity” in the soviet and post-soviet literature. A continuation of long-term decline in

agricultural terms of trade would require from farmers to use less of more expensive inputs and produce more of less expensive outputs, often achieving these objectives at the same time. In other words, Uzbekistan’s farmers should learn to “gain more from less.”

- b. *Urbanization and changing diets*: Urbanization and the change in diet creates more market opportunities for some products and shrinks for others. To stay profitable, farmers need to produce what internal and external markets demand. The last decade saw a large shift in food consumption globally from cereals to a more diverse diet with meat, dairy, vegetable oils, and horticulture products. This trend will accelerate in the future.
- c. *Extent of automation and mechanization of agricultural processes*: The recent decade saw a large increase in the use of artificial intelligence, robotization, digital technologies, internet of things and the use of big data that could make labor more productive but also shed some of it. Rapid automation may create a risk to jobs in agriculture. Some subsectors such as cereals, technical crops, and dairy farming are relatively easier to mechanize than, for example, production and harvesting of fruits and vegetables as discussed in Chapter 2.

72 **Agricultural terms of trade**: Projecting prices into the future, and especially projecting the expected terms of trade for agriculture, is a risky, yet useful exercise. Price forecasts should be treated as long-term projections that are determined by structural supply and demand factors rather than by weather and emergencies, such as the recent coronavirus pandemic, which affect short-term price movements. The WB’s most recent projection is for the global agricultural terms of trade to continue its negative direction during 2018-2030 (Table 15). By 2030 the average agricultural prices are projected to decline by 5 percent compared to 2018, while fertilizer prices are projected to increase

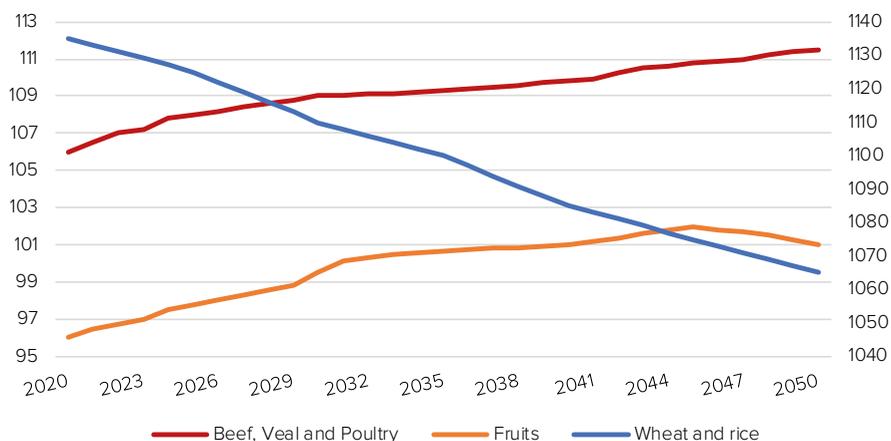
Table 15. International commodity price index projections (2010=100), 2018-2030

	Actual		Forecast	
	2018	2020	2025	2030
Agricultural prices	85.1	78.7	79.3	81.1
Beverages	77.6	72.5	74.2	75.8
Food	88.8	81.4	82.1	84.7
Grains	87.1	85.3	84.5	83.2
Raw materials	79.9	75.4	75.1	74.9
Fertilizer prices	81.0	79.3	81.0	82.6
Agricultural terms of trade (Agriculture/Fertilizers Prices)	1.00	0.94	0.93	0.93

Note: Based on constant 2010 US dollars.

Source: WB Commodity Price Forecast, April 2020.

Figure 16. Changes in the composition of global per capita daily calorie demand for selected commodities, 2020-2050



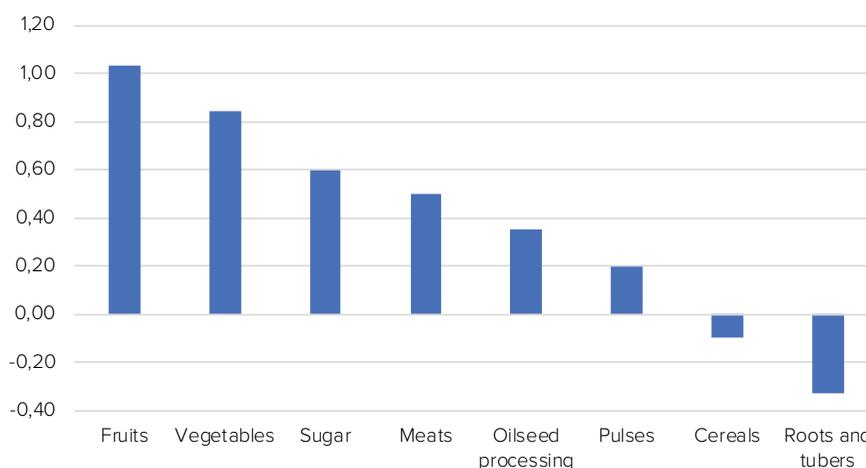
Source: FAO*.

* FAO. 2018. *The future of food and agriculture – Alternative pathways to 2050*. Rome. <http://www.fao.org/global-perspectives-studies/food-agriculture-projections-to-2050/en>.

by 2 percent. Regarding the major commodities in Uzbekistan, wheat and cotton, which occupy 65 percent of irrigated arable land, the real wheat and cotton prices are projected to decline by 7 and 12 percent, respectively. It implies that without increasing farm productivity and without letting farmers shift resources, including land, to most profitable commodities, the average profitability of Uzbek agriculture by 2030 would deteriorate, reducing the quality of agricultural employment.

73 Changing diets: Rising incomes, emerging middle-class, urbanization, and the associated change in diets will further accelerate transformation of the global food markets. The global food demand is projected to continue shifting away from the consumption of grains to the consumption of meat and horticulture products. In the next ten years the global daily per capita demand for fruits is projected to increase by 4 percent, while for grains to drop by 2 percent (Figure 16). This creates a new export opportunity for the Uzbek horticulture sector, making it attractive for future employment.

74 Rising incomes and changes in dietary habits will also accelerate the demand for fresh horticulture products in Russia. It is the largest importer of Uzbek fruits and vegetables, creating opportunities for those exporters that can adjust to the country’s food retail trends. According to the 2015 IFPRI projections, the demand in Russia for fruit will be the fastest-growing category of food demand (Figure 17) by 2030, with an average growth rate of 1.04 percent annually, \$11.4 billion. Temperate fruits are expected to account for 62 percent of that demand. Demand for vegetables is also expected to grow strongly, by 0.83 percent a year. This growing demand presents an opportunity for Uzbekistan’s fruit and vegetable exporters to increase their presence in Russian markets, provided they can meet the volume, quality standards, and fruit supply consistency requirements in

Figure 17. Russia: Projected average annual growth in food demand, 2017–2030

Source: WB staff estimate based on IFPRI*.

* WB. 2019. *Central Asia's Horticulture Sector – Capitalizing on New Export Opportunities in Chinese and Russian Markets*. Washington, D.C.

the changing food retail environment. The ability of Uzbekistan's exporters to penetrate Russian modern retail chains would serve as preliminary proof of their readiness to comply with the requirements posed by higher-end export markets.

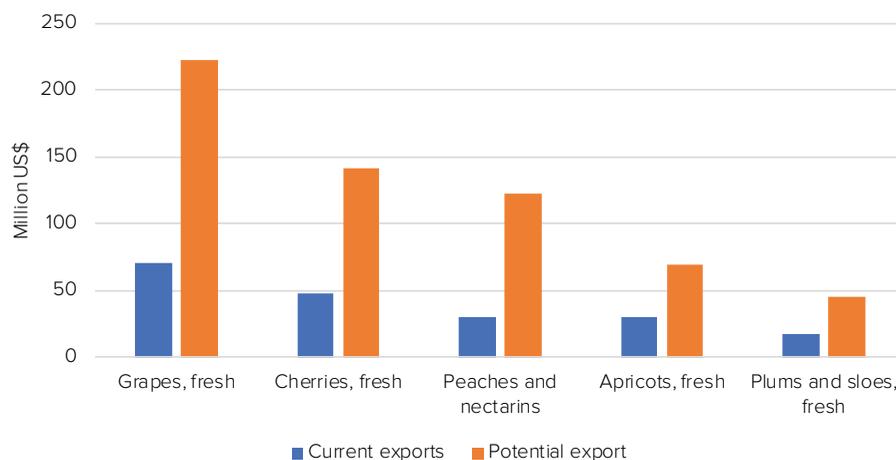
75 The good news is that Uzbekistan's horticulture sector is well positioned to capitalize on the export opportunities. Its high export potential, especially for fruits such as cherries, peaches, apricots and plums, for grapes (Figure 18), and for vegetables such as tomatoes, is confirmed by many studies⁵⁶. This potential has only started to be realized as shown by the growth of horticulture export from \$570 million in 2017 to \$1,200 million in 2019. And, the country has large room for upward movement. What is most important is that global market opportunities closely match Uzbekistan's comparative advantages, which need to be now converted into a competitive advantage for horticulture.

76 Accelerated urbanization in Uzbekistan also offers opportunities for agriculture. The share of urban population is projected to increase from 50 percent in 2020 to 60 percent in 2030. The rise of urban population would increase demand for higher-value products, especially for fruits, vegetables, meat and dairy, both fresh and processed⁵⁷.

77 Impact of automation: The outlook for agricultural employment in Uzbekistan will also be affected by technological change and the impact of automation on job creation. The impact will vary by subsector and type of works. In the past, the relationship between

⁵⁶ Only few to mention – WB. 2012. *Strengthening the Horticulture Value Chains*. Washington, D.C.; WBG. 2018. *Creating Markets in Uzbekistan: From Stabilization to Competitiveness: A Systematic Private Sector Diagnostic*. Washington, D.C.; WB. 2019. *Central Asia's Horticulture Sector – Capitalizing on New Export Opportunities in Chinese and Russian Markets*. Washington, D.C.

⁵⁷ WB and FAO. 2017. *Food Systems in An Urbanized World*. Washington DC and Rome.

Figure 18. Uzbekistan: Export potential of selected fruits

Source: International Trade Center.

machine and human labor has been driven by two factors: the substituting effect, which caused people to lose jobs, and the complementing effect, which allowed employees to do their work more productively. Some worry that in the future the substituting effect will dominate. Advances in artificial intelligence have been so rapid that machines will eventually be better than people at most activities, and they could be the “default choice” for performing them. A few highly paid workers will still be employed, but the rest will either struggle to find work or fall into the precariat, stuck in jobs that are not just poorly paid but unstable and stressful⁵⁸.

78 **The above-described bleak picture was, however, at odds with reality, until the coronavirus global pandemic destroyed the recent job achievements.** Most high-income countries, where automation has advanced the fastest, saw job booms in recent years. Not only was work plentiful, but it was also, on average, getting better⁵⁹. In the United States, in 2019, the unemployment rate was only 3.6 percent, the lowest in half a century. Two-thirds of the members of the OECD enjoyed a record-high employment among 15- to 64-year-olds. In Japan, 77 percent of this group had a job, up 6 percentage points in six years. Even in France, Spain and Italy, where joblessness is still relatively high, working-age employment was close to or exceeded 2005 levels. In the United States’ manufacturing, where machines have replaced workers over a period of decades, a greater share of people with only a secondary education or less was in work now than in 2000.

79 **In agriculture, however, automation and mechanization have advanced faster than in many other sectors.** More capital made farmers globally more productive, but it also substituted labor for machines. Adoption of mechanical harvesting has been fastest for

⁵⁸ Susskind, D. 2020. *A World Without Work*. Metropolitan Books.

⁵⁹ The Economist. 2019. *The Rich World is Experiencing an Unprecedented Job Boom: Capitalisms’ Critics Yet to Notice*. May 23, 2019 Issue.

crops like cotton, wheat, and potatoes, while fruits and vegetables have proven resistant to automation. They are too easily bruised or too hard for heavy farm machinery to locate. But recently, technological developments and advances in machine learning have led to successful trials of more sensitive and dexterous robots, which use cameras and artificial intelligence to locate ripe fruit and handle it with care and precision. Their wide-scale adoption still needs to wait, however, even in the high-income countries. In lower income countries like Uzbekistan their use is even more distant, not least because of the relatively low cost of labor that would make automation commercially unviable.

80 While the above-mentioned megatrends will affect all sub-sectors in agriculture, the job outlook for Uzbekistan's crop sub-sector to create more of good jobs lies in several areas, with the most promising being: (i) shifting more land to more labor-intensive crops that also show higher land productivity and better market outlooks; (ii) increasing the secondary cropping; (iii) prioritizing commodities with lower probability of mechanization/automation; and (iv) adopting technologies that would not only increase farm incomes but also demand more labor. Informed assumptions are used below to illustrate potential job outcomes in the agriculture sector.

Creating more jobs by shifting land to more labor-intensive crops

81 More jobs can be created by shifting land to most labor-intensive crops. Such a shift would reduce the growing area under wheat and cotton and increase the growing area for other crops, including for fodder in spite of their low labor intensity. The job-generating effect of fodder and other grain production will arise from more profitable livestock production and more employment there. Table 16 presents a breakdown of the actual sowing areas in 2019 and the proposed breakdown in 2030, with the areas under wheat and cotton reduced by 32 percent, e.g. from 67 percent of the primary crop growing area in 2019 to 45 percent in 2030⁶⁰. The released land is distributed to other crops based on their labor intensity, productivity, comparative advantages, and demand outlook. The secondary crops' growing area was expanded to 1 million ha from 0.84 million ha in the baseline year, with the allocations among crops kept unchanged from 2019. This area expansion assumes the development and adoption of more short-maturity varieties and suitable farming practices for growing a bit more of second crops. A larger area expansion will be limited by the (declining) availability of irrigation water in Uzbekistan.

82 Cotton and wheat create the fewest of the highly productive jobs, but they cannot be fully substituted by other crops in Uzbekistan. Raw cotton creates many jobs in vegetable oil, textile, wear apparel, and other industries, as described in Chapter 5. Wheat production is critical for food security, which increased its importance during the Covid-19 outbreak in light of export restrictions imposed by Kazakhstan and Russia, the existing and potential suppliers of imported grain to Uzbekistan, correspondingly, and it creates many jobs in flour and bread baking enterprises. The assumed reductions in cotton and wheat growing areas are realistic to counteract by rising the average yield by

⁶⁰ This scenario is presented to demonstrate the effect of more balanced farmland use, not to fix the future growing areas of cotton and wheat at 45 percent. It is worth noting that as discussed later, this assumption considers a realistic increase in average yields of cotton and wheat in Uzbekistan, which would compensate the reduction in growing areas

Table 16. Uzbekistan: Outlook for crop sowing areas, 2019-2030

	2019 Actual area		2030 Projected area		Change
	Primary	Secondary	Primary	Secondary	
Wheat	1,319 (37%)	0	900 (25%)	0	-419 (-32%)
Other grains	266 (7%)	133 (16%)	252 (7%)	158 (16%)	11 (3%)
Fodder	262 (7%)	105 (12%)	360 (10%)	124 (12%)	117 (32%)
Cotton	1,065 (30%)	0	720 (20%)	0	-322 (-32%)
Potatoes	88 (2%)	44 (5%)	144 (4%)	52 (5%)	64 (48%)
Vegetables	216 (6%)	539 (64%)	432 (12%)	640 (64%)	230 (42%)
Fruits and berries	211 (6%)	0	617* (14%)	0	406 (192%)
Melons	54 (1%)	22 (3%)	72 (2%)	26 (3%)	36 (48%)
Wine grapes	119 (3%)	0	180 (5%)	0	61 (51%)
Total sowing areas, '000 ha (% of total)	3,599 (100%)	843 (100%)	3,712 (100%)	1,000** (100%)	284 (6%)

Note: * This includes orchards that were established but not mature yet in 2019; ** The second crop growing area increased from 0.84 million ha to 1.0 million ha due to the projected use of more suitable short-growing seeds and technologies. Source: WB staff estimate.

3.2 percent annually. The average cotton yield would need to grow from 2.7 tons/ha in 2019 to 3.5 tons/ha in 2030, while the average wheat yield would require a growth from 4.6 tons/ha in 2019 to 6.0 tons/ha in 2030. These are realistic targets, especially if sufficient public expenditures are allocated to seed and agricultural advisory service programs over the next ten years. Average yields of these crops can grow even higher. It is also worth noting that horticulture products cannot be produced everywhere, due to the growing conditions and the large job requirements surrounding these crops. Moreover, before significant expansion in production they require efficient agro-logistics and associated services to export produce to many countries, a condition, which is to be met gradually over time.

83 **With other things kept constant, the above-presented farmland shift could create roughly 26 percent more jobs in primary agriculture by 2030.** This is 915 thousand new workers. Most jobs would be created in production of vegetables, fruits and berries, potatoes, and grapes (Table 17). Employment in cotton and wheat sectors would fall from 32 percent of all jobs in 2019 to 17 percent of all jobs in 2030.

84 **Mechanization is, however, likely to shed some labor, especially from production and harvesting of cotton, grains, and potatoes, which has proven to be easy to mechanize globally and would be so in Uzbekistan.** The calculations in Table 17 do not factor a change of labor requirements over time, but Table 18 brings the impact of mechanization into consideration.

Table 17. Uzbekistan: Job outlook as a result of land reallocations, 2019-2030

	2019 Actual	2030 Projection	Change
Wheat	264 (7%)	180 (4%)	-84 (-32%)
Other grains	80 (2%)	82 (2%)	2 (3%)
Fodder	59 (2%)	77 (2%)	19 (32%)
Cotton	884 (25%)	598 (13%)	-286 (-32%)
Potatoes	236 (7%)	350 (8%)	113 (48%)
Vegetables	1,585 (45%)	2,250 (51%)	666 (42%)
Fruits and berries	169 (5%)	493 (11%)	324 (192%)
Melons	122 (3%)	181 (4%)	59 (48%)
Wine grapes	124 (4%)	225 (5%)	101 (82%)
Total, '000 people (% of total)	3,522 (100%)	4,436 (100%)	915 (26%)

Source: WB staff estimate using data from Figure 6.

85 **It is projected that labor requirement for production of cotton and potatoes would decline by 25 percent between 2019 and 2030, while staying unchanged for other crops.** Grain production and harvesting is already largely mechanized in Uzbekistan, so its labor intensity is kept unchanged. While automation of horticulture has been progressing in many high-income countries, the relatively low wages and the surplus farm labor in Uzbekistan would slow down a large-scale automation of horticulture production, at least over the next decade. With mechanization included, the crop sector employment by 2030 is projected to increase by 677 thousand or 19 percent compared to 2019 (Table 18)

86 **The largest decline in employment is projected in cotton production. It is due to the combined impact of the smaller growing area and the anticipated higher mechanization of harvesting.** The extent of mechanized cotton harvesting is unlikely to be much higher by 2030, than assumed here, despite the government plans to accelerate it, unless a more strategic approach is used to promote it. In 2019, only 5 percent of cotton was harvested by combines⁶¹. The government seeks to increase to 30 percent by 2026 by encouraging cotton-textile clusters to mechanize and paying a subsidy for local harvesters.

87 **Yet, these measures alone will be insufficient to drastically increase mechanization.** On the one hand, still relatively low wages in Uzbekistan reduce incentives for mechanization, while high import tariffs on foreign harvesters make mechanization even less attractive. Local harvesters are not in high demand as farmers express concerns over high damage to cotton quality during harvesting. On the other hand, the practical constraints for scaled-up mechanization in “contract farming” clusters remain unaddressed.

⁶¹ WB. 2020. *Cotton-Textile Clusters in Uzbekistan: Status and Outlook*. Washington, D.C.

Table 18. Uzbekistan: Job outlook as a result of land reallocations and higher mechanization, 2019-2030

	2019 Actual	2030 Projection	Change
Wheat	264 (7%)	180 (4%)	-84 (-32%)
Other grains	80 (2%)	82 (2%)	2 (3%)
Fodder	59 (2%)	77 (2%)	19 (32%)
Cotton	884 (25%)	446 (11%)	-437 (-49%)
Potatoes	236 (7%)	263 (6%)	27 (11%)
Vegetables	1,585 (45%)	2,250 (54%)	666 (42%)
Fruits and berries	169 (5%)	324 (12%)	324 (192%)
Melons	122 (3%)	181 (4%)	59 (42%)
Wine grapes	124 (4%)	225 (5%)	101 (82%)
Total, '000 people (% of total)	3,522 (100%)	4,199 (100%)	677 (19%)

Source: WB staff estimate.

Cotton planting practices should be changed to cater for mechanized harvesting, and farmers should be trained on cooperation for weed management and the use of modern technologies for preparing cotton fields for harvesting by defolianters and bull openers. This will take time, resources, and mostly important, trust in the benefits of cooperation. In addition, investment program for on-farm roads are needed to permit movement of large machinery between farm fields to justify investments in the expensive combines. Without these complementary measures, mechanization would lag. The organizers of cotton-textile clusters could cover some of the costs and take the lead in providing technical assistance to farmers on technology and cooperation, but the government should also co-finance infrastructure investments and bear other costs. Thus, complexity of bringing these different pieces together along with the pressure of low wages of cotton pickers would delay a wide scale adoption of harvest mechanization, providing continued future opportunities for seasonal employment and income generation, which is important for a large group of rural women and youth⁶².

Creating more jobs by adopting modern technologies

88 **More agricultural employment can also be generated by adopting modern technologies in fruit and vegetable production.** Intensive orchards and greenhouses can create many jobs, as described in Chapter 3, often requiring more than 50 percent more labor than traditional production and open field practices, in addition to their higher profitability. Greenhouses generate year-round jobs, adding to their quality. Adding an adoption of good agricultural practices (GAP), for example Global GAP, would further increase the labor demand. The government is actively promoting investments in these

⁶² WBG. 2016. *Assessing the Social Impact of Cotton Harvest Mechanization in Uzbekistan*. Washington, D.C.

Table 19. Uzbekistan: Job outlook as a result of land reallocations, mechanization, increase in sown area, and technology adoption, 2019-2030

	2019 Actual	2030 Projection	Change
Wheat	264 (7%)	180 (4%)	-84 (-32%)
Other grains	80 (2%)	82 (2%)	2 (3%)
Fodder	59 (2%)	77 (2%)	19 (32%)
Cotton	884 (25%)	446 (10%)	-437 (-49%)
Potatoes	236 (7%)	263 (6%)	27 (11%)
Vegetables	1,585 (45%)	2,306 (53%)	722 (46%)
Fruits and berries	169 (5%)	592 (14%)	423 (251%)
Melons	122 (3%)	181 (3%)	59 (42%)
Wine grapes	124 (4%)	225 (5%)	101 (82%)
Total, '000 people (% of total)	3,522 (100%)	4,353 (100%)	832 (24%)

Source: WB staff estimate.

areas since 2017, largely through donor-financed projects, but recently also through national public expenditures, with support for adopting water-efficient technologies, working and investment capital for horticulture clusters, and expanding adoption of modern technologies. For the 2030 job forecast, 10 percent of the vegetable growing area is projected to be with either greenhouses or other intensive production methods, and 40 percent of orchards will be intensive. These would generate more than 155 thousand or 5 percent more jobs by 2030 compared to the previous scenario (Table 19). Compared to 2019, total employment could increase by 832 thousand or 24 percent.

89 **In summary, if Uzbekistan's agriculture, with the support of public policies and investments, manages to respond well to the declining agricultural terms of trade and capitalizes on export opportunities in response to changing global diets, even if some farm labor is substituted by automation and mechanization, it would greatly contribute to job generation by 2030.** Shifting some productive agricultural land from cotton and wheat to horticulture products along with utilizing more area for secondary crops and adopting modern technologies in fruit and vegetable production could increase the agricultural employment by 832 thousand workers (24 percent) by 2030 (Table 20). Essentially agriculture could absorb all newcomers to the labor market if its potential is fully realized. Each measure presented in Table 19 by itself would be able to deliver significant job numbers, worth putting agriculture back on the medium-term agenda for job creation.

Table 20. Uzbekistan: Summary of the results of the job outlook's scenarios

	Number of jobs, '000 workers	Change compared to 2019, '000 (%)
Jobs in crop sector in 2019	3,522	
Projected jobs in 2030 due to land reallocations	4,436	915 (26%)
Projected jobs in 2030 due to land reallocations and mechanization	4,199	677 (19%)
Projected jobs in 2030 due to land reallocations, mechanization, and technology adoption	4,353	832 (24%)

Source: WB staff estimate.

90 **In addition, a larger sown area for fodder and other grains such as maize would create growth opportunities in the livestock sector.** In 2019, employment in livestock was estimated at more than half a million people, mainly in dehkan and household farms (Table 6). Larger farms, also however, are starting to invest more in the livestock.

91 **Finally, more productive agriculture and increased production of raw materials will enhance job creation opportunities in food and light industries.** Labor in sectors related to agriculture, such as food, textiles, and apparel, is what transforms raw agricultural outputs into products for intermediate or final consumption and contributes added value to the economy. This will be analyzed in detail in Chapter 5.



This food processing plant in Andijan Region produces various types of dried vegetables and fruits that are exported to many countries, including the EU. Over 140 women are permanently employed here, while during harvests their number increases up to 500.

5 JOBS IN FOOD AND TEXTILE INDUSTRIES

87 **Agriculture is a part of the agri-food system.** When workers leave the farm, they often remain within a broader agri-food system, taking jobs in input supply, food processing, marketing, logistics, and food services⁶³. Globally, the importance of off-farm employment (food processing and food services) in the overall agri-food system rises with income, from 9 percent of total agri-food employment in low income countries (e.g., Eastern and Southern Africa) to 52 percent in middle income countries (e.g., Brazil) and 80 percent in high income countries (e.g., the United States) (Table 21). The share of off-farm employment first rises (from 7 percent in low income to 16 percent in middle income countries) and then falls (to 8 percent in high income countries)⁶⁴.

Table 21. Agri-food system's jobs: global experience

Sectoral shares of employment, %		Low income <\$1,025 GNI/ capita	Middle income \$1,025- \$12,056 GNI/ capita	High income >\$12,056 GNI/ capita
Agri-food system	Primary agriculture	73	15	2
	Food processing	2	8	1
	Food services	5	8	7
	TOTAL	80	31	10
Non-agri-food system	Off-farm (non-food related)	20	69	90

Source: Christiaensen et al (2020)*

* Christiaensen, L., Z. Rutledge, and E. Taylor. 2020. *The Future of Work in Agriculture*. World Bank Policy Research Working Paper 9193, Washington, D.C.

⁶³ Input supply, food services, and logistics are not included in the Report due to the lack of necessary data.

⁶⁴ The interesting example is provided by the EU, which is represented by countries with different incomes. In Romania, one of the poorest EU countries, the agriculture accounted for 22 percent and food industry for 3 percent of labor force in 2018. In Poland and Greece, the mid-income countries, the agriculture accounted for 10 percent and food industry for 4 percent of all jobs. In Germany, the high-income country, agriculture generates 1 percent and food industry 2 percent of all jobs.

88 More successful countries develop their agri-food system as they pass through the structural transformation that leads to a more rapid reduction in poverty reduction.

Off-farm agri-food jobs are associated with higher productivity, wages, and formality, making them more desirable. These jobs are often easily accessible for poor workers leaving the farm as well as for women, given their proximity and low entry requirements in terms of capital and skills. A large part of employment opportunities is happening in secondary cities and towns⁶⁵, and most of the poor live in the rural hinterlands of these intermediate centers⁶⁶.

89 In 2019, Uzbekistan's agri-food sector jobs accounted for 30 percent of all jobs (Table 22), mirroring the country's middle-income country's status presented in Table 21⁶⁷.

Yet, the composition of Uzbekistan's agri-food employment looked more like a low-income country. Agriculture still accounts for a lion share of agri-food jobs, 88.3 percent. The food processing, beverage and tobacco, i.e., food industry, employed only 107 thousand workers or 2.6 percent of agri-food jobs. The textile, garment, apparel, and leather industry, i.e. light industry, employed further 214 thousand workers, generating 5.1 percent of jobs in the agri-food sector. Food services provided jobs for 162 thousand people or 3.9 percent of agri-food jobs. Note that labor statistics for off-farm jobs within the agri-food sector include only formal employment, while the primary agriculture's statistics cover all kind of jobs. This issue is addressed later in the Report. Notwithstanding, Uzbekistan has been underutilizing its potential for creating more jobs in food and light industries, as well as food services, even when its GDP grew at 5-6 percent annually for decades.

90 Food and textile industries provide many jobs for women, in particular in wear apparel and textile enterprises.

Women accounted for 71 percent and 44 percent of their labor force, respectively (Table 23). Food industry employed up to 30 percent of women. Women are being engaged in more casual, low wage works and are probably paid much less for the same work as men. The weighted-average annual wage of a male worker in 2018 was 15.7 million soms or \$2,000 (Table 23). The weighted-average annual wage of female worker, on the other hand, was only 3.3 million soms or \$415. The average wage gap was almost five (5) times, ranging from 1.5 times in tobacco to 16.8 times in leather industry. While being a relatively attractive employment for men, having generated wages above the economy's average, better wage opportunities for women would need to be created going forward to make the agri-food industry an attractive place to work. The gender wage gap has been much smaller in other sectors than in the food industry.

⁶⁵ Cazzuffi, C., M. Pereira-Lopez, and I. Soloaga. 2017. *Local Poverty Reduction in Chile and Mexico: The Role of Food Manufacturing Growth*. *Food Policy* 68: 160-185.

⁶⁶ Ingelaere, B., L. Christiaensen, J. de Weerd, and R. Kanbur. 2018. *Why Secondary Towns can be Important for Poverty Reduction: A Migrant Perspective*. *World Development* 105: 273-282.

⁶⁷ Uzbekistan's gross national income per capita in 2018 was \$2,020.

Table 22. Uzbekistan: Estimate of the agri-food employment, 2019

	No. of jobs, '000	% of total agri- food jobs	% of total employment
Primary agriculture	3,653	88.3	26.8
Food and light industries	321	7.8	2.4
Food	91	2.2	0.7
Beverages	15	0.4	0.1
Tobacco	1	0.0	0.0
Textile	130	3.1	1.0
Garment/wear apparel/leather	84	2.0	0.6
Food services	162	3.9	1.2
Catering	55	1.3	0.4
Wholesale	107	2.6	0.8
Total agri-food	4,136	100.0	30.4
Off-agri-food	9,473		69.6
Total employment	13,609		100.0

Source: WB staff estimate based on SSCU data.

Table 23. Uzbekistan: Women jobs in food-textile industry and wage gap, 2018

	No. of workers	% of women	Annual wage of male, mill UZS	Annual wage of female, mill UZS	Male/female wage
Food processing	80,252	27	13.7	3.5	3.9
Beverages	14,248	28	24.7	14.3	1.7
Tobacco	1,092	24	65.7	42.9	1.5
Textile	115,884	44	15.0	4.0	3.8
Wear apparel	61,833	71	19.7	1.5	13.1
Leather products	10,444	38	10.1	0.6	16.8
Total/Average	283,753	44	15.7	3.3	4.7
Overall processing industry	584,735	31	20.2	6.4	3.2
Total economy	4,071,615	42	16.3	10.9	1.5

Source: WB staff estimate based on MOLER data.

Table 24. Uzbekistan: Agri-food sector in total GDP and export, %, 2017-2019

	2017		2019	
	GDP	Export	GDP	Export
Agriculture	34.0	7.3	28.1	8.3
Food processing, beverages, and tobacco	3.6	1.8	3.0	1.8
Textile, wear apparel, and leather products	2.9	6.6	2.9	9.1
Food services	8.0*	0.0	6.9	0.0
Total agri-food sector	48.5	15.7	40.9	19.1

Note: (*) include all trade, hospitality, and catering services.
Source: SCCU.

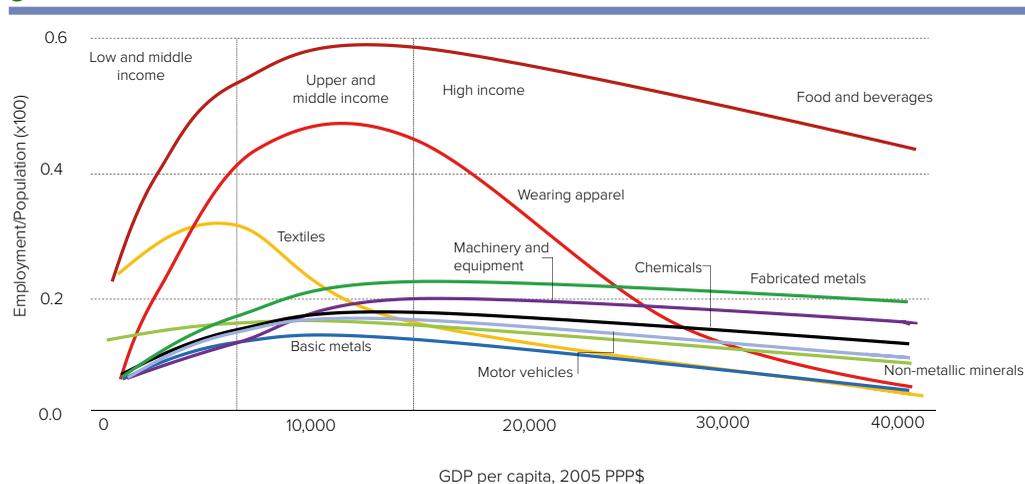
91 **The agri-food sector is important in Uzbekistan's economy for GDP and export generation.** In 2019, it accounted for 41 percent of GDP and 19 percent of export (Table 24). The export share of agri-food sector in total exports increased from 16 percent in 2017, largely due to the increase in horticulture and textile/wear apparel exports. Altogether, the agri-food sector remains an important driver of future economic growth and export, but it needs to deliver much more on job generation than it has done so far.

92 **Uzbekistan is now at a point where fast employment growth can occur in agri-food processing and food distribution.** In 2019, the country's GDP per capita in the purchasing power parity prices was \$9,000. Using the pooled data of 95 countries from 1993 to 2007, the United Nations Industry Development Organization (UNIDO) estimated that employment in the food and beverage industries accounted for at least one-half of all industrial jobs in those countries with a similar level of income, while wearing apparel and textile industries also accounted for significant shares (Figure 19). The UNIDO analysis suggests that significant employment growth in food and beverage manufacturing, as well as wearing apparel can be expected in Uzbekistan, through its realizing a per capita GDP of \$15,000. The upcoming decade is thus one, in which large employment opportunities will emerge in this area.

Food industry

Quantity

93 **Where are the most jobs in Uzbekistan's food industry?** When accounting by type of product, most formal employment has been in the production of flour, bread, vegetable & animal oils, and beverages (Table 25). The largest employer in the food industry is bread-baking enterprises, which generate 23 percent of employment. All of them are small and micro firms, the same as enterprises producing processed meat, fish, dairy, and fruits and vegetables. Altogether, small and micro enterprises employ 63 percent of all workers in the food industry. Employment in large enterprises was only 37 percent. Most of these

Figure 19. Changes in employment by income and manufacturing industry, global, 1963-2007

Source: UNIDO (2013)*.

* UNIDO. 2013. *Industrial Development Report 2013. Sustaining Employment Growth: The Role of Manufacturing and Structural Change Overview*. UN Industrial Development Organization, Vienna.

Table 25. Uzbekistan: Food industry's employment, 2019

	Employment, people	% of total	In small and micro firms	In large firms	Inc. FDIs and JVs
Food processing	91,219	85.4	61,253	29,966	12,199
Meat	4,895	4.6	4,459	436	226
Fish	421	0.4	421	0	125
Dairy	6,520	6.1	6,520	0	835
Fruits & vegetables	6,220	5.8	6,219	1	1,701
Vegetable & animal oils	15,304	14.3	2,997	12,327	5,513
Flour & flour products	18,478	17.3	3,682	14,769	451
Bread & bread products	24,875	23.3	24,785	0	1,168
Other foods*	13,097	12.3	10,830	2,267	2,026
Feed	1,409	1.3	1,270	139	154
Beverages	14,463	13.5	5,853	8,610	6,356
Tobacco	1,127	1.1	9	1,118	1,122
Food industry, total	106,809	100.0	67,155	39,694	19,677
% of total			63	37	18

Note: (*) Other foods include sugar, tea and coffee, and baby food.
Source: SSCU.

large enterprises belong to “Uzbekozikovkatholding” with the participation of state⁶⁸. This holding consists of 176 enterprises, including well-known brands, such as Coco-Cola and Agromir, producing all kinds of food, beverage, and tobacco products.

94 **Less than 20 percent of employment was in enterprises with either foreign direct investments (FDI) or joint ventures.** These enterprises are expected to accelerate technological progress and improve access of Uzbek products to overseas markets. Yet, despite many policy reforms introduced in recent years, overall FDI inflows in Uzbekistan have been volatile, and largely concentrated in natural resources and related sectors. Market access is needed for sectors such as food industry and light manufacturing that underpin productivity across the sectors of financial services, transport and logistics, etc. A steep change will be required to dramatically increase and diversify the FDI flows to Uzbekistan and avoid the experiences of other Commonwealth of Independent States (CIS) countries. During the 1990s and early 2000s, FDI levels in those countries were generally disappointing and related to natural resource extraction or energy transportation infrastructure projects and large privatization transactions. Overall, low FDI inflows reflected a weak investment climate particularly owing to incomplete structural reforms, including burdensome tax systems, widespread corruption, extensive state intervention coupled with weak legal and regulatory frameworks, and incomplete structural reforms as the main impediments⁶⁹.

95 **The average employment per enterprise in 2019 was 6.7, pointing to a prevalence of small and micro enterprises in the food industry.** More than 99 percent of enterprises were of small and micro sizes, implying their large informality. Bread baking accounted for 53 percent of all food industry enterprises, but it has one of the lowest labor intensities – each on average officially employed only 3.0 workers (Table 26). The second largest number of enterprises is in dairy and fruits and vegetable processing, both generating around 8 percent of enterprises but employing only 5.4 workers on average. On the other hand, flour production and vegetable and animal oil processing generate a large average employment – 24 and 30 workers per factory, respectively. It can be said that these high labor-intensive food processing factories use low labor-intensive wheat and cotton seeds to generate most job benefits upstream of the value chain.

Inclusiveness

96 **As mentioned above, official employment statistics are highly likely to distort the true picture of employment due to the large share of seasonal and informal employment in many food processing enterprises.** The survey carried by MOELR in 2018 estimated the average share of informal employment in the manufacturing sector at 62 percent. The analysis of investments in fruits and vegetable processing, storage, and packing under HDP shows the average number of jobs created ranging between 31 and 50 per enterprise (Table 27). Yet, when only full-time employment is considered, the job creation per enterprise falls to 5 workers in packaging and 8 workers in processing, converging to the reported average employment in fruits and vegetables processing industry in the country (Table 26). This reinforces a high importance of food processing in rural employment in Uzbekistan, much beyond of what official statistics say.

⁶⁸ This holding was established in 2016 per the Resolution of the President of the Uzbekistan No. PP-2492 “About Measures to Further Improve Organization of Management of Food Industry” dated February 2, 2016.

⁶⁹ Shiells, C. 2003. *FDI and the Investment Climate in the CIS Countries*. IMF Policy Discussion Paper, Washington, D.C.

Table 26. Uzbekistan: Food industry's enterprises and employment intensity, 2019

	Firms, number	% of total	Small and micro firms	% of total firms	Workers per firm
Food processing	12,303	95.8	15,122	99.5	6.0
Meat	757	4.8	755	99.7	6.5
Fish	105	0.7	105	100.0	4.0
Dairy	1,218	7.7	1,218	100.0	5.4
Fruits & vegetables	1,184	7.5	1,183	99.9	5.3
Vegetable & animal oils	503	3.2	478	95.0	30.4
Flour & flour products	778	4.9	735	94.5	23.8
Bread & bread products	8,340	52.6	8,340	100.0	3.0
Other foods	1,905	12.0	1,904	99.9	6.9
Feed	409	2.6	407	99.5	3.4
Beverages	659	4.2	623	94.5	21.9
Tobacco	11	0.1	9	81.8	102.5
Food industry, total	15,860	100.0	15,754	99.3	6.7

Source: SSCU.

Table 27. Uzbekistan: Job creation in horticulture value chain due to HDP, 2020

	No. of sub- projects	Jobs created				
		Total	Full-time	Inc. women	Part-time	Inc. women
Processing	78	3,925	585	88	3,340	1,396
Packaging	33	1,017	153	47	864	361
Cold storage	235	7,742	1,163	175	6,579	2,750
Total	346	12,684	1,901	310	10,783	4,507

Source: WB staff estimate.

97 **Between 2015 and 2019, the number of food industry enterprises increased by 7 thousand Or 79 percent.** In absolute terms, more than half of this increase was in bread baking, with the second largest increase occurring in other food and fruit and vegetable processing (Table 28). In relative terms, the largest increase in the number of firms was in fruits and vegetable processing. Overall employment during 2015-2018 increased by 22.4 thousand workers or 27 percent. About 50 percent of new employment was generated

Table 28. Uzbekistan: Growth in food industry's firms and employment, 2015-2019

	Change in number of firms		Change in employment	
	number	%	number	%
Food processing	6,864	82.4	20,864	29.7
Meat	323	74.4	2,354	92.6
Fish	22	26.5	148	54.2
Dairy	435	55.6	1,793	37.9
Fruits & vegetables	634	115.3	2,206	55.0
Vegetable & animal oils	236	88.4	651	4.4
Flour & flour products	324	71.4	-1,283	-6.5
Bread & bread products	3,855	86.0	9,133	58.0
Other foods	820	75.6	5,182	65.5
Feed	124	110.8	680	93.3
Beverages	154	30.5	1,634	12.7
Tobacco	0	0	-76	-6.3
Food industry, total	7,009	79.2	22,422	26.6

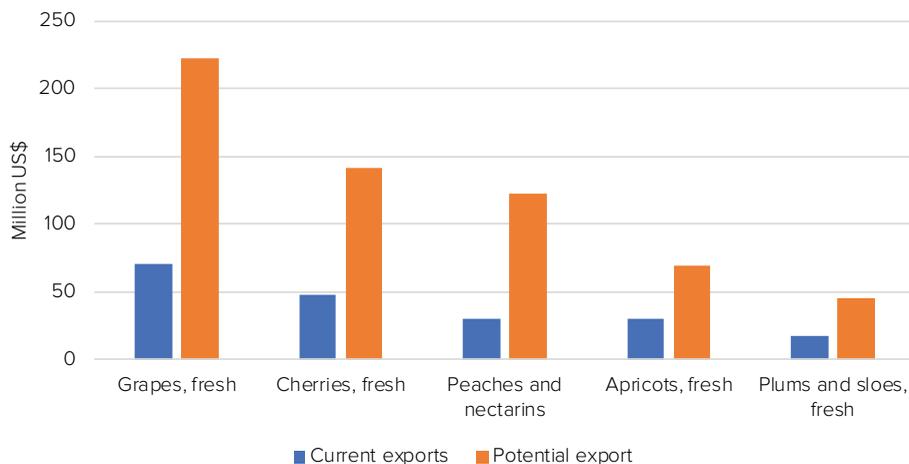
Source: SSCU.

by bread, dairy, and fruits and vegetable processing enterprises. Job creation in these segments has accelerated since the start of 2017 reforms, responding to liberalization of bread prices and incoming private investments in livestock and horticulture sectors, supported by IFIs.

98 **Although not adding much to job creation recently, flour mills remain large employers, generating 17 percent of food industry's employment.** They have benefited from the rising demand for flour and other grain processed products (e.g., grouts) on domestic and export markets. Liberalization of wheat, flour, and bread prices that began in September 2018 has improved profitability and market incentives. A business model, under which Kazakh wheat is imported and milled for re-export to Afghanistan, the largest regional buyer, has been paying off. Import of Kazakh wheat and export of flour to Afghanistan go up, while import of Kazakh flour goes down (Figure 20). Uzbekistan was able to increase the export of flour from zero in 2015 to \$134 million in 2018 (Figure 21).

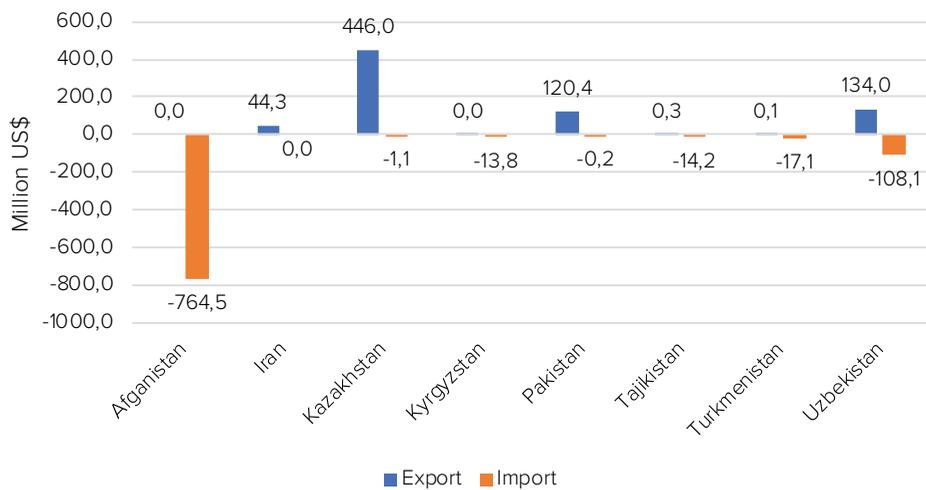
99 **The largest number of food industry enterprises is in Tashkent city.** In 2018, the city hosted 18 percent of them, including 206 enterprises with either foreign direct investments or joint venture. Tashkent city's food enterprises accounted 25 percent of total

Figure 20. Kazakhstan: Export of wheat and flour to Uzbekistan, '000 tons



Source: Grain Processing Union of Kazakhstan.

Figure 21. Export and import of flour in a broader Central Asia region, 2018



Source: International Trade Center.

Table 29. Uzbekistan: Regional breakdown of food industry enterprises and employment, 2019

	Number of food firms (% of total)	Change in no. of firms, 2015-2019, %	Firms with FDI and JV, %	Food industry jobs (% of total)	Change in employment, %
Karakalpakstan	671 (4%)	93	3	4,351 (4%)	36
Andijan	1,193 (8%)	28	1	6,297 (6%)	15
Bukhara	878 (6%)	105	2	4,329 (4%)	21
Jizzakh	755 (5%)	140	3	3,008 (3%)	47
Kashkadarya	1,047 (7%)	91	1	5,213 (5%)	3
Navoi	697 (4%)	206	2	2,484 (2%)	38
Namangan	1,086 (7%)	95	1	6,004 (6%)	16
Samarkand	1,542 (10%)	134	4	11,342 (11%)	44
Surkhandarya	654 (4%)	133	4	4,357 (4%)	28
Syrdarya	555 (3%)	91	3	2,771 (3%)	16
Tashkent	1,749 (11%)	71	6	16,437 (15%)	41
Ferghana	1,482 (9%)	64	3	8,212(8%)	7
Khorezm	768 (5%)	67	1	5,352 (5%)	43
Tashkent city	2,729 (18%)	49	7	26,742 (25%)	25
Total	15,866	79	4	106,809	27

Source: SSCU.

food industry's employment (Table 29). Tashkent city is also the host of most enterprises with foreign direct investments and joint ventures. The regions, where food industry enterprises equaled and exceed 9 percent of total, included Ferghana, Samarkand, and Tashkent. They accounted for 34 percent of total food industry's jobs.

100 **Other regions have been catching up in opening new food industry enterprises and generating employment in many parts of the country.** The biggest increase in the number of enterprises during 2015-2019 was in Navoi region, and the second largest was in Jizzakh region (Table 29). Large increases in the number of enterprises also occurred in Bukhara and Namangan. Regarding job creation, the regions with employment increase above 20 percent included Bukhara, Khorezm, Jizzakh, and Navoi, Samarkand, Surkhadarya, and Tashkent. Foreign investments in food industry enterprises in the regions outside Tashkent remain very low, averaging to 3 percent of all enterprises.

Productivity

101 **The average official labor productivity in the food industry has been much higher than that in primary agriculture.** Using the national account's data on GDP and labor force, the average worker in food industry (in nominal soms) generated 113 million soms of GDP in 2018, including 105 million soms in food processing, 116 million soms in beverage production, and 467 million soms in tobacco production (Table 30)⁷⁰. For comparison, average productivity per agricultural worker in 2018 was only 32 million soms. Chapter 3 showed a large variation in agricultural labor productivity depending on the commodity grown and when measured in actual hours worked, so actual agricultural labor productivity in Uzbekistan is higher than 32 million soms. But even if it is twice as high, the food industry's labor productivity still remains higher, making it an attractive job destination.

102 **Average labor productivity varies widely within the food processing industry.** The lowest value is in flour milling and vegetable oil processing, while the highest value is in meat processing (Table 30). Labor productivity is also high in dairy, which is as capital intensive as meat processing and where capital helps drive labor productivity up. Note that SSCU does not provide GDP data by food industry's sub-sector, so value added was derived from the value of outputs and the ratio between value added and output value for food processing industry, which averages 0.65. Assuming the average profitability of 10-15 percent, this implies a share of intermediary inputs in production costs at 75-85 percent.

103 **The more jobs are created in the food industry the better.** When combining the data on average labor productivity, labor intensity, and recent job growth, the most attractive proposition for productive job creation in food processing industry seems to be

Table 30. Uzbekistan: Food industry's labor productivity, 2018

	Value added, bill UZS	Employment	Labor productivity, mill UZS/worker
Food processing	8,435	80,252	105
Meat	1,665	3,883	429
Fish	40	369	109
Dairy	1,318	5,749	229
Fruits & vegetables	941	5,897	160
Vegetable & animal oils	863	14,574	59
Flour & flour products	926	18,034	87
Bread & bread products	1,395	20,886	67
Other foods	568	9,671	59
Feed	332	1,189	280
Beverages	1,653	14,248	116
Tobacco	508	1,092	467
Food industry, total	10,777	99,592	113

Source: WB estimates using SSCU and other data.

⁷⁰ The detailed production data for 2019 was not available to the task team when the report was finalized. This table, therefore, presents the data for 2018.

in meat, dairy, and fruits and vegetable processing. These segments are productive, and they generate products, for which the demand is growing, both nationally and globally.

104 **Note, however, that the food industry employs seasonal labor, which is not necessarily registered as official labor and has been excluded from discussion so far.** Most food enterprises are of small and micro sizes (Table 26). They tend to optimize their taxes by not putting their entire labor force on formal payroll. In these enterprises, unofficial employment can be as high as 60 percent of formal employment, according to the 2018 MOELR estimates. In the large enterprises of vegetable oil and flour milling industry, the share is likely to be smaller. Unregistered employment in fruits and vegetable processing industry can be large as shown in Table 27: part-time workers are rarely registered as official workers. Rough conservative estimates presented in Table 30 show that total employment in food industry, both formal and informal, could be close to 133 thousand workers, which reduces average labor productivity to 71 million soms, using the national accounts' approach. The use of data on actual hours worked would raise the average labor productivity, the same as for primary agriculture, but such information is unfortunately not available. Notwithstanding, this exercise shows the need for labor productivity in food industry to go up to generate jobs, which could pay higher wages.

Table 31. Uzbekistan: Estimate of total employment and labor productivity in food industry in 2018

	Estimate of the labor force, people, 2018			Official labor productivity, mill UZ\$/worker	Estimate of total labor productivity, mill UZ\$/worker
	Official (actual)	Unofficial (estimate)	Total		
Food processing	80,262	52,886	133,138	105	63
Meat*	3,399	1,699	5,098	429	327
Fish*	296	148	443	109	90
Dairy*	5,819	2,910	8,729	229	128
Fruits & vegetables***	5,200	25,998	31,198	160	30
Vegetable & animal oils**	14,833	2,967	17,799	59	49
Flour & flour products**	20,630	4,126	24,756	87	64
Bread & bread products*	18,976	9,488	28,464	67	49
Other foods*	10,291	5,146	15,437	59	37
Feed*	809	405	1,214	280	273
Beverages*	14,248	2,850	17,098	116	97
Tobacco*	1,092	218	1,310	467	388
Food industry	95,592	55,954	151,546	113	71

Note: (*) For these enterprises, the share of informal workers is assumed to be 50 percent of formal workers; (**) For these enterprises, the share of informal workers is assumed to be 20 percent of formal workers; and (***) For fruits and vegetable processing, the number of informal workers is assumed to exceed the number of formal workers by five times, using the HDP estimates. Source: WB staff estimate.

Textile industry

Quantity

105 **Employment in textile and apparel industry (i.e. light manufacturing) has been growing rapidly since the start of the 2017 economic reforms.** These reforms, among others, liberalized the currency, removed the requirement for textile and apparel enterprises to buy cotton only with US dollars, supported creation of cotton-textile clusters, which improved access for raw cotton to light manufacturing enterprises, and promoted processing of cotton to export processed products rather than fiber. In 2014, the textile and wear apparel enterprises employed about 122 thousand workers (Table 32). In 2019, the employment increased to 202 thousand workers or by 66 percent compared to 2014. The number of jobs in wear apparel manufacturing more than doubled, reflecting the structural shift towards manufacturing of apparel⁷¹ as a response to new export opportunities⁷².

Table 32. Uzbekistan: Employment in textile and wear apparel industry, 2014-2019

	2014	2015	2016	2017	2018	2019
Textile	88,893	87,608	88,648	99,844	115,884	129,793
Wear apparel	32,917	32,489	38,902	49,216	61,833	72,602
TOTAL	121,810	120,097	127,550	149,060	177,717	202,395
Change, % to 2014		-1.4	4.7	22.4	45.9	66.2

Source: SSCU.

106 **The increase in employment was a result of significant private sector investments and the state support measures, which helped increase the export of higher-value textile products.** Before the 2017 economic reforms, the priority was to generate foreign currency through the export of cotton fiber, which hampered profitability of cotton processing, thereby reducing incentives to create jobs there. So, in 2005-2010, the export of fiber exceeded the export of cotton processing products by several times (Table 33). In 2018 and 2019, however, the situation turned around. In 2018, the export of cotton processed products was \$1.54 billion compared to \$0.22 billion of fiber export. The export target of cotton processed/textile products for 2025 is \$7 billion. More importantly, the export shifted from low-value yarn to higher-value textile products. In 2005-2015, the average share of yarn in total yarn-textile export was 64 percent. In 2018 this share dropped to 47 percent, increasing a bit in 2019. This is the transformational achievement for Uzbekistan's light manufacturing in such a short time period.

⁷¹ In 2013, the value of apparel production accounted for 12 percent of total textile and apparel production. In 2018 this share increased to 24 percent.

⁷² Most of world import value in textile and apparel, 73 percent in 2017, is generated by processed products, according to Movchan, V., R. Kirchner, and N. Kurbanbaeva. 2019. *Export Potential of Uzbek Textile and Apparel*. German Economic Team Uzbekistan/Berlin Economics, Policy Briefing Series 01/2019.

Table 33. Export of fiber, cotton yarn, and textile products, 2005-2019 (million US\$)

	2005	2010	2015	2018	2019
Fiber	1,033.3	1,572.7	736.1	222.1	281.6
Yarn	120.7	386.8	545.9	726.7	926.1
Ready knitted and garments	20.8	116.5	184.0	585.7	354.5
Knitted fabrics	4.5	31.2	46.1	65.5	84.8
Cotton fabrics	28.3	42.0	33.8	65.6	69.2
Other made-up textile products	6.9	12.9	15.4	42.9	51.9
Carpets	0.1	7.3	13.6	31.0	32.0
Cotton wool, felt and nonwoven materials	9.4	17.0	16.4	26.8	108.1
Total cotton processed products	190.7	613.7	855.2	1,544.2	1,626.6

Source: SSCU.

107 **In 2019, total employment in textile, wear apparel, and leather production was almost 213 thousand.** Most jobs, 61 percent, was in textile manufacturing (Table 34). Wear apparel industry employed 34 percent of labor force, while the leather production – the remaining 5 percent.

108 **Similar to food industry, most jobs in light manufacturing are created by small and micro enterprises.** In 2019 they accounted for 73 percent of all jobs. Large enterprises prevail only in spinning and textile fiber production. These large enterprises also account for the largest share of foreign investments (Table 34). Yet, spinning and textile fiber production are the lowest processing outputs. Higher processed products demanded by global markets are produced mostly by small and micro enterprises, which are usually in a weaker competitiveness position than larger firms, pointing to a large underutilized economic and job creation opportunity for the light manufacturing.

109 **Regionally, most jobs are created in Tashkent city,** Tashkent region, and Ferghana Valley (Andijan, Ferghana, and Namangan). Together they account for 61 percent of total light manufacturing's employment (Table 35). But the industry is present in all parts of the country, creating decent jobs close to small towns and rural areas. This model is much more sustainable than the model prevailing in other developing countries, where textile and apparel industry tend to concentrate around capitals and large cities, often leading to long commute of workers and precarious living conditions.

Table 34. Uzbekistan: Light industry's employment, 2019

	Employment, people	% of total	In small and micro firms	In large firms	Inc. FDIs and JVs
Textile production	129,793	60.9	76,490	53,303	48,929
Preparation and spinning of textile fibers	87,924	41.3	37,674	50,250	34,242
Weaving	12,105	5.7	10,509	1,506	2,057
Textile finishing	2,070	1.0	2,070	0	730
Other textile products	27,694	13.0	26,238	1,456	11,900
Wear apparel	72,602	34.1	67,863	4,739	15,425
Production of clothing	60,907	28.6	56,578	4,329	12,408
Production of fur products	70	0.0	70	0	3
Knitted and crocheted production	11,625	5.5	11,215	400	3,004
Leather products	10,579	5.0	10,579	0	2,223
Tanning and leather dressing, luggage, dressing, and dyeing of fur	2,458	1.2	2,458	0	664
Shoe production	8,121	3.8	8,121	0	1,559
Total light industry	212,974	100.0	154,932	58,042	66,577
% of total			73	27	31

Source: SSCU.

110 **As mentioned above, creation of the cotton-textile clusters⁷³ has stimulated investments in cotton processing.** In 2018-2019, twenty-nine clusters invested in 42 new projects, adding 180,000-ton capacity for cotton yarn production, 11,300-ton capacity for knitted fabric, and 32.2 million units of textile and apparel products (Figure 22). These investments are reported to have helped create 11,000 new jobs⁷⁴ and bring production of more processed textile and apparel products to new regions.

Productivity

111 **Yet, the average labor productivity in light manufacturing has been rather low.** In 2018, it was half of that in the food industry and only twice as high as in primary agriculture. Using the national account's data on GDP and labor force, the average worker in light manufacturing generated 66 million soms of value added in 2018, including 78 million soms in textile manufacturing, 46 million soms in apparel manufacturing, and 59

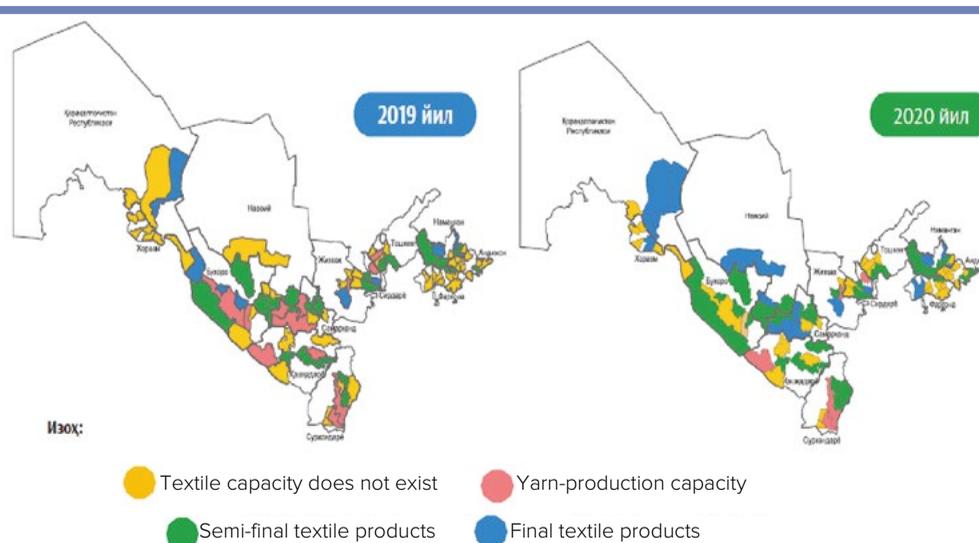
⁷³ To learn more about history and performance of cotton-textile clusters, see WB. 2020. *Cotton-Textile Clusters in Uzbekistan: Status and Outlook*. Washington, D.C.

⁷⁴ According to the Uztextileprom, every \$1 million investment in the textile industry creates about 40 new jobs. This is comparable with job creation in horticulture value chains and is much higher than in other sectors of the economy.

Table 35. Uzbekistan: Regional breakdown of light manufacturing's employment, 2019

	Textile (% of total)	Wear apparel (% Of total)	Leather (% of total)	Light manufacturing (% of total)
Karakalpakstan	4,705 (4%)	388 (1%)	7 (0%)	5,100 (2%)
Andijan	11,609 (9%)	11,775 (16%)	2,602 (25%)	25,996 (12%)
Bukhara	9,434 (7%)	1,850 (3%)	139 (1%)	11,423 (5%)
Jizzakh	5,745 (4%)	3,184 (4%)	22 (0%)	8,951 (4%)
Kashkadarya	9,118 (7%)	1,257 (2%)	162 (2%)	10,537 (5%)
Navoi	3,067 (2%)	835 (1%)	59 (1%)	3,961 (2%)
Namangan	12,923 (10%)	12,526(17%)	916 (9%)	26,365 (12%)
Samarkand	9,280 (7%)	9,025 (12%)	1,491 (14%)	19,796 (9%)
Surkhandarya	5,640 (4%)	763 (1%)	42 (0%)	6,445 (3%)
Syrdarya	4,552 (4%)	1,742 (2%)	393 (4%)	6,687 (3%)
Tashkent	14,245 (11%)	9,443 (13%)	626 (6%)	24,314 (11%)
Ferghana	18,373 (14%)	4,902 (7%)	2,509 (24%)	25,784 (12%)
Khorezm	7,450 (6%)	1,258 (2%)	149 (1%)	8,857 (4%)
Tashkent city	13,642 (11%)	13,654 (19%)	1,462 (14%)	28,758 (14%)
Total	129,793 (100%)	72,602 (100%)	10,579 (100%)	212,974 (100%)

Source: SSCU.

Figure 22. Uzbekistan: Change of cotton processing capacity between 2019 and 2020

Source: Uztextileprom.

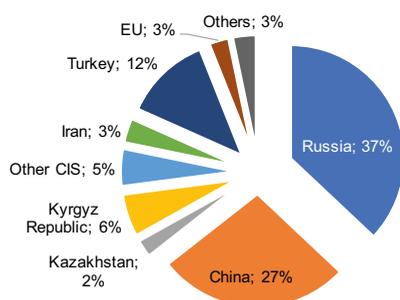
Table 36. Uzbekistan: Light manufacturing's labor productivity, 2018

	Value added, bill UZS	Employment, workers	Labor productivity, mill UZS/worker
Textile industry	9,035	115,884	78.0
Wear apparel industry	2,828	61,883	45.7
Leather industry	621	10,444	59.4
Light manufacturing, total	12,484	188,211	66.3

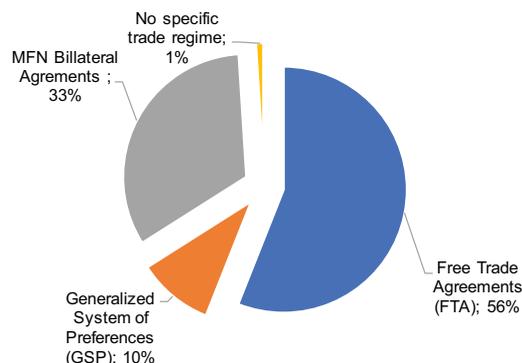
Source: WB estimates using SSCU data.

million soms in leather production (Table 36). And, this is even without considering informal labor force, which is at least 40 percent in textile and apparel enterprises. This shows the need to increase productivity and profitability of textile and apparel manufacturing for it to offer more decent jobs in Uzbekistan in the future.

112 **One option would be to diversify the destination of its export with objectives of diversifying risks and generating higher export values.** In 2019, the export of textile and apparel concentrated on neighboring and traditional markets, showing potential for diversification. The CIS countries accounted for 51 percent of total exports, including 37 percent to Russia. China accounted for 27 percent of export, Turkey for 12 percent, and the EU for 3 percent (Figure 23). Yet, globally, the EU, the United States, and Japan consume 42 percent of the world import of textile and apparel products. Moreover, most of Uzbekistan's export is under various preferential trade agreements⁷⁵, which determine market access (Figure 24). Further opening of markets could further stimulate exports.

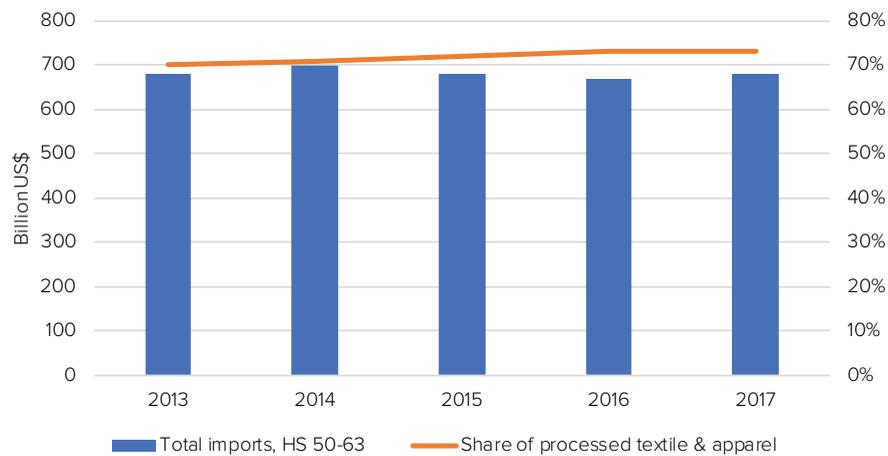
Figure 23. Uzbekistan: Export of textile and apparel by country, 2019

Source: World Bank estimates using SSCU data.

Figure 24. Uzbekistan: Export of textile and apparel by trade regime, 2019

Source: World Bank estimates using SSCU data.

⁷⁵ Uzbekistan has free trade agreements with CIS countries and Georgia. The generalized system of preferences is with EU, Turkey, Canada, Japan, and Switzerland. Most favored nations bilateral agreements are with China, Iran, and Bangladesh.

Figure 25. World imports of textile and apparel, 2013-2017

Source: German Advisory Team Uzbekistan/Berlin Economics.

113 **An additional way to increase productivity and profitability of textile and apparel manufacturing would be to produce and export more processed products.** The nominal value of world imports of textile and apparel in 2017 was \$656 billion (Figure 25). Seventy-three percent of the world import demand was for processed products. Demand for raw materials accounted for only 6 percent of the value of world import, while for semi-processed products – 21 percent. The articles of apparel accounted for half of the world imports in 2018 (Figure 26), while in Uzbekistan the article of apparel accounted for only up to 30 percent of its textile and apparel export in 2019 (Table 33).

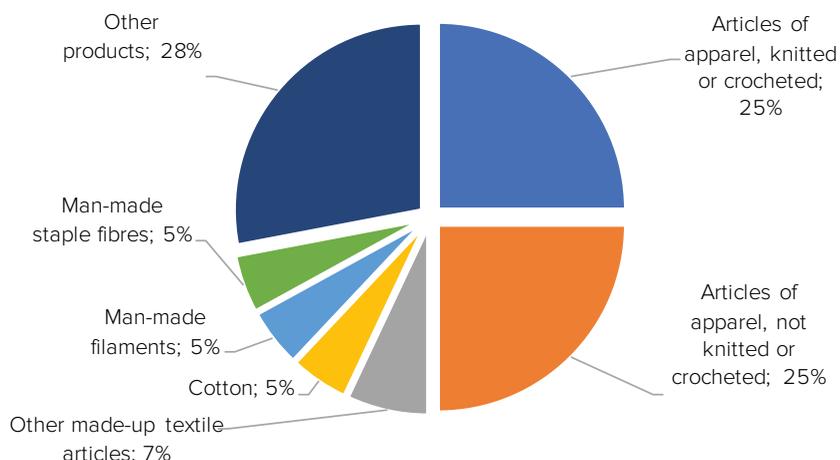
114 **The recent analysis of the German Advisory Team Uzbekistan identified that textile and apparel items had the highest export potential.** They include bed and table linen, cotton yarn, woven fabrics of cotton, not tufted or flopped carpets, and women or girls' suits⁷⁶. This selection reflects the best combination of supply and demand characteristics analyzed by the experts. It was found that in addition to the continued export to Russia, removal of import duties would increase attractiveness of the EU (Austria, Czech Republic, Germany, Sweden) and Middle East markets, highlighting the importance to proceed with reforms needed for obtaining generalized system of preference (GSP)⁷⁷.

Forced labor

115 **Gaining access to more sophisticated markets would also require from Uzbekistan to improve its reputation by full elimination of the use of forced labor in cotton harvesting.** This is the role for the government, which can be facilitated by textile

⁷⁶ Movchan, V., R. Kirchner, and N. Kurbanbaeva. 2019. *Export Potential of Uzbek Textile and Apparel*. German Economic Team Uzbekistan/Berlin Economics, Policy Briefing Series 01/2019.

⁷⁷ In June 202, the Ministry of Investment and Foreign Trade of Uzbekistan sent the official request to the EU to obtain GSP+ status. It would permit Uzbekistan to export more than 6,200 items to the EU duty free, compared to the current GSP status of Uzbekistan allowing it to export to the EU 3,000 items duty free and 3,200 items at the reduced import tariff rates.

Figure 26. World imports of textile and apparel by products, 2018

Source: German Advisory Team Uzbekistan/Berlin Economics.

enterprises through cotton-textile clusters. Abolishment of forced labor would eventually end the boycott of the Uzbek cotton by global retailers. Furthermore, paying attention to sustainability of cotton production, for example through adoption of the Better Cotton Initiative (BCI) standards in cotton production and workers' safety and protection on textile and apparel factories would provide a competitive edge to earlier adopters of these standards in Uzbekistan, as these standards become preconditions to reach many markets with demanding consumers.

Inclusiveness

116 **The reputation and success of the textile and apparel industry would also depend on the effectiveness of cotton-textile clusters, including in empowering farmers.**

For decades cotton farmers faced low farm-gate prices and the full state control over land use, their production practices, input selection, irrigation, harvesting, and marketing. In 2018, for example, taxation of cotton farmers was estimated at 1.5 percent of GDP⁷⁸. The abolishment of the state order system for cotton in 2020 and the establishment of private sector's cotton-textile clusters⁷⁹ create a unique opportunity to empower cotton farmers so they can increase their productivity and incomes and grow more of higher-quality cotton demanded by textile and apparel factories. That implies the need for owners of the cotton-textile clusters to: (i) find consensus on fair farm-gate prices of raw cotton to provide incentives for farmers without undermining competitiveness of textile and apparel; (ii) support, not direct, farmers on their planting and production practices, selection of inputs, and harvesting; and (iii) work closely with the government to provide critical infrastructure such as irrigation and drainage, road infrastructure, and land improvements. If not managed well, the cotton-textile clusters risk to be perceived the same as the state order system, which would have a detrimental impact on the entire cotton value chain.

⁷⁸ WB and IAMO. 2018. *Cotton Taxation in Uzbekistan: Recent Developments and Reform Agenda Ahead*. Washington, D.C. and Halle/Saale.

⁷⁹ See WB. 2020. *Cotton-Textile Clusters in Uzbekistan: Status and Outlook*. Washington, D.C.

117 **In sum, although total employment in light manufacturing, comprising textile, wear apparel, and leather production, has been growing rapidly since the start of the 2017 economic reforms, average labor productivity has been rather low.** There are ways to increase productivity and profitability of textile and apparel manufacturing, including to diversify the geography of Uzbek export with objectives of diversifying risks and generating higher export values, and to produce and export more processed products. Nevertheless, the reputation and success of the textile and apparel industry will require the full elimination of the use of forced labor in cotton harvesting and will also depend on the effectiveness of cotton-textile clusters, including in empowering farmers. Chapter 6 will explore more some of these forward-looking issues.

A close-up photograph of a woman in a red headscarf and a dark floral-patterned garment, focused on her work. She is using a tool to work on a piece of white fabric that is part of a larger textile project. To her left, a large, textured mass of orange-red silk threads is visible. The background is softly blurred, showing hints of a workshop or factory setting with other textile items.

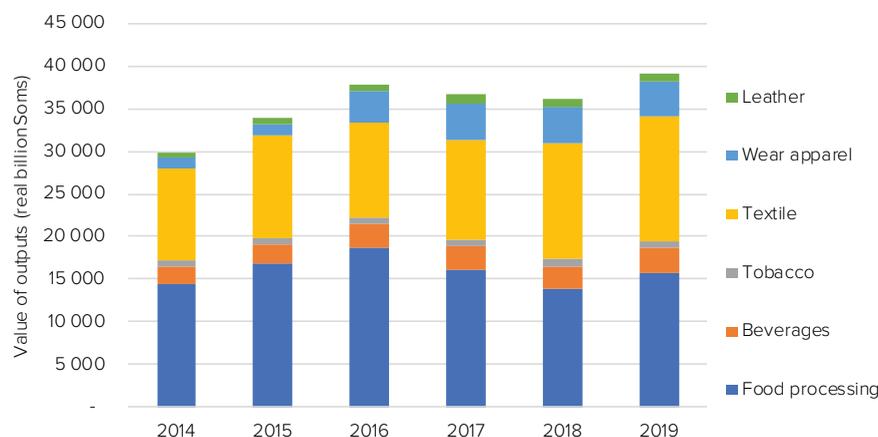
For centuries, Ferghana Valley had been widely known for its silk fabrics. Today, local craftswomen in the city of Margilan continue producing carpets, tablecloths, scarfs, and other handmade items of silk.

6 OUTLOOK FOR JOB CREATION IN FOOD AND TEXTILE INDUSTRIES

118 **The future of jobs in Uzbekistan’s food and light industries will depend on several factors, some of which are similar to those of primary agriculture.** Success will depend on the ability of these industries to respond to new opportunities on domestic and global markets so to increase productivity and profitability, adjust to shifting preferences of consumers, and withstand automation.

119 **The continued economic growth in food and light industries would safeguard achievements to date and advance future job creation.** Some parts of the food industry, for example production of beverages (7 percent on average), grew fast during 2014-2019 (Figure 27), but the growth in food processing was lower (3 percent on average) than the average GDP growth (6.5 percent). The growth in food processing was also volatile – it

Figure 27. Uzbekistan: Value of production in food industry and light manufacturing, 2014-2019, real billion soms



Source: WB staff estimate based on the SSCU data.

declined in both 2017 and 2018 but recovered in 2019, growing by 14 percent. The average growth in light manufacturing was robust, on average 9 percent during 2014–2019, but it was also volatile, especially for wear apparel. Notwithstanding, the output value by wear apparel grew threefold in real prices during the review period.

Food industry

120 **Diving into specific sub-sectors, fruits and vegetable processing could benefit from capitalizing on favorable export opportunities and the growing horticulture sector.** Horticulture production is projected to increase, supplying more raw materials for processing. The government has been providing various incentives to stimulate value chain development and value addition, which should promote processing and handling of horticulture products. Under HDP, \$1 million investment has shown to help create on average 30 jobs in packaging, 35 jobs in processing, and 50 jobs in cold storage of horticulture products. More investments are in the pipeline, including by integrating smallholder farmers into modern value chains, which would further drive job creation there⁸⁰

121 **The flour industry could benefit from capitalizing on new regional market opportunities in Central Asia’s broader region.** Afghanistan will remain the largest buyer of flour in the region, where population is projected to increase by 10 million or 26 percent by 2030. Uzbekistan can build on its existing trading relations with this trade partner⁸¹. But the market in other neighboring countries and domestic market matter, too. By 2030, the population in Afghanistan, Kyrgyz Republic, Tajikistan, and Turkmenistan will increase by 14.2 million, demanding an additional 2 million tons of flour⁸² compared to Uzbekistan’s export of 460 thousand tons in 2019. Furthermore, Uzbekistan’s population will also grow, by 4.4 million. Lower per capita flour consumption due to the changing diets, income growth, and some automation of milling factories would put a downward pressure on job creation, but overall market opportunities in the coming decade for this industry still look promising.

122 **Milk and meat processing can benefit from the growing domestic market fueled by population growth, people’s rising income, and projected larger fodder grown area as discussed in Chapter 4.** Meat is an important part of traditional Uzbek cuisine. Household spending on meat in February 2020 averaged 33 percent of total food expenditures, the largest food expenditure, which by itself accounted for more than half of total household expenditures⁸³. The increase in income will lead to higher demand for meat and lower demand for bread, which can be already seen in Uzbekistan when comparing food expenditures by income quantile (Figure 28). The share of food expenditures on milk is much smaller, 7.1 percent, but it has been rising over time. Overall, unlike flour and bread products as well as fruits and vegetables, future demand growth for which would come mainly from overseas, the demand for livestock products will be driven by the growing

⁸⁰ The AMP, approved by the WB in March 2020, foresees significant investments and credit for integrating smallholders in modern horticulture value chains.

⁸¹ WB. 2020. *Overview of Regional Market of Wheat and Flour in a Broader Central Asia*. Washington, D.C.

⁸² Average wheat per capita consumption in the region is 180 kg, which is about 135 kg of flour.

⁸³ Central Bank of Uzbekistan. 2020. *Quality of Life and Inflation*. Information and Analytical Report, Tashkent.

domestic market. The limited fodder base makes it very difficult for Uzbekistan to become a large exporter of meat and milk products, even in case of the stronger feed industry, which still can benefit from the growing demand for its products from livestock sector.

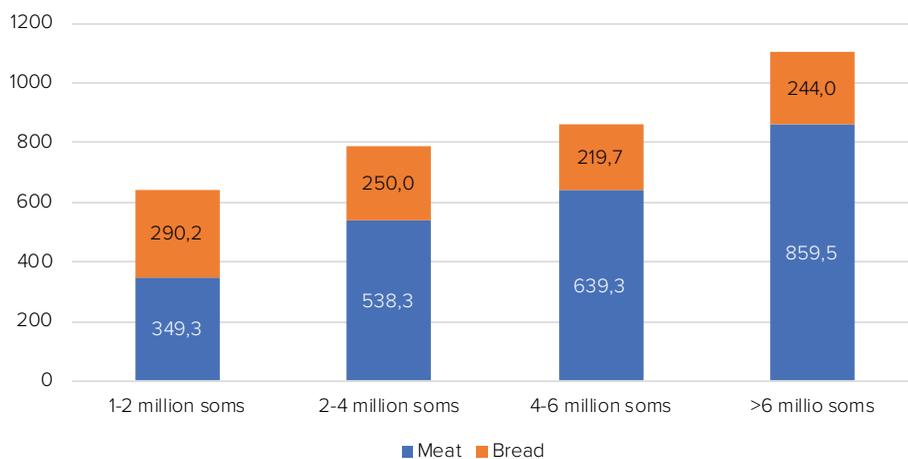
123 **Job creation in other sub-sectors may be limited in Uzbekistan.** Bread baking enterprises do not generate many new jobs, and the demand for bread and pastries could decline by 2030. Vegetable oil processing will be limited by weak prospects in the growth of volumes of raw cotton, including due to the projected decline of the cotton growing area. Other food production such as sugar and baby food face a strong competition from imports, and job prospects there are, therefore, limited.

Light manufacturing

124 **The future of textile and wear apparel industries will be linked to their success in increasing exports.** The target is to increase exports from \$1.6 billion in 2019 to \$7.0 billion in 2025. Meeting this target would require textile and apparel enterprises to: (i) diversify the geography of exports; (ii) increase the share of processed products; (iii) embrace the international labor safety and sustainability standards along with good manufacturing practices; and (iv) balance the need of industry with the need of farmers within cotton-textile clusters. Completion of these tasks is feasible during the next couple of years to provide impetus for textile and apparel factories to create decent jobs.

125 **Estimations of the job outlook for Uzbekistan's food and light industries by 2030, similar to what is done for primary agriculture in Chapter 4, are positive.** Projections, based on historical job creation performance, and the assumption that the above-discussed opportunities are realized, and constraints are addressed by 2030, reveal that employment in food industry and light manufacturing could both more than double.

Figure 28. Uzbekistan: Selected food expenditures by income, 2020



Source: Central Bank of Uzbekistan.

Creating more jobs in the food industry

126 **Employment in the food industry could more than double between 2020 and 2030.** It is projected to increase from 173 thousand workers in 2019 to 373 thousand workers in 2030 (Table 37), using the informed assumptions similar to that in primary agriculture. The baseline for this calculation includes the estimate of unregistered/informal workers employed by the industry using the ratios from Table 30. The projected growth in job creation by 2030 is based on the extent of the actual job creation in 2015-2018 and the projected outlook for each industry. This outlook assumes average annual employment growth by 11.5 percent compared to the historical 6.1 percent, largely driven by the growth in fruit and vegetable processing and dairy production above their growth performance in 2015-2019. These subsectors, along with meat processing, flour production and bread products, are expected to dominate job creation in the food industry (Table 38).

127 **The future job creation's growth is underpinned by the record of past growth and future market opportunities.** The annual growth in number of jobs during 2020-2030 on meat processing enterprises is assumed at 15 percent compared to 21 percent during 2015-2019 (Table 37). This subsector has a good growth potential, as discussed above, but the job creation there is unlikely to continue at the same historical pace. For dairy and fruit and vegetable processing, the job outlook exceeds their historical average, given high potential for growth of these subsectors linked to the anticipated continued success in producing raw materials – milk and horticulture products and the launch of public programs seeking to link smallholders, who produce the majority of these products, with processing enterprises⁸⁴. The outlook for growth in job creation in the flour subsector is assumed at 1 percent a year, compared to the negative dynamics during 2015-2019. This positive outlook is based on the positive outlook for Uzbekistan to benefit from export opportunities in Afghanistan and other neighboring countries. The growth outlook for job creation in other subsectors is assumed to be below the averages for 2015-2019.

Creating more jobs in light manufacturing

128 **The employment in light manufacturing could also more than double between 2020 and 2030.** During 2015-2019, the annual growth in jobs averaged 8 percent in textile enterprises and 18 percent in wear apparel enterprises (Table 39). Such high growth is unlikely to continue during the next decade, but if it is close to those numbers, total employment in light manufacturing would increase from 298 thousand workers in 2019 to 735 thousand workers in 2030. To maintain competitiveness and create jobs, the industry's attention should be on production of final products with global demand as discussed in Chapter 5. Weaker growth is, therefore, projected in the lowest value spinning segment, which provided the most employment in 2019, and higher growth is projected in final textile and apparel production segments.

⁸⁴ Examples include the programs launched under the Livestock Sector Development Project and the AMP.

Table 37. Uzbekistan: Job outlook in food industry, 2020-2030

	Estimated employment, 2019	Annual change in employment, actual, 2015-2019, %	Projected annual change in employment, 2020-2030, %	Projected employment, 2030
Food processing	154,684	6.8	12.8	350,237
Meat	7,343	20.9	15.0	29,705
Fish	632	13.0	5.0	1,029
Dairy	9,780	8.4	10.0	25,367
Fruits & vegetables	37,320	11.8	15.0	113,660
Vegetable & animal oils	18,365	1.2	0.5	19,304
Flour & flour products	22,174	-1.6	1.0	24,493
Bread & bread products	37,313	12.2	4.0	55,232
Other foods	19,646	14.2	7.0	38,646
Feed	2,114	19.6	10.0	5,482
Beverages	17,356	3.1	2.0	21,156
Tobacco	1,352	-0.9	0.0	1,352
Food industry	173,392			372,746

Source: WB staff estimate.

Table 38. Uzbekistan: Change in jobs within food industry, 2019-2030

	Job breakdown, actual, 2019, % of total	Job breakdown, projected, 2030, % of total
Food processing	89.2	94.0
Meat	4.2	8.0
Fish	0.4	0.3
Dairy	5.6	6.8
Fruits & vegetables	21.5	40.5
Vegetable & animal oils	10.6	5.2
Flour & flour products	12.8	6.6

	Job breakdown, actual, 2019, % of total	Job breakdown, projected, 2030, % of total
Bread & bread products	21.5	14.8
Other foods	11.3	10.4
Feed	1.2	1.5
Beverages	10.0	5.7
Tobacco	0.8	0.4
Food industry, workers	173,392	372,746

Source: WB staff estimate.

Table 39. Uzbekistan: Job outlook in light manufacturing, 2020-2030

	Total employment, 2019*	Actual annual growth, 2015- 2019, %	Projected annual growth, 2020-2030, %	Projected employment, 2030
Textile production	181,710	8.1		299,775
Preparation and spinning of textile fibers	123,094		4.0	182,209
Weaving	16,947		5.0	27,605
Textile finishing	2,898		8.0	6,257
Other textile products	37,772		8.0	83,705
Wear apparel	101,643	17.6		411,060
Production of clothing	85,270		15.0	344,964
Production of fur products	98		10.0	254
Knitted and crocheted production	16,275		15.0	65,842
Leather products	14,811	5.0		24,125
Tanning and leather dressing, luggage, dressing, dyeing of fur	3,441		5.0	5,605
Shoe production	11,369		5.0	18,520
Total light industry	298,164			734,960

Note: (*) Formal employment is increased by 30 percent of the assumed informal/unregistered workers.

Source: WB staff estimate

129 **The main assumptions of future job creation's growth are underpinned by the following considerations.** The annual growth in number of jobs for spinning textile fiber would slow down during 2020-2030 compared to 2015-2019 but accelerate for finished textile and apparel products⁸⁵. As discussed in Chapter 5, the focus of light manufacturing should be on producing more of finished products that are demanded on world markets.

130 **Many jobs projected in both food and light industries should become formal to increase the quality of such jobs.** This would be a boost to the economy and life of Uzbekistan's people.

⁸⁵ The Concept for Development of Uzbekistan's Textile and Garment Industry for 2019-2025 projects the increase in production of finished textile and wear apparel products by 3.0-4.6 times compared with only 2 time increase in production of lower value textile products.

7 CONCLUSIONS AND POLICY RECOMMENDATIONS

Conclusions

131 **The agri-food sector can be instrumental for Uzbekistan’s job creation.** More jobs in this sector would be underpinned by the country’s comparative advantages and strong interdependence between primary agriculture and downstream processing industries. If the job outlook presented in the previous chapters is realized, the agri-food sector employment could increase by 32 percent (1.34 million workers) by 2030 compared to 2019 (Table 40). Primary agriculture would continue to dominate the agri-food sector’s employment, but its share would drop by 9 percentage points, giving more prominence to food industry and light manufacturing, the shares of which could almost double.

132 **The agri-food sector can do more than just absorb newcomers into the labor market.** Future jobs in agri-food sector could be not only larger in numbers but better in quality. They are projected to be created in sub-sectors and industries with strong comparative advantages and market opportunities, which would help make these jobs

Table 40. Uzbekistan: Agri-food sector’s employment in 2019 and 2030

	Actual 2019		Projected 2030	
	number	% of total	number	% of total
Primary agriculture	3,653,000	89%	4,353,468	80%
Food industry	173,392	4%	372,746	7%
Light manufacturing	298,164	7%	734,960	13%
Agri-food sector, total	4,124,556	100%	5,461,174	100%

Source: WB staff estimate.

more productive and sustainable. They would largely withstand automation. They will be inclusive, being available to women and youth not only in Tashkent and other large cities, but also in rural areas and secondary towns. And, they will be key to raise people incomes and lift them out of poverty, helping the agri-food sector enhance food security and spark economic growth through its strong spillovers to regional and rural economies.

133 **Realization of this job outlook requires support from the government.** Jobs are largely created by the private sector, but the government has a large role to play to help private sector creating them. This role of the government is presented below.

Recommendations

134 **Accelerating overall economic growth alone would not be sufficient to create more jobs – this strategy has not worked well in the past.** Uzbekistan’s high growth rates, averaging 6.5 percent between 2000 and 2019, failed to generate a sufficient number of decent jobs. That period is called a decade of jobless growth⁸⁶. That growth was largely state-led and capital-intensive. Uzbekistan needs to transition to inclusive economic growth that is private-sector-led and labor-intensive and supported by an enabling state.

135 **Creation of jobs is the private sector’s ‘job’, as mentioned above, but the government has a strong role to help private sector doing it.** Table 41 presents key areas and specific actions that are critical for job creation in Uzbekistan. It summarizes specific actions in agriculture, food industry, and light manufacturing, complementing them by horizontal support to inclusion and formality. Recommendations are in line with the framework for job creation in Uzbekistan (Figure 2) and have been selected based on their potential to create jobs, including demonstrated potential through experience with World Bank-financed projects.

136 **In primary agriculture, the government’s focus needs to be on a steadfast implementation of the recently adopted Agricultural Strategy in order to accelerate agricultural growth.** Priority areas of the Agricultural Strategy that are particular important for job creation include the following:

- a. Relaxation of restrictions on land use and facilitation of land rental market are key to reallocate land, labor, and capital to most productive subsectors. The 2030 job outlook for primary agriculture is critically dependent upon the success in allowing land to be shifted to their most productive use, thereby promoting agricultural diversification to respond to emerging food demand. As shown in this Report, reducing cotton and wheat grown areas by 30 percent, while increasing yields of these crops to compensate for the smaller grown area, would not only boost overall growth and demand for farm labor, but also provide sufficient raw materials for cotton oil mills, flour mills and bakeries, and textile/apparel enterprises, which create many jobs, too.
- b. Farmers, small and large, must believe that their land tenure is secure. In the context of Uzbekistan, it requires the State to protect land user rights by creating transparent and just mechanisms for cancellation of agricultural land use-rights based on very

⁸⁶ WB. 2018. *Growth Diagnostics for Uzbekistan*. Washington, D.C.

Table 41. Spectrum of action areas in the agri-food system to deliver more jobs

General areas	Specific actions
Promote growth in primary agriculture	<ul style="list-style-type: none"> - Relax restrictions on agricultural land use, facilitate a move to vibrant land rental market, and strengthen land tenure security - Refrain from taxation of farm-gate prices of agricultural outputs - Continue to facilitate agricultural diversification to respond to emerging food demand - Support collective action and access to farmland to enable small farmers to integrate into modern food value chains - Invest in rural infrastructure, including to support adoption of digital technologies - Support the adoption of good agricultural and animal husbandry practices to improve productivity, protect environment, and ensure food safety - Upgrade skills of farmers through advisory and extension services.
Promote growth in food industry	<ul style="list-style-type: none"> - Improve investment climate and competition in the food sector - Provide incentives and support investments in secondary cities - Support productive partnerships/clusters - Support reskilling and upskilling of workers and facilitate job matching - Strengthen public and private sector capacities to promote marketing and labeling and ensure food safety.
Promote growth in light manufacturing	<ul style="list-style-type: none"> - Continue to improve performance of the cotton-textile clusters - Eliminate the use of forced labor in cotton production to end the boycott of Uzbek cotton by global retailers - Support adoption of labor safety requirements on textile factories and BCI for cotton production acceptable to international market - Provide incentives and support investments in higher-value textile and garment production in secondary cities - Support reskilling and upskilling of workers and facilitate job matching.
Facilitate inclusion and transition to formal jobs	<ul style="list-style-type: none"> - Improve inclusion in policy dialogue and program design - Invest in improved vocational training and formation of skills of rural people demanded by the market - Upgrade skills of women and youth, through extension services and communication - Improve access to affordable finance - Support collective action and access to farmland to enable small farmers to integrate into modern food value chains - Develop secondary cities to create jobs near rural populations - Reduce the cost of formality.

Source: WB staff.

limited set of objective criteria such as hazardous waste or land abandonment (e.g. greater than 3 years), but not yield targets, soil fertility maintenance at defined level or adoption of good agricultural practices, which are difficult to measure and which intervene with farmers' production freedom⁸⁷.

- c. With the state order system announced to be phased out in 2020 for cotton and 2021 for wheat, the government would need to refrain from re-imposing farm price controls in the future, even at times of crises such as the Covid-19 outbreak. The government should be committed instead to facilitate free markets so it can provide undistorted signals to farmers of what to produce, to consumers of what to consume, and to market operators of what, where and when to deliver, while using social safety nets and public food stocks to protect the vulnerable during excessive temporary food price spikes. Agriculture in Uzbekistan and globally faces the long-term worsening terms of trade, so avoiding taxation of farm output prices is a precondition to future long-term agricultural growth.
- d. The main tool of supporting farms and firms in Uzbekistan has been so far improvement of access to credit. At the same time, too little is (still) being spent on public services for farms and firms. Yet, without technical assistance to credit beneficiaries and availability of high-quality public services such as advisory and extension services, the impact of credit on farm productivity and profitability would remain limited. In the context of job creation, important public programs include the support to: (i) collective action to enable small farmers to integrate into modern food value chains; and (ii) adoption of good agricultural and animal husbandry practices (GAP) to improve productivity, protect the environment, and ensure food safety. Conducting these practices and meeting the GAP requirements is not only labor intensive and good for the environment but also imperative to increase long-term productivity⁸⁸ and quality of products to penetrate sophisticated markets.
- e. Investments in rural infrastructure, such as roads, wholesale markets, agri-logistics and ICT to promote adoption of digital technologies are essential to raise profitability of agricultural production and increase demand for labor.
- f. Upgrading skills of farmers through advisory and extension services is critical for agriculture to reach its full potential and farmers to increase their income. The average level of education of Uzbekistan's farmers is much lower than that of other workers (Table 8). Farmers cannot be sent back to schools; they need to be retrained on job/farms through training programs of advisory and extension specialists.

137 Priority actions of the government to support job creation in the food industry are the following:

- a. Improvement of investment climate, including by privatization of state-owned enterprises, for example 44 flour mills belonging to Uzdonmakhsulot and 176 food enterprises belonging to Uzbekozikovkatholding, would level off the playing field,

⁸⁷ WB. 2020. *Identifying Land Policy Priorities for Uzbekistan to Support Economic Growth, Social Inclusion and Environmental Sustainability*. Technical Report, Washington, D.C.

⁸⁸ The EU provides a good example of specific GAP activities, which is called in the EU cross-compliance. Direct payments to farmers are conditioned by high standards for crop rotation, land cover, and maintenance of permanent grassland. In addition, at least 30 percent of the rural development budget of the EU in 2021-2027 will be spent on environmental and climate smart programs.

encourage competition, and reduce economic distortions that can result from the state-led investments. More efforts are also needed to attract FDIs. A survey of foreign investors in Uzbekistan done by the IMF in 2019 showed that the recent reforms to reduce business costs, improve repatriation rules, streamline export procedures, and reduce immigration rules for foreign workers are seen positively. But key structural issues that remain to be tackled, such as access to factors/inputs (land, labor, and energy), bureaucracy, and quality of public institutions, were viewed as still-binding constraints⁸⁹. FDIs are important to establish private medium and larger firms, which tend to create more formal jobs. The problem for Uzbekistan’s food industry has been that jobs are being increasingly created by small and medium enterprises, which tend to recruit fewer formal workers.

- b. The global experience shows that moving out of agriculture into rural non-farm sector and secondary towns is more poverty reducing than a rapid move of workers to large cities⁹⁰. This has implication for the targeting of job policies and investments. Enterprises established in secondary cities and less developed regions of Uzbekistan could be supported through public incentives and investments to promote inclusive growth.
- c. Incentives can be given to food industry enterprises, which establish clusters/productive partnerships with farmers through contract farming and other arrangements to strengthen their production base. Such enterprises can be supported through preferential credits and matching grants to co-finance investments and technical assistance to farmers. The Agriculture Modernization Project (AMP), supported by the WB, will set an example of such programs in the horticulture sector through a credit line for fruit and vegetable processing enterprises, which establish cooperation and productive partnerships with farmers. The Livestock Sector Development Project, another project supported by the WB and the EU, provides matching grants to dairy and meat factories, which set up productive partnerships with farms, the majority of which is small dehkans. These pilots will provide lessons for designing longer-term programs to be financed by the state.
- d. While reskilling and upskilling of workers should be a task of individual enterprises, free flow of workers reduces incentives for enterprises to invest in their training. As a result, private firms often underinvest in skill improvement of their workers, thereby creating market failures, which could be corrected by the government through co-financing of training/retraining programs.
- e. As access to food export markets gets increasingly dependent upon capacity of food enterprises to adopt strict food safety standards and product traceability, the capacity of Uzbekistan’s private sector requires strengthening to meet these requirements. Moreover, the public sector capacity to ensure food safety and support digitalization of food value chains should be strengthened by clearly defining its roles and allocating budget to fulfil these roles. Labeling and marketing initiatives raising awareness of Uzbek products’ high quality and safety on global markets are another important task for the public sector.

⁸⁹ The WB report from 2018 on *Growth Diagnostics for Uzbekistan* provides a detailed description of problems faced by small and large manufacturing enterprises, using the firms survey conducted in 2017. Many problems prevailed in 2017 are still very much relevant in 2020.

⁹⁰ WB. 2017. *Future of Food: Shaping the Food System to Deliver Jobs*. Washington, D.C.

138 Textile industry would benefit from the measures discussed for the growth of food industry, but it would require additional measures to fully realize its job potential:

- a. The success of the textile and apparel industry will depend on the effectiveness of cotton-textile clusters, including in empowering farmers. As discussed in Chapter 5, the owners of the cotton-textile clusters should: (i) find consensus on fair farm-gate prices of raw cotton to provide incentives for farmers; (ii) support, not direct, farmers on their planting and production practices, selection of inputs, and harvesting to increase cotton yields and quality; and (iii) work closely with the government to provide critical infrastructure such as irrigation and drainage, road infrastructure, and land improvements. If not managed well, the cotton-textile clusters risk to be perceived the same as the state order system, which would have a detrimental impact on the entire cotton value chain.
- b. Penetrating more sophisticated markets would require from Uzbekistan to fully eliminate the use of forced labor in cotton harvesting. The ending of the cotton state order system in 2020 should help do it, with the role of the government being to monitor and ensure compliance with the legislation. Abolishment of forced labor would eventually end the boycott of Uzbek cotton by global retailers.
- c. Encouraging the clusters to invest in sustainability of cotton production, for example through adoption of BCI and other GAP standards and workers' safety and protection on textile and apparel factories, would provide a competitive edge to earlier adopters of these standards. They are becoming preconditions to reach many markets with demanding consumers, including to obtain and maintain the GSP+ status⁹¹ to access the EU market.

139 The government's role is also in facilitating inclusion of women and smallholders and eventual transition to formal jobs. This could be achieved through the following actions:

- a. Increasing public investments in improved vocational training and formation of skills of rural people demanded by the market. Special attention needs to be paid to upgrading skills of women and youth, through specialized training and internships as under the WB-supported Ferghana Valley Rural Enterprise Development Project, as well as advisory and extension services, and communication.
- b. Improving access to affordable finance to farmers beyond cotton and wheat production is critical to boost agricultural growth. As farmland cannot be used as collateral and most farmers do not have collateralized fixed assets, alternative financial products should be developed. Innovative alternatives include crop and warehouse receipts, which can bring finance to farmers without fixed assets needed to attract loans otherwise.
- c. Enhancing access of *dehkan* farms to land would help integrate them into modern value chains, not only increase their incomes from producing more from large crop growing areas. *Dehkans* should be permitted to lease farmland to benefit from the new

⁹¹ Obtaining and maintaining the GSP+ status requires from Uzbekistan to effectively implement 27 interventions conventions, which it signed, including 16 conventions on human rights and labor standards and 11 conventions on environment protection and governance.

growth opportunities⁹². Public programs to promote productive partnerships of small farms with food processors and exporters are also needed to integrate smallholders into modern value chains.

- d. Supporting public investments and services such as kindergartens, which are rarely available in rural areas and small towns, are also important for women's job participation. Global experience shows that development of secondary cities is critical to create jobs near rural populations. This is especially critical for women, who face obstacles to commute far away or move to other locations. Women are especially attracted for jobs in light manufacturing and horticulture production and processing.
- e. Continuing efforts to reduce informality of jobs. Many of the above-mentioned measures would help reduce some of the costs of formality, encouraging farmers and agri-food enterprises to register their workers. Formality of jobs will also increase along with more predictable investment climate, higher FDIs, and safeguard of property and land rights. The recent gains in increasing attractiveness for informal and self-employed people and firms to register discussed in this Report will need to be preserved and deepened by strengthening the capacity of public institutions to develop enabling regulations and improve coordination between levels of government.

⁹² The draft Law on Dehkan Farms, currently under consideration of the Parliament, includes the provision for allowing dehkan farms to lease up to 10 ha of farmland for producing various crop products.

UZBEKISTAN

AGRI-FOOD JOB DIAGNOSTIC

Jobs are among the most important economic and social concerns in Uzbekistan, and job creation has been one of the biggest priorities of the government since the launch of the economic reforms in 2017. This Report shows a tremendous opportunity for Uzbekistan to generate more jobs in primary agriculture over the next ten years, leading to job creation in the entire agri-food system. The Report begins with setting up the framework for job creation in rural Uzbekistan in Chapter 2 and a brief discussion of the concept of job creation, which goes beyond the number of jobs and includes quality, inclusiveness, and sustainability. Chapter 3 presents the current situation with jobs in primary agriculture of Uzbekistan. This chapter fills a large knowledge gap by presenting disaggregated data and analyses to improve understanding of the nature and quality of agricultural jobs. Chapter 4 discusses the future of agricultural jobs by 2030. Chapter 5 presents a jobs diagnostic in food and light industries (such as textile and apparel), which are closely linked to the success of agriculture, while Chapter 6 discusses an outlook for job creation in these industries. Chapter 7 presents conclusions and recommendations on priority actions for Uzbekistan's government to help create good jobs in the agri-food sector.