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Gender gaps in Central Asia: A reassessment[1]

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Abstract

The article reviews the latest available statistical information on gender inequalities in labor markets and in access to financial institutions, social services, and education. After a general review of agricultural development, household food security and rural poverty, population structure, and labor outmigration in Central Asia, the article examines the women's role in the labor market, including both formal and informal female employment, the feminization of agriculture in the region, gender gaps in education and wages, and constraints on women's access to extension services and land ownership. It is observed that women's asset ownership rights and their access to supply and product markets are constrained by social norms. The article concludes with some conclusions and policy recommendations. This reassessment is designed to strengthen the qualitative approaches of the gender literature with some quantitative approaches from agricultural and development economics.

Keywords: gender inequality, gender discrimination, female employment, women's access to education, asset ownership, feminization of agriculture.

Paper type: Research article.

[1] This article is based in part on presentations at the International Forum "Food Policy, Rural Development and Gender Equality in Eastern Europe, Caucasus and Central Asia: current trends and the impact of the Covid-19 pandemic" (10-17 March 2021, three webinars) organized by the Food and Agriculture Organization of the United Nations (FAO) in collaboration with the National Research University Higher School of Economics (HSE) in Moscow. The Forum papers cited by presenter's name and date (2021, March xx) are the major resource for the original research presented in this article, and they all can be found on https://inagres.hse.ru/en/faogenderwebinars/#usefulmaterials under Speakers' presentations. The author is grateful to the Forum coordinators Dono Abdurazakova and Anna Jenderedjian of FAO/REUT for the insightful and thought-provoking comments they offered during the review of earlier versions of the manuscript. Alexey Naumov of HSE liaised between the presenters and the author. The useful comments of two anonymous referees and the journal Editor are gratefully acknowledged. All opinions expressed in this article are solely the author's and do not reflect in any way the policies of FAO or HSE

1. General regional issues

The five former-Soviet countries in Central Asia – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – are typically viewed as patriarchal societies in which women are relegated to housework and family care, without decision-making powers over assets or production activities. This stylized view of Central Asian societies implies that women experience inequality in the labor market, in access to financial institutions, social services, and education. Societal norms constrain women's asset ownership rights and their access to supply and product markets. The present article reviews the latest available statistical information on gender gaps in these areas and examines how reality compares to stylized expectations.

The Central Asian countries exhibit increased sensitivity to gender issues in recent years, which is reflected in the reasonable availability of gender-related information on the official statistical websites. Among various official sources, the article particularly relies on the series of "women and men" yearbooks published on the websites of the statistical committees of all Central Asian countries (except Turkmenistan). The country statistical yearbooks are also extensively used for non-gender-related data.

The paper starts with a general review of the main topics relevant for Central Asia, which include agricultural development, household food security and rural poverty, population structure, and labor outmigration. It then proceeds to examine more closely the women's role in the labor market, including both formal and informal female employment, the feminization of agriculture in the region, gender gaps in education and wages, and constraints on women's access to extension services and land ownership.[2] The article concludes with some conclusions and policy recommendations. This reassessment is designed to strengthen the qualitative approaches of the gender literature with some quantitative approaches from agricultural and development economics.

1.1. Agricultural development trends

The agriculture and food sector in Central Asia, as part of the broader ECA region,[3] has been undergoing a radical transition since the early 1990s, which is often characterized as involving the "individualization" of agriculture. The transition reforms in agriculture aimed to improve agricultural productivity (which had been persistently low by international standards), food supply and distribution, food security, and general nutrition. The transition has produced a meaningful shift from production in large corporate farms to smallholder family farms, which are now the dominant category of producers in the region – the new face of ECA agriculture.

Agriculture in all ECA countries suffered an initial decline with the breakdown of the Soviet system in 1990, which eventually changed to recovery. The depth of the decline differed

[2] In this paper, sex and gender are treated in a strictly binary paradigm. There is no attempt to discuss the nuances of these two concepts

[3] The ECA region for the purpose of this article includes the 29 formerly socialist countries in Europe and Central Asia that began the process of transition from plan to market in 1989-1991. These are the twelve countries of the Commonwealth of Independent States (CIS), the three Baltic States, the six countries of Central-Eastern Europe (CEE), and the eight in Western Balkans. Both EU members and non-members in CEE and Western Balkans are included, although the current World Bank classification omits the EU members (but includes Turkey).

in different countries, and recovery also began in different years. The turnaround point came as early as 1995 in Uzbekistan and as late as 1999 in Kazakhstan; see Table I). The agricultural gross value added (GVA) had declined by about 50% in Kazakhstan and Tajikistan before the recovery began and by much smaller magnitudes for Kyrgyzstan and Uzbekistan (Figure 1). After the turnaround point, GVA generally went up in all these countries. By 2019, however, only Uzbekistan had reached a higher GVA (relative to 1991=100) than the world average. Uzbekistan's GVA had doubled since 1991, while at the other extreme, Kazakhstan lagged far behind due to its sluggish and uneven growth: Kazakhstan's GVA had not even returned to the pre-transition 1991 level by 2019.[4] These GVA growth trends are illustrated in Figure 1 (excluding Turkmenistan).

Table I. Annual average growth of agriculture value added by development stages, 1991-2019, %. Source: Romashkin (2021).

	Kazakhstan		Kyrgyzstan		Tajikistan		Uzbekistan	
Stages	Period	Growth rates	Period	Growth rates	Period	Growth rates	Period	Growth rates
Entire period	1991-2019	0.8	1991-2019	1.9	1991-2018	3.0	1991-2019	3.8
Decline	1991-1998	-8.9	1991-1995	-5.9	1991-1996	-12.5	1991-1994	-6.2
Recovery	1999-2018	4.8	1996-1998	10.1	1997-2007	7.6	1995-1998	1.6
Growth			1999-2004	4.8	2008-2018	6.8	1999-2016	6.0
Post growth			2005-2019	1.7			2017-2019	1.3

No data for Turkmenistan.

[4] After the collapse of USSR in 1991-1992, Kazakhstan lost its leading role as one of the main grain suppliers to the former Soviet republics (along with Ukraine). The change in demand patterns adversely affected Kazakhstan's agricultural growth.

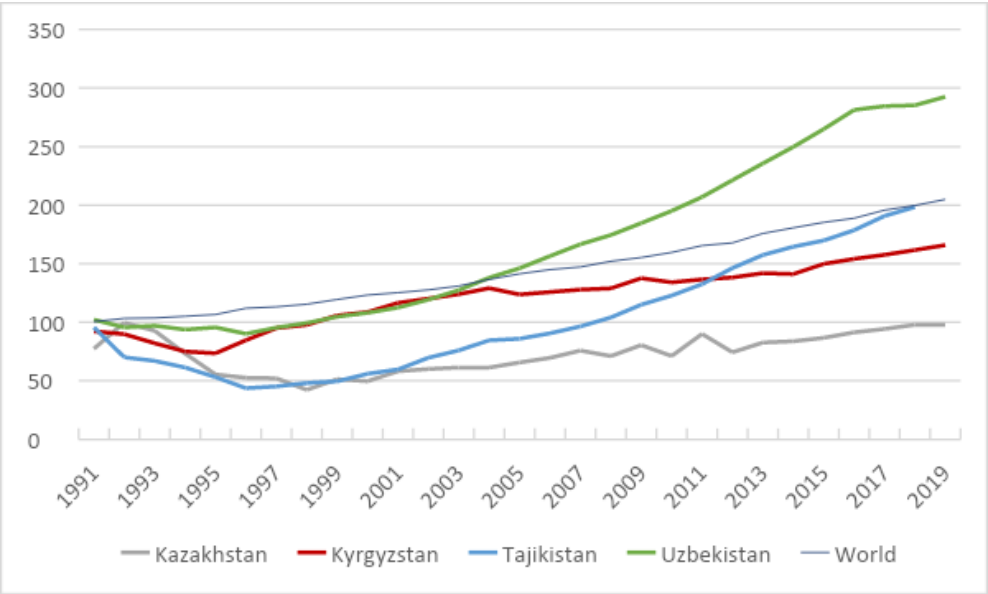

Figure 1. Cumulative growth of agriculture value added in percent (1990=100) (Romashkin, 2021).

The importance of agriculture in a country's economy can be measured by the share of agriculture in GVA (Gross Value Added – the major component of GDP – Gross Domestic Product). The four Central Asian countries surveyed fall into two distinct groups by their agrarian profile: Kyrgyzstan, Tajikistan, and Uzbekistan can be characterized as highly agrarian countries, with the share of agriculture in GVA averaging 25% between 2000 and 2016, while for Kazakhstan agriculture is much less important (6% of GVA averaged over the same period, due to its large energy reserves). The share of agriculture in GVA generally decreased over time, except in Tajikistan, where it fluctuated between 20% and 25% (Figure 2). The decrease in the importance of agriculture overtime points to a corresponding increase in the share of other sectors – industry and services – in the region's economy as the countries progress along the economic development path. This conclusion is supported by the pronounced decrease in the share of agricultural employment in all Central Asian countries except Uzbekistan. Thus, the average share of agriculturally employed in Kazakhstan, Kyrgyzstan, and Tajikistan, decreased from 38% in 2016 to 31% in 2016, while in Uzbekistan, it increased by a fraction of one percent.[5] Despite the differences in the share of agriculture in GVA, agriculture remains the primary source for livelihoods and income generation for millions of rural populations across the ECA region.

It is noteworthy that the share of Kazakhstan's agriculture in GVA is comparable to that in Russia, both in magnitude and its behavior over time. The curve for Kazakhstan closely tracks the curve for Russia between 2000 and 2016 (Figure 2). The similarities between Kazakhstan and Russia are a well-known feature of the Central Asia region, where Kazakhstan

[5] Despite the small number of observations in the pooled sample (four countries with data for five years each), there is a strong positive correlation between log agricultural RVA (expressed in current U.S. dollars) and agricultural employment in absolute values. The correlation coefficient is 0.95 with $p < 0.001$.

is closer to Russia than to its neighbors by many variables,[6] in part due to its formerly large Russian population.

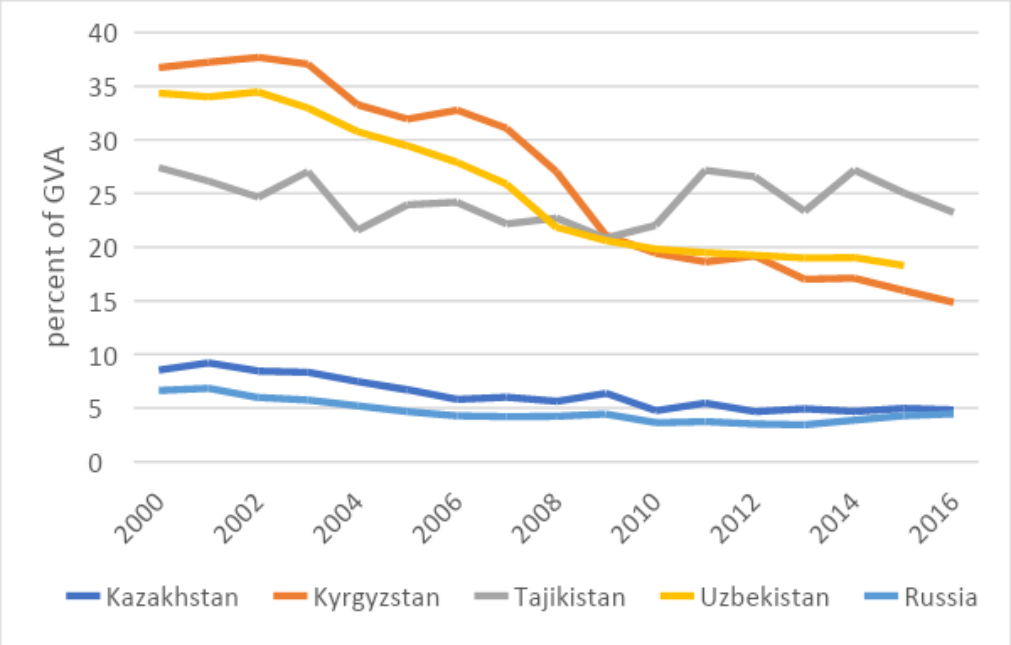

Figure 2. Share of agriculture in GVA: Central Asia and Russia 2000-2016 (in %).

1.2. Household welfare, food security, and rural poverty

Despite significant agricultural growth, all the countries studied had a relatively low gross national income per capita, ranging in 2019 from a low of $1,000 for Tajikistan to a high of $9,000 for Kazakhstan, compared with the world average of $11,500 (World Bank, 2019a). Kazakhstan and Turkmenistan (with GNI per capita close to $7,000) fell in the Upper-Middle income group, with Kyrgyzstan and Uzbekistan classified as Lower-Middle income and Tajikistan as Lower income (World Bank, 2021). The poverty ratio as measured at national poverty lines was in the single-digit range only for Kazakhstan (a country rich in energy resources). For the other countries, it ranged from 14% (for Uzbekistan, another resource-rich country) to 20% and higher for the rest, revealing the usual inverse relationship between the per capita income and the share of agriculture in the economy.

The integrated food and nutrition security index (which combines food availability, accessibility, stability, and utilization) was estimated at 0.7-0.8 for the region (1 signifies complete food security) (Romashkin, 2021). Regarding nutrition issues, no pronounced gender aspects were observed for the prevalence of overweight, whereas the prevalence of obesity was higher for females in each of the countries studied (Figure 3). These regional gender gaps are consistent with the world averages, where no gender differences are observed for overweight

[6] Cluster analysis consistently puts Kazakhstan in one group with Russia and other European CIS, rather than with its Central Asian neighbors (see, e.g., Lerman et al., 2004, pp. 174-191).

(39% for both sexes), and obesity is higher for females (15% compared with 11% for males). Figure 3 shows that both measures were consistently higher than the world averages for males and females.

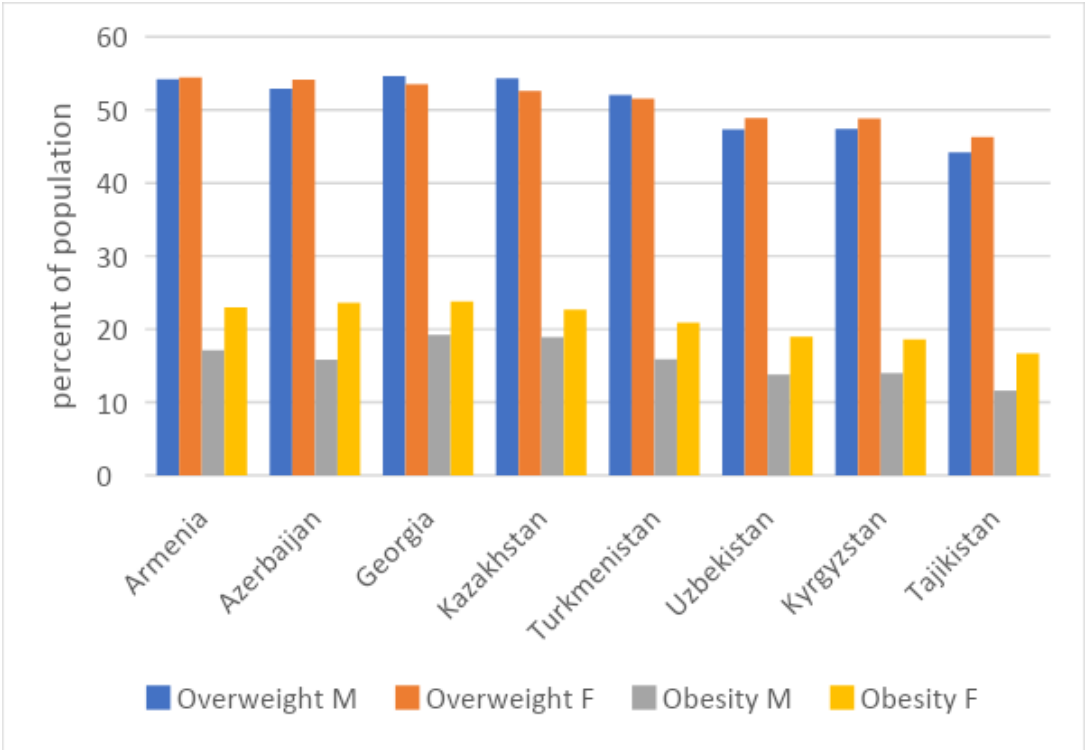

Figure 3. Prevalence of overweight and obesity in South Caucasus and Central Asia by gender, in % (2016). Romashkin (2021).
Legend: M = male; F = female.

There are indications that poverty is more pronounced in rural areas, and especially in female-headed rural households. Statistical data on this issue are sparse. In Kazakhstan, for instance, despite impressive decreases in poverty since 2005, rural poverty remains higher than urban poverty: the corresponding poverty rates in 2010 were 10% for rural areas (down from 24% in 2005) and under 4% for urban areas (down from 14% in 2005) (ADB Kazakhstan, 2016). In Kyrgyzstan, rural poverty was consistently higher than urban poverty during the decade between 2006 and 2015 (no later data are available), averaging 39% for rural and 27% for urban (World Bank, 2015). Rural poverty in Kyrgyzstan was decreasing during this period, and in recent years poverty in both rural and urban areas has shown convergence to a common level of 30%.

1.3. Rural population: women and men

Uzbekistan has the largest rural population in the region, and Turkmenistan the smallest (Table II). The rural population in all Central Asian countries, except Kazakhstan, was growing rapidly between 1991 and 2015. In this respect also, Kazakhstan, with its stagnating rural population, is much closer to Russia than to its neighbors.

In all Central Asian countries, women account for half the rural population, generally with minor changes between 1991 and 2015. Women constitute an important economic resource, providing a large pool of labor for economic and social activities in the region. Unfortunately, this resource remains largely untapped because of societal norms in patriarchal societies that tend to keep women away from the workplace. Indeed, the share of women in total and agricultural employment is substantially less than their share in the rural population (averaging 40% compared to 50%, respectively; see Table V).

Table II. Rural population structure 1990-2015 (countries ordered by 2015 rural population). Source: ILO (2021a).

Country	Rural population, thousands			Share of women, %	
	1990	2015	Change 2015/1991, %	1990	2015
Uzbekistan	12,204	19,682	61.3	50.2	49.9
Kazakhstan	7,165	8,216	14.7	50.3	49.8
Tajikistan	3,611	6,190	71.4	50.1	49.5
Kyrgyzstan	2,721	3,831	40.8	50.1	49.3
Turkmenistan	2,023	2,781	37.4	50.8	50.6

1.4. Migration and remittances

The migration of wage-earners – primarily men – from Central Asia to other countries in search of work and alternative income sources is a well-established phenomenon. Low salaries and scarcity of jobs are the main drivers of outmigration.[7] Given the higher rates of rural poverty, a large share of labor migrants in the ECA region are from rural areas (FAO, 2018).

Russia is the major destination country for migrants from Central Asia (FAO, 2018). Labor migrants from Kyrgyzstan, Tajikistan, and Uzbekistan in 2020 account for about 80% of all first-time entrants to Russia (calculated from Russia migration indicators (2020)). Table III shows that the largest groups of Central Asian migrants in Russia are from Tajikistan, Kyrgyzstan, and Uzbekistan: their numbers reach 8%-10% of the respective populations of these countries.

[7] According to Mukhamedova (2021), monthly salaries in Tajikistan were in the range of $40 in 2019. Over 800,000 people, mostly men, migrated out of the country in search of employment, predominantly to Russia. The male migration rate in Tajikistan around 2015 was 36%, reaching 39% in Khatlon Province (Francisco and Bakanova, 2014).

Table III. Estimated numbers of labor migrants from Central Asia in Russia (as of mid-2017). Source: FAO (2018).

Country	Population, '000	Number of migrants, '000	% of country's population
Tajikistan	8,700	900	10.3
Kyrgyzstan	6,000	500	8.3
Uzbekistan	31,800	2,500	7.9
Kazakhstan	17,800	500	2.8
Turkmenistan	5,500	10	0.2

The face of labor migration in Kyrgyzstan, Tajikistan, and Uzbekistan is predominantly male (up to 90% in Tajikistan). Nevertheless, the share of women migrating independently as labor migrants, rather than as family dependents, is growing (it increased from 10% to 15% in Tajikistan, for example, and up to 40% in Kyrgyzstan). These female labor migrants send remittances and support their families from abroad, just like men. In a certain sense, one is witnessing a process of gradual feminization of migration (FAO, 2018).

Migrants remit their earnings to the families back home, contributing to household income and the country's GDP. Remittance money largely serves as a wage supplement for consumption and household expenses in the absence of the male wage earner, but evidence on the ground shows that remittances are also used for investment in construction, land acquisition, and farm machinery. Since migrants are mostly men, the number of female-headed households as remittance recipients has been increasing (especially in Kyrgyzstan, Tajikistan, and Uzbekistan), and this has led to a substantial increase in women's responsibilities in managing household tasks as well as agriculture.

For the Central Asian countries (excluding Turkmenistan, where no data are available), the average share of remittances in GDP is 18% (TheGlobalEconomy, 2019). In Kazakhstan – a resource-rich country – the share of remittances is a mere 0.3% of GDP, much below the average. There is a substantial gap in the share of remittances in GDP between Central Asia (18% on average) and Eastern Europe. For the EU members in Eastern Europe, the average share of remittance in GDP is 2.7%, while the non-EU members in Eastern Europe (such as Albania, Bosnia-Herzegovina, and Serbia) average 4.6%. The economic role of labor migrants is thus much higher in Central Asia (except for Kazakhstan) than in Eastern Europe.

Central Asian migrants in Russia are the main source of remittances for Tajikistan, Kyrgyzstan, and Uzbekistan. The remittances to these countries are therefore highly vulnerable to economic and financial crises in Russia. During the 2015 financial crisis in Russia, the volume of U.S. dollar remittances to these countries dropped by 42% because of the steep devaluation of the Russian ruble, although the ruble remittances decreased by 7% only.

The remittances to Central Asia were also reduced by the COVID-19 pandemic that hit Russia in 2020. Ruble remittances to Kyrgyzstan, Tajikistan, and Uzbekistan dropped by 18% – from 267 billion rubles in January-July 2019 to 220 billion rubles in the corresponding seven months of 2020. Since June 2020, as the pandemic is being brought under better control, the

remittances from Russia to CIS countries have been increasing, and by now they have substantially exceeded the 2019 level. The remittances from Russia increased by nearly 20% in dollar terms, rising from $527 million in June 2019 to $631 million in June 2020.

2. The role of women in food systems and rural development

The role of women dramatically changed in the new predominantly smallholder structure that has emerged in the region since 1992: from employees of collective and state farms with part-time agricultural work on a small "subsidiary" household plot, women transformed into full-fledged workers on family farms that included the former household plot after substantial enlargement. They now work alongside the man of the family on the farm, reinforced by their children. In addition, they continue to shoulder the duties of housekeeping and childcare that they were responsible for before the transition. All this leaves very little time for women to pursue remunerative outside work or personal interests. Nevertheless, anecdotal evidence suggests that women are eager to work or study outside the home and thus prepare for new opportunities. There is a growing recognition of women's potential in agricultural entrepreneurship and management, especially in organic farming, agroecology, and agritourism.

Women are the terminal node in the food system. In most countries of the region, women determine what people eat and how much they buy. The realization of this function is central to the discussion of women's role in food systems (Serova, 2021). The important role of women in the food system extends to the traditional areas of growing the food we eat, buying, processing, and cooking the food.

The roles of rural women in the household include a formidable list of tasks (Mukhamedova, 2021):

- Responsible for household tasks and child, seniors' care
- Securing food for the family: growing potatoes, vegetables, and fruits on the household plot for family consumption
- Securing water for household drinking and for subsistence farm irrigation (fetching water, storing water)
- Preparing food for winter (food processing, drying, pickling, storing)
- Collection of cotton stems as firewood for cooking and heating

Women are also active in community agri-food systems. They may act as conservators of heirloom seed varieties, as carriers of indigenous folk traditions, as teachers and educators, cooperators, or gender activists (Kanshieva, 2021). Women sometimes oversee the distribution of seeds and seedlings by liaising between suppliers and small users, organize food banks for the poor and elderly, promote farm-to-table home delivery initiatives for food products (Duminicioiu, 2021). On the farm, women are often the carriers of innovation, advocating organic farming, apiculture, or the introduction of medicinal plants.

2.1. Women's employment in agriculture and opportunities

The absolute number of women employed in agriculture changed unevenly between 1991 and 2019 across the five countries (Figure 4) (ILO, 2021b). Two countries (Kazakhstan and Kyrgyzstan) experienced a decrease in women's agricultural employment by about 50% on average; see Table IV), in two of the other three countries (Tajikistan and Turkmenistan), the number of women in agriculture increased (by nearly 30% on average), and in Uzbekistan, the number of women employed in agriculture remained unchanged between 1991 and 2019.

The changes in female agricultural employment diverged from the changes in women's total employment in the countries surveyed (Table IV). The most notable difference was observed for Uzbekistan, where the women's total employment increased by more than 70% between 1991 and 2019, while the women's employment in agriculture remained practically unchanged. In Tajikistan and Turkmenistan, women's agricultural employment increased by around 30% on average, but total female employment also increased by more than 70%. In Kazakhstan and Kyrgyzstan, women's agricultural employment decreased (by about 50% on average) while total female employment increased (by more than 20% on average). These results indicate that between 1991-2019 women found non-agricultural sectors much more attractive than traditional agriculture. Women are penetrating the non-agricultural job market, although average numbers may hide barriers in access to specific occupations. Overall, however, there is no evidence of pronounced barriers to women's non-agricultural employment.

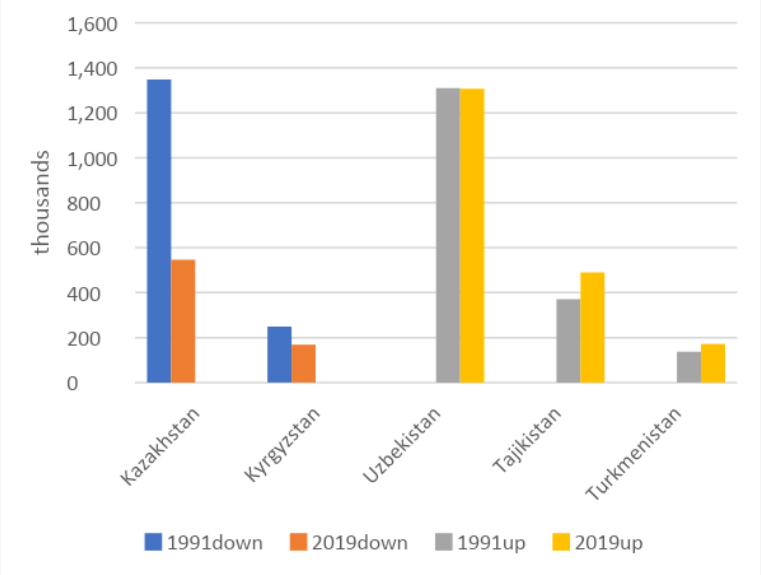

Figure 4. Change in female employment in agriculture 1992-2019 (thousands of women). Left half of the figure: countries showing a decrease in female employment; right half: countries showing an increase in female employment. Source: ILO (2021b).

Table IV. Changes in female total and agricultural employment between 1991-2019 (%). Source: ILO (2021b).

	Change in women's agricultural employment (WAE)	Change in women's total employment
Kazakhstan	-59.4	8.1
Kyrgyzstan	-32.4	33.0
Negative change in WAE	*average -45.9*	*average +20.6*
Uzbekistan	-0.2	72.5
No change in WAE		
Tajikistan	31.8	70.4
Turkmenistan	25.4	72.7
Positive change in WAE	*average +28.6*	*average +71.6*

Note: The Spearman rank correlation coefficient between the two series is 0.70. The Pearson linear correlation coefficient is 0.94. Changes in women's agricultural employment are thus closely correlated with changes in women's total employment across the four countries, the observed divergences notwithstanding.

Kazakhstan reported the greatest decrease in the number of agriculturally employed women: 59% between 1992 and 2019. In the same period, female employment in Kazakhstan increased by 9%, on a par with the increase in total employment of both men and women. Thus, although, on average, there seem to be no gender gaps in the labor market in Kazakhstan, the growth of total female employment in all sectors (335,000 women) absorbed only one-half of the women who lost their jobs in agriculture (840,000) (ILO, 2021b). The under absorption of women leaving agriculture in other sectors is an indication of barriers in women's access to non-agricultural jobs.

The share of women employed in agriculture (a relative measure of female agricultural employment) was around 40%-50% of the total employment. This share decreased between 1991 and 2019 in all countries under study except Turkmenistan, where women's share in agricultural employment increased from 32% to 36% (Table V). There was a slight overall decrease in the share of women employed in agriculture (from 43% to 41%, averaged over the region's countries), while the share of women in total employment remained practically stable at 41% (Table V). These differences in the share of women in agriculture and the total labor market again suggest that female agricultural employment is decreasing and that women move to non-agricultural occupations.

Table V. Share of women in total and agricultural employment 1991 and 2019 (%). Source: ILO (2021b).

	In total employment		In agricultural employment	
	1991	2019	1991	2019
Kazakhstan	48.1	47.8	46.0	42.6
Kyrgyzstan	40.3	37.7	43.6	36.7
Tajikistan	35.5	37.5	51.8	50.3
Turkmenistan	38.9	40.1	32.0	36.3
Uzbekistan	40.5	40.2	42.2	37.2
Average (unweighted)	**40.7**	**40.6**	**43.1**	**40.6**

2.2. Informality of female employment

The feminization of agriculture follows a pattern of informal arrangements. Women frequently engage in informal daily work rather than permanent positions. The informal-employment pattern may have been imposed on women by limited opportunities for permanent jobs: outside employers are reluctant to hire women because of their household-work and childcare obligations. The number of females is rising in conventionally male-dominated positions in Tajikistan (day laborers – mardikors, water masters – mirobs, irrigation fee collectors). It appears that male-dominated positions are considered to be temporarily feminized, and it is not clear what happens when migrants come back (Mukhamedova, 2021). Perhaps these low-paid jobs will be permanently left to women.

Labor force surveys (ILO) and time use surveys (UN) try to capture as fully as possible all self-employed activities, including, e.g., food preparation and unpaid work on the family farm. Still, female employment numbers in agriculture may be biased downward because many women declare their work status inactive despite their dominant role in unpaid activities, such as production on the family farm, food preparation for the family, and all other household chores.[8] Some decision-makers in the region argue that women staying at home do an important service to society, which otherwise would have fallen on the state budget.

Many rural women statistically classified as inactive may, in fact, work as farmers on their account or as unpaid family or seasonal wage workers. Because of the burden of housework, women generally settle into short-time daily or seasonal work. Such employment is informal by its very nature, and women are less likely to declare themselves formally employed in the agricultural sector. Studies indicate that some 70% of economically active women in Northern and Southern Tajikistan are employed informally in agriculture (Mukhamedova, 2021).

[8] Women in Tajikistan work a total of 9.6 hours daily, while men work 7.4 hours. Unpaid domestic and care work takes up 6.8 hours daily for women (70% of total daily hours worked) and a mere 0.8 hours for men (10% of daily hours worked). Food preparation and child care are the main components of women's unpaid housework; these tasks take up two-thirds of the total time devoted to housework.

A broader regional analysis by ILO (2018) suggests that the share of informally employed in Central Asia (43.4% of total employment) and Eastern Europe (31.5%) is substantially higher than the regional average for ECA (25.1%). Informal employment In Central Asia represents a greater source of employment for women (47.3%) than men (41.1%). The situation reverses when agriculture is excluded (31.7% informal employment for men in non-agricultural occupations and 30.1% for women), which essentially implies that female informal employment in agriculture is higher than the average share of 47.3% above. Figure 5 summarizes the ILO findings on informal employment in Eastern Europe and Central Asia.

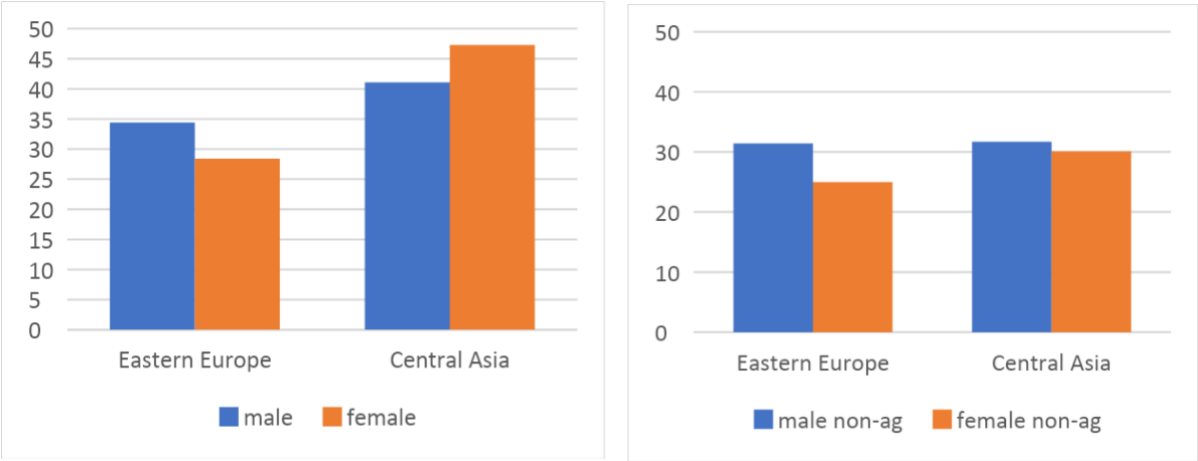

Figure 5. Informal employment (in % of total employment) by gender: Eastern Europe and Central Asia. Left panel: all sectors, including agriculture; right panel: excluding agriculture.

Although informally employed women receive a wage that adds to household income, the very nature of informal employment deprives them of all social benefits, such as sick leave, vacation, rest breaks, health insurance, or pension accrual. The physical conditions of the informally employed are usually harsh, such as exposure to extreme heat during long hours of daily fieldwork, often leading to heat exhaustion, lack of toilets and rest facilities in the field, and more (Mukhamedova, 2021). The lack of social benefits and the inadequate working conditions faced by the informally employed explains why ILO increasingly views the transition to formality, especially in agriculture, as a central goal in national employment policies (ILO, 2014).

There is no clear gender pattern in rural adult unemployment in Central Asia (Table VI). Turkmenistan, Tajikistan, and Uzbekistan have more male unemployed, while the percentage of women unemployed is slightly higher in Kazakhstan and substantially higher in Kyrgyzstan (Figure 6). It is noteworthy that the male unemployment rate is positively correlated with the outmigration rate (last column in Table VI, imported from Table III). The high linear correlation coefficient (0.91) confirms that domestic male unemployment – i.e., lack of job opportunities – is a driver of outmigration.

Table VI. Rural unemployment rates (2019) and outmigration rates (%)

Country	Youth (age 15-24)		Adult population (age 25+)		Migrants (% of population, see Table III)
	Male	Female	Male	Female	
Kazakhstan	1.9	2.1	3.0	3.8	2.8
Kyrgyzstan	11.1	20.7	3.5	6.0	8.3
Tajikistan	9.0	6.8	3.9	2.1	10.3
Turkmenistan	6.3	3.3	2.6	0.8	0.2
Uzbekistan	7.5	8.4	3.1	2.9	7.9
Average (unweighted)	**7.2**	**8.3**	**3.2**	**3.1**	**5.9**

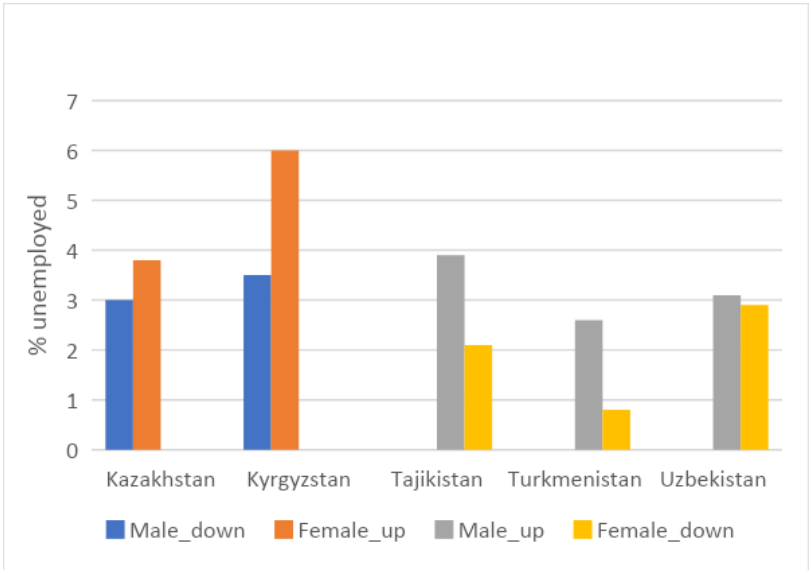

Figure 6. Rural adult unemployment rate by gender by country 2019 (in %)

Among the youth (ages 15-24), females dominate the unemployed in Kyrgyzstan, Kazakhstan, and Uzbekistan. Male unemployed are the majority among the youth in Turkmenistan and Tajikistan (Table VI). The rural youth unemployment rate averaged over the region is higher for females than for males (13% compared with 10%, respectively). The observed employment discrimination of young women may reflect restricted education and professional training options for females. The regional-average rural unemployment rate is higher for the youth than for adults: two-digit for the rural youth versus one-digit for rural adults (Figure 7).

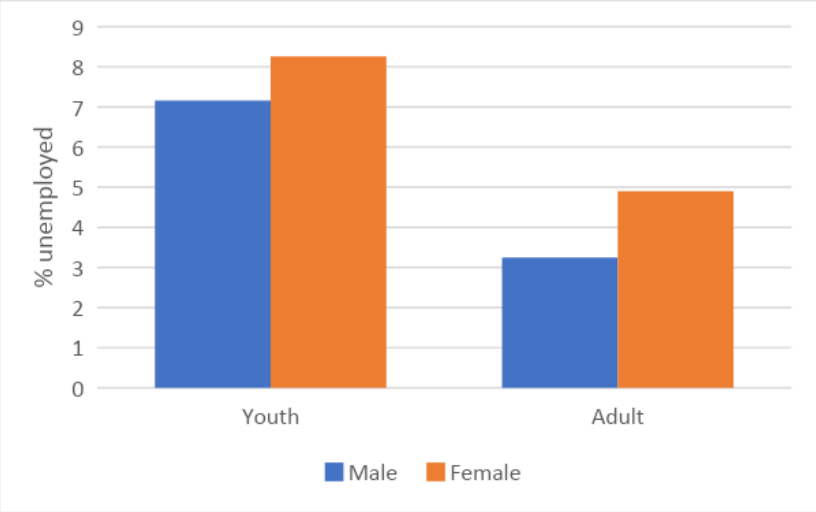

Figure 7. Rural youth and adult unemployment rates by gender, regional averages for 2019 (in %).

2.3. Feminization of agriculture in the region

Women are key actors in agriculture and rural development and make a fundamental contribution to food security, both in their families and society. The centrality of the women's role is especially true in the context of family farming. Women make up a significant share of the agricultural labor force in developing countries, where it ranges from 20% in Latin America and 43% in North Africa to 50% in Eastern Asia and Sub-Saharan Africa (Petrics, 2021). The share of agriculturally employed women in Central Asia is 40%-50% (Table V). Women are now the face of farming across the region (Mukhamedova, 2021) and these numbers can be interpreted as the feminization of agriculture in Central Asia.[9] The massive outmigration of men searching for jobs and income sources is one of the major drivers of this phenomenon, but it is also influenced by demographic factors, such as low fertility that leads to the aging of the population and the longer life expectancy of women than men. In Central Asia (excluding Turkmenistan), female life expectancy at birth is 75, whereas the life expectancy of men is between 66 and 71 (averages for 2000-2018) (CISstat, 2019).

The productivity of female-headed farms measured by yields and per hectare sales is generally lower than the productivity of male-headed farms (see, e.g., Gebre et al., 2021). Although the author is not aware of specific research on this issue in Central Asia, a more careful econometric analysis shows that, outside the region, female-headed farms achieve lower productivity not because of an intrinsic male-female gap in abilities, experience, or intensity of involvement, but because of restricted access to inputs, credit, education, and other resources (see, e.g., Doss (2018)). The conclusion is that female-headed farms would be as productive as male-headed farms if allowed equal access to resources, including land, water, farm inputs, financial services, and no less important education and skill development. Given the observed

[9] However, this does not signify a consistent trend of an increasing share of women employed in agriculture over time. Not all the countries reported lower female employment shares in 1991 than in 2019.

feminization of agriculture, government policies should ensure equal access to market services for all women-headed households.

2.4. The growing role of women in agricultural entrepreneurship and management

Although the share of women entrepreneurs in the private sector in Tajikistan almost tripled from 12% in 2010 to 35% in 2019 (these numbers include small and medium-sized enterprises), women are still a minority among farmers who lead and own the agricultural value chains (Karimova, 2021). A strong presence of women entrepreneurs is traditionally observed in the trade sector (women head 46% of enterprises), the services sector (26%), and agriculture (19% of 133,016 dehkan farms). In recent years, there has been emergence of rural women entrepreneurship in new sectors, such as construction, transport and logistics, information technologies, medicine, tourism, finance, and manufacturing (see Karimova, 2021; Tajikistan National Review, 2020, p. 25).

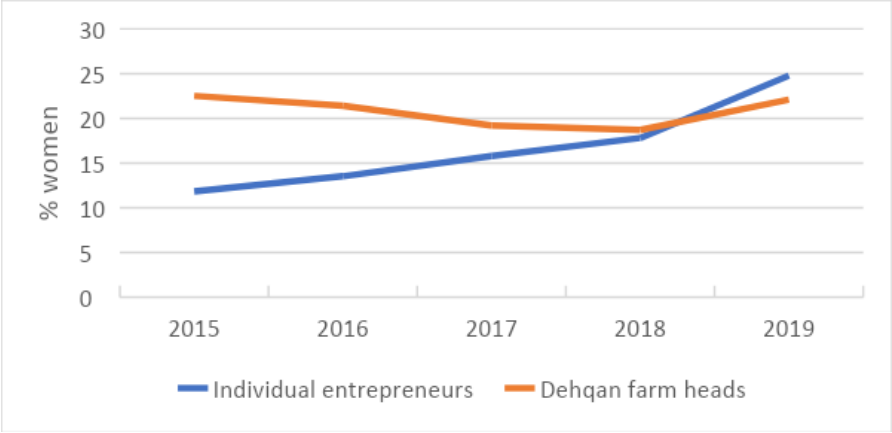

Figure 8. Share of women entrepreneurs in Tajikistan's agriculture 2015-2019 (TajGender, 2020).

In Tajikistan, the number of women registered as owners of individual enterprises[10] increased substantially in recent years: from about 14,000 in 2015 to nearly 35,000 in 2019. Women's share among individual entrepreneurs rose from 12% in 2015 to 25% in 2019 (Figure 8). The share of women managing farms remained fairly steady at about 20% from 2015 to 2019.

Outside Central Asia, in Russia, the share of women in key administrative positions in agriculture and rural development is high at all levels: about 60% at the federal level and 80% at the regional and municipal level (Table VII). There have been no notable changes in the share of women managers between 1999 and 2019 at all government levels. More than 10% of the 300 leading scientists in agricultural development are women (Ovchintseva, 2021). A similar

[10] Individual entrepreneurs in Tajikistan are classified into two tax regimes: patent holders (75%) and certificate holders (25%). Patent holders pay a fixed annual tax ("the patent price") independently of their income, whereas certificate holders submit an annual tax return. See TajResolution (2013).

situation is observed in other countries, where official statistics report the numbers of female parliamentarians and women in selected government positions (Umurzakov, 2021). However, no systematic information is reported on the vertical distribution of women in the respective hierarchies. Most women are apparently limited to the lower rungs of the administrative ladder.

Table VII. Percentage of women employed in government positions in Russia. Source: Ovchintseva (2021), based on Composition of employees (2009, 2019).

Government level	1999	2009	2019
Federal	55	58.6	59.1
MinAg	--	--	67.2
Regional	75.3	72	74.7
Municipal	75.9	75.6	77.1

2.5. Prevailing gender norms in the region

Women are traditionally viewed as unpaid labor charged full time with the house and family care. In countries with significant male outmigration (Kyrgyzstan, Tajikistan, Uzbekistan), agricultural work on the family farm and the household plot is left on women's shoulders, contributing to what has been termed "feminization of agriculture" (see, e.g., Mukhamedova (2021)). Women also take a major part in selling the family farm output in the market because their time is regarded as less valuable than the time of men who can be freed for allegedly higher-paying activities. These female functions – agricultural production and trade – dramatically gain in importance as more men migrate in search of jobs and income sources.

Women may work outside the household not only in agricultural trade. Women are often hired by other farmers as informal daily or seasonal workers, but the number of women in managerial and ownership positions with decision-making power is limited. Some women engage in small-scale entrepreneurial activities, such as raising a few chickens in their backyard that produce eggs or meat for sale to outsiders or running a domestic micro-processing shop in the back room where they produce cheese, butter, yogurt, and cream from the surplus milk of their family cows. These activities greatly contribute to family food security and income, yet the earnings are traditionally owned and distributed by the man of the family – the person who holds the decision-making authority in the household. Women have no control over their earnings, either direct or indirect.

While agriculture is a traditionally female occupation, both in household-plot production and in work for hire on outside farms, other preferred female occupations are teaching, healthcare, and somewhat paradoxically accounting. Most primary school teachers are women. Women in accounting positions have been a familiar face since the Soviet times, and more recently, they learn the basics of computers and information technology in vocational training courses to fit better in the modern accounting environment. Regarding women in healthcare,

there is again absence of gender-disaggregated data, but the numbers available for two countries – Kyrgyzstan and Uzbekistan [11]– show that more than half the doctors in these countries are women, whereas the frequency of women in nursing reaches 94% (data only for Kyrgyzstan). The high share of female doctors is an average figure over many medical professions, and it should not be interpreted as a definite sign of equal access of women to all medical professions. It is argued (without statistical evidence) that women doctors work mainly in "lowly" specializations, such as pediatricians and generalists, whereas men dominate the more prestigious and higher-paying specialist positions, such as surgeons, neurologists, or orthopedic specialists. This differentiation is consistent with the conundrum of women's preferred fields of study discussed below.

3. Key areas of female discrimination

3.1. Gender gaps in education

Gender gaps in access to education plagued the Western countries until after World War I when it became acceptable for girls to go to school and even university. In the former Soviet Union republics, universal access to education has been guaranteed since the early 1920s. The effect of universal access is evident from the high literacy rates, which exceed 95% for boys and girls in the region, and from the generally balanced enrollment rates for boys and girls in elementary and secondary education. A recent FAO report (FAO, 2016, p. 6) using UNESCO data has found minimal gender gaps in secondary education in ECA, except for Tajikistan. In Tajikistan, boys are more likely to attend secondary school than girls (gender parity index 0.89 in 2011-12).

The average figures may hide local imbalances, especially in poor regions and remote rural localities, where poverty prevents parents from sending their children to school. When choices have to be made, the preference falls on boys rather than girls in prioritizing education opportunities. The same FAO report (FAO, 2016, p. 6) shows that the share of rural girls out of secondary schools is indeed higher in Uzbekistan and even more so in Tajikistan, but in Kazakhstan and Kyrgyzstan the situation is reversed: a higher percentage of rural boys are out of secondary school than girls. To put these findings in perspective, note that the share of out-school children of goth sexes is well below 5% in all countries, except Tajikistan, where the out-of-school rates are exceptionally high for girls: 12% for rural girls and almost 15% for urban girls (compared with just 7% for both rural and urban boys). It is thought that boys' education is a better investment for the family because, after completing their schooling, boys will stay in the household and help on the farm, while girls will marry and leave.

The considerations that prioritize boys over girls in general education are even more acute in connection with higher education, which is overall more expensive than basic education because it involves, as a minimum, the added expense of living outside the family home and

[11] For Kyrgyzstan, see KyrGender (2020); for Uzbekistan, see https://gender.stat.uz/ru/232-zdravookhranenie/1448-chislennost-vrachej-po-regionam-2019-godu.

traveling to school. Nevertheless, average country data, when available, fail to show significant barriers to women in access to higher education. Table VIII summarizes the gender gap in higher education in the countries surveyed. Based on averages, higher education appears to be male-dominated only in Uzbekistan. There are no indications of barriers to women's access to higher (and vocational) education in all other Central Asian countries. This average result could be the outcome of urban bias, with more urban than rural girls continuing with higher education. This conjecture could not be verified because of a lack of data on gender gaps in education by rural/urban classification for Central Asia.

Table VIII. Gender gaps in higher education in Southern Caucasus and Central Asia. Source: Education section in "Women and Men" yearbooks for the respective countries; no data for Turkmenistan.

Country	Female dominance	Gender neutrality	Male dominance	Notes
Kazakhstan	+			Both by share of students and share of 18-22 age group
Kyrgyzstan	+			Also for middle vocational education
Tajikistan		+		Gender neutrality after the share of female students jumped from 30% to 46% in 2013
Uzbekistan			+	Male dominance decreasing since 2016

Further refinement of statistical data is required to elucidate gender gaps in education for rural/urban populations. Further evidence putting the gender education gap in a favorable perspective is provided by UNESCO numbers (FAO, 2016, p. 7) that put the proportion of female tertiary graduates at well over 50% in most ECA countries. In Central Asia, this pattern includes Kazakhstan and Kyrgyzstan but not Tajikistan, Turkmenistan, and Uzbekistan (where the proportion of female tertiary graduates is below 40%).

Qualification-increasing training has always provided partial replacement to higher education for women. Professional courses have helped many women become accountants already in the Soviet times, and today they produce women computer specialists and IT experts. Recognizing the gender gaps in access to education, universities in Russia, Uzbekistan, and other countries in the region are implementing gender-sensitive programs for the professional advancement of women. Some of these initiatives have been discussed by university rectors in webinars 2 and 3. However, as in many other countries in the world, the outreach of these initiatives is limited and usually bypasses the most disadvantaged among poor rural women. One of the options is the adoption of special admission quotas for young women, as began to be implemented in Uzbekistan since the 2020/2021 school year (Umurzakov, 2021).

Kazakhstan's Nazarbayev University is at the forefront of applying a novel institutional framework for advancing women's equality in education. The framework is known as gender mainstreaming, with gender audits as the first stage in its implementation (CohenMiller and Lewis, 2019). Gender mainstreaming aims to incorporate a gender perspective (drawing on both women's and men's experiences, knowledge, and interests) into the processes of decision-making relating to legislation, policies, and programs (United Nations, 2002). Gender mainstreaming starts with a gender audit, which is an internal tool for organizations to identify how issues related to gender are addressed within the organization. The audit identifies areas of priority for action in improving gender equity within an organization and enables the organization to create action plans for addressing areas that need improvement. This institutional approach can be implemented in organizations and by governments to advance gender equality not only in education but also in all areas where gender gaps exist.

3.3. Gender biases in professional specialization

The average picture of minor gender gaps in education (see Table VIII) hides fundamental segregation in professional-specialization choices of men and women in higher education. Some data on this topic are available for Kazakhstan and Kyrgyzstan. In these countries, women tend toward education, healthcare, arts, and social sciences (including journalism). On the other hand, men prefer to study hard sciences, such as engineering, communication technology, and technical sciences. Business, economics, and management appear to be equally balanced between the sexes. Despite agriculture being regarded as a women's occupation, students in agricultural and veterinary sciences are predominantly men. As noted in an ADB report, fields of study are highly segregated by gender resulting in women mainly preparing for careers in lower-paid fields of education, health, and social services (ADB Azerbaijan, 2019, pp. xi-xii).

The gender-bias in professional specialization restricts the access of women to high-paying managerial positions. This bias is difficult to correct in the absence of suitable role models and mentoring mechanisms for female students in higher education in Central Asia. Hopefully, the expansion of gender mainstreaming will gradually reduce, if not eliminate, these deficiencies.

3.4. Restricted access to rural advisory and extension services

Rural advisory services (RAS) play a critical role in agricultural and rural development (Petrics, 2021). RAS connect producers, producer organizations, and other rural actors to the information, knowledge, technologies, and services they need to increase agricultural productivity. They also support farmers' effective linkages to markets. RAS are central to unlocking the potential of agricultural innovation and achieving FAO's mandate to end hunger and malnutrition and eradicate poverty.

Although women are major actors in agriculture and are key to ensuring food security, they generally have less access than men to RAS. Globally, only 5% of RAS resources target women. In the Europe and Central Asia region, only 10% of the RAS users are women. Common reasons for women's access barriers to RAS include limited mobility, limited access

to information sources, and heavy work burden arising from their multiple roles within households and communities.

Even when women can access RAS, these services may not necessarily respond to women's needs because they have been designed with the perception that the women's role is strictly related to growing food crops and to household nutrition and care. RAS and the information technologies and practices traditionally tend to be tailored to the needs of men as breadwinners and primary farmers. Women are not considered legitimate clients of RAS, and their needs are not even assessed.[12] Extension services tend to target women with information related to women's traditional care responsibilities because of the rigid gender norms that prescribe these female roles. The failure of RAS to effectively address the needs of women producers and ensure their unhindered access in most countries contributes significantly to the "gender gap" in agriculture whereby women producers underperform in family farming due to restricted access to resources and services. Therefore, it is crucial to make the information technologies, practices, and knowledge more pertinent and more responsive to the needs of both male and female farmers.

3.5. Restricted access to financial services

The prevailing sense in the gender literature is that women face substantial barriers in access to commercial banks and financial services. However, the reality is more nuanced. Account ownership in Central Asia increased from 2011 to 2017 for both men and women. By 2017, 43% of the adult female population and 46% of adult males in Central Asia owned a bank account. The gap in account ownership was thus minimal (at three percentage points), a pattern that persisted over the period 2011-2017 (World Bank, 2019b).

These average figures, however, hide larger differences in account ownership rates between countries. Thus, the account-ownership gender gaps in Tajikistan and Turkmenistan in 2017 are on the order of 10 percentage points, but the female ownership rates in these countries are also fairly high (42% of women account owners in Tajikistan and 36% in Turkmenistan). In Uzbekistan, the gender gaps are again minimal (2-3 percentage points, with women reporting slightly fewer accounts than men. Of course, there may be substantial hidden differences between districts, between poor and non-poor, or between rural and urban populations. However, the overall picture shows that women, on the whole, have reasonable access to account ownership and the gender gaps are small. The picture in countries surveyed contrasts favorably with another neighboring country – Turkey – where the ownership gap is as high as 30 percentage points (54% account-ownership rate for women versus 83% for men).

Unfortunately, there is no similar compendium of data on gender gaps in access to credit and borrowing. National statistics for Uzbekistan indicate that 67% of men and 65% of women have access to credit (UzbGender, 2018). Even where women are unable to borrow formally from commercial banks, they have access to microcredit organizations. Thus, in Tajikistan, 35%

[12] The lack of systematic assessment of women's needs in RAS has recently led FAO to develop the so-called GAST – The Gender and Rural Advisory Services Assessment Tool, which will provide inputs for gender-sensitive RAS design (http://www.fao.org/3/CA2693EN/ca2693en.pdf)

of borrowers from microcredit organizations were women (average for 2009-2019; see TajGender (2019)), and in Kyrgyzstan, the percentage of women microcredit borrowers reached 57% (average for 2015-2019; see KyrGender (2020)). Women entrepreneurs often have special access to grants and loans from earmarked support funds, such as the "Damu" fund for female entrepreneurs in Kazakhstan (KazFunds, 2021) or the new mortgage lending facility geared specifically to Kazakh women (KazMortgage, 2021). However, even these earmarked funds show signs of female discrimination: while 58% of the loans approved by "Damu" were channeled to women, the amount of these loans represented only 12% of all lending to both men and women.

3.6. Constraints to land ownership

Land ownership legislation throughout the region is gender-neutral. In law, women have the same rights as men. Unfortunately, there are hardly any gender-disaggregated data on land ownership in Central Asia. In Uzbekistan, for instance, only 23% of the adult landowners are women, and 77% are men (UzbGender, 2018).

Societal norms are the main barrier to female land ownership. In traditional patriarchal societies, family land is controlled by the eldest male member, regardless of formal titling and registration. Thus, even if a single woman legally owns a plot, it passes to collective family ownership when she marries. In addition, property laws specify joint ownership for married couples, effectively depriving women of any land they may have owned before marriage.

The barriers to female land ownership created by the societal norms are not amenable to quick fixes by legislation. These barriers may eventually disappear as women's empowerment grows and equality of women's rights becomes a new accepted norm.

3.7. Gender wage gaps

Statistics show that women are paid less than men for equivalent work. Women-to-men earnings ratios are between 60% (Tajikistan) and 75% (Kyrgyzstan).

The earning gaps may result from women gravitating toward lower-paying fields of work, such as education and healthcare. They may, however, be attributable to intrinsic discrimination of women in the workplace.

Gender gaps in wages are a worldwide phenomenon that has not been resolved even in developed societies. Legislation in Central Asia guarantees gender equality in the workplace, but in practice earning gaps persist. Continued women-rights activism and institutional gender-audit approaches may eventually level the playing field.

4. Conclusions

The Central Asian countries are typically viewed as patriarchal societies in which women are relegated to housework and family care, without decision-making powers over assets or production activities. This stylized view implies that women in these societies experience inequality in the labor market, access to financial institutions, social services, and education. Women's asset ownership rights are constrained by societal norms, and their access to supply

and product markets is restricted by the negative attitudes of men who feel that the woman's place is at home. Our review of the latest available information on gender gaps in these areas leads to the following conclusions on how reality compares to stylized expectations.

The clearest manifestation of labor market discrimination is the persistence of gender pay gaps: women are paid less than men for equivalent work. The earning gaps may result from women gravitating, by choice or otherwise, toward lower-paying fields of work, such as education and healthcare. They may, however, be attributable to intrinsic discrimination of women in the workplace. Legislation in the region guarantees gender equality in the workplace, but in practice earning gaps persist. Gender pay gaps exist even in developed societies. Continued women-rights activism and application of such institutional approaches as gender audits and gender mainstreaming may eventually level the playing ground.

Another manifestation of labor market discrimination is the predominant informality of female employment, especially in agriculture, where 40%-50% of the employed are women. Women in agriculture work in short-term, temporary positions that do not entitle them to sick leave, rest time, health insurance, or paid vacation. ILO identifies transition to formality in labor relations as one of the policy goals for the region.

Nevertheless, statistical data show that women have penetrated the non-agricultural job market. Women's total employment in the region increased by 30% between 1991 and 2019, while women's employment in agriculture decreased by about 14%. The increase in total employment in part comes at the expense of a decrease in agricultural employment, which is an indication of women's moving into non-agricultural occupations. The share of females in total employment has held steady at 43%, indicating that women's employment grew overtime at the same rate as men's.

The data on gender gaps in access to financial institutions are scant. Nevertheless, they seem to indicate that women borrow, certainly from microcredit institutions, and have access to support funds earmarked for women entrepreneurs. It cannot be ignored that women, especially rural women, are inexperienced in contact with formal financial institutions and are easily intimidated. They are often unable to cope with the required paperwork and may find it easier simply to give up instead of pursuing a loan application. Financial and business institutions should institute proper training programs for women, and bureaucratic procedures should be more woman-friendly.

Rural women often lack relevant skills for managing a business, be it a farm or a micro-dairy. Skills are acquired through formal education or professional training. All former Soviet countries have exceptionally high levels of literacy and basic education for both boys and girls. The enrollment in vocational and higher education is also high, and there are no gender gaps in graduation rates. Nevertheless, there are notable differences in the choice of fields of study and areas of specialization between women and men. Women tend to choose low-paid professions, such as teaching and healthcare, while men specialize in engineering, sciences, management, and high-earning medical professions. These professional choices preempt women's career options.

Women's professional profile and earning potential can be raised by training young women in information technologies, computers, and digitalization. These new directions require proper financial support and specially designed training programs.

There is a growing recognition among the decision-makers in Central Asia that the need has come to gradually change the traditional female role model by increasing women's decision-making powers in the family and strengthening their control of productive resources and earnings streams. Indeed, Kaaria (2021) emphasizes that greater women empowerment should encourage women to contribute to society, leading to higher investments and better household nutrition and children's welfare. Women's role in water-resource management is recently receiving increased attention through research projects, webinars, and gender-sensitive education programs organized under the auspices of the cross-national Central Asia Water and Energy Program (CAWEP) with the participation of the Kazakhstan-German University and Central Asian Journal of Water Research.

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