

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Tropical AgriSciences



**The effect of migration and remittances on
subsistence farming: The case of Tajikistan**

BACHELOR THESIS

Prague 2024

Author: Azamjon Mirkholiqov

Supervisor: Ing. Tereza Pilařová, Ph.D.

Declaration

I hereby declare that I have done this thesis entitled “The effect of migration and remittances on subsistence farming: The case of Tajikistan” independently, all texts in this thesis are original, and all the sources have been quoted and acknowledged by means of complete references and according to Citation rules of the FTA.

In Prague, 18.04.2024

.....
Azamjon Mirkholiqov

Acknowledgements

I extend my heartfelt gratitude to my thesis supervisor, Ing. Tereza Pilařová Ph.D., for her invaluable guidance, support, and insightful advice throughout the research process. Her expertise and dedication have been instrumental in shaping the direction of this thesis. I am particularly grateful for her assistance in constructing the questionnaire and her thorough explanation of the methodology approach. Her unwavering commitment to excellence has been a constant source of inspiration. I am deeply thankful for her mentorship and encouragement, which have significantly contributed to the successful completion of this thesis.

Abstract

This thesis explores the impact of migration and remittances on subsistence farming in Tajikistan, focusing on the socio-economic and agricultural dynamics within the country. Beginning with an overview of Tajikistan's economic landscape and demographic structure, the theoretical framework delves into migration theories such as transitional and circular migration. The study then examines migration patterns and remittance trends in Tajikistan, analyzing their effects on subsistence farming practices. The questionnaire survey was conducted in September 2023 in Sugh, Khatlon and DRS districts. The final sample includes 197 respondents. The findings revealed relationship between personal experience with migration and the perception of respondents whether migration leads to labor shortage, land abandonment and farm investment . The conclusion emphasizes the need for policy interventions to harness the potential of migration for sustainable agricultural development and rural livelihood improvement. Overall, this thesis contributes to a deeper understanding of the interplay between migration, remittances, and subsistence farming in Tajikistan, providing insights for future research and policy formulation in the field.

Key words: Labor migration, small-scale farming, investments, agricultural production, Tajikistan.

Contents

1.	Introduction	1
2.	Literature review	2
2.1.	Socie – economic overview in Tajikistan.....	2
2.1.1.	Economic overview and poverty.....	2
2.1.2.	Socio – demographic overview.....	6
2.1.3.	Agricultural production.....	7
2.1.3.1.	Crop and Livestock production.....	8
2.1.4.	Farm Structure in Tajikistan	10
2.2.	Migration in theory.....	12
2.2.1.	Transitional migration.....	12
2.2.2.	Circular Migration.....	13
2.3.	Migration in Tajikistan.....	14
2.3.1.	Migration in Tajikistan in numbers.....	14
2.3.2.	Remittances.....	16
2.4.	Effect of migration and remittances on subsistence farming in general	
	19	
2.4.1.	Effect of migration and remittances on subsistence farming in Tajikistan	20
3.	Aims of the thesis	22
4.	Methodology.....	23
4.1.	Target area.....	23
4.2.	Data collection.....	23
4.3.	Methods.....	24
5.	Results and Discussions.....	26
5.1.	Demographic data.....	26
5.2.	Agricultural production.....	27
5.3.	Migration and Remittances.....	30
5.4.	Effect of migration and remittances on agricultural production.....	33
5.5.	Discussions.....	36
6.	Conclusion	38
7.	References.....	40

List of tables

TABLE 1: MIGRATION INFLOW FROM 2017-2021.....	15
TABLE 2 PERCEPTION OF RESPONDENTS WHO PERSONALLY MIGRATED AND RETURNED BACK REGARDING THE EFFECT OF MIGRATION AND REMITTANCES ON AGRICULTURAL PRODUCTION (PEARSON X2 TEST OF INDEPENDENCE AND THE FISHER EXACT).....	34
TABLE 3 PERCEPTION OF RESPONDENTS WITH HH MEMBERS CURRENTLY ABROAD REGARDING THE EFFECT OF MIGRATION AND REMITTANCES ON AGRICULTURAL PRODUCTION (PEARSON X2 TEST OF INDEPENDENCE AND THE FISHER EXACT).....	35

List of figures

FIGURE 1: REMITTANCES AND GDP GROWTH 2019-2022.....	3
FIGURE 2: POVERTY LEVEL ACROSS RURAL AND URBAN REGIONS, 2013-2022, IN %.....	4
FIGURE 3: COMPOSITION OF GDP GROWTH BY PRODUCTION, 2019-2022	5
FIGURE 4: GROWTH BY SECTORS	6
FIGURE 5 TAJIKISTAN – MAIN CROPPING AREAS.....	8
FIGURE 6: CROP CALENDAR.....	9
FIGURE 7: CROP CALENDAR.....	9
FIGURE 8: SHARE OF TOTAL CROP PRODUCTION BY TYPE OF FARM, 2021 (%).....	11
FIGURE 9: REMITTANCES AND GDP ANNUAL GROWTH AS A %, 2002-2022	17
FIGURE 10: SHARE OF HOUSEHOLD WITH REMITTANCES INCOME	18
FIGURE 11: PERCENTAGE OF HOUSEHOLDS THAT SPEND REMITTANCES ON DIFFERENT AGRICULTURAL ACTIVITIES	21
FIGURE 12 THE DISTRIBUTION OF RESPONDENTS ACCORDING TO RESIDENCE.....	23
FIGURE 13: DEMOGRAPHIC DATA.....	26
FIGURE 14: SIZE OF HH, REGION AND ETHNIC DATA	27
FIGURE 15: FARMING CONDITIONS (%)	27
FIGURE 16: FARMING PRODUCTION OF TAJIK HOUSEHOLDS	28
FIGURE 17: COMMON ISSUES OF FARMING.....	29
FIGURE 18: MIGRATION EXPERIENCE.....	30
FIGURE 19: MAIN DESTINATIONS.....	31
FIGURE 20: REASONS OF MIGRATION.....	31
FIGURE 21: OCCUPATION AND AVERAGE INCOME OF (PM) AND (HH)	32
FIGURE 22: REMITTANCES USAGE.....	33

List of Abbreviations

AfH	Agency for Hydrometeorology under the Committee of Environmental Protection
ALRI	Agency for Land Reclamation and Irrigation
AoS	Agency on Statistics under the President of the Republic of Tajikistan
CFSAM	Crop and Food Security Assessment Mission
COVID-19	Coronavirus disease 2019
DRS	Districts of Republican Subordination
FAO	Food and Agriculture Organization of the United Nations
FSMS	Food Security Monitoring System
GBAO	Gorno-Badakhshan Autonomous Oblast
GDP	gross domestic product
GIEWS	Global Information and Early Warning System on Food and Agriculture
IMF	International Monetary Fund
ISTA	International Seed Testing Association
NDS	National Development Strategy
NDVI	Normalized Difference Vegetation Index
NGO	non-governmental organization
OSCE	Organization for Security and Cooperation in Europe
USAID	United States Agency for International Development
VAT	value added tax
WB	World Bank

1. Introduction

The labor migration and the related remittances are mostly unanticipated outcomes of the shift from centrally planned to market-based economic systems in many previously developed countries. One country that fits this description is Tajikistan. The nation is progressively re-establishing itself after years of economic turmoil and civic difficulties, and it is beginning to emerge from these conditions. During the 1990s, the region's general geopolitical instability, the disintegration of economic linkages that followed the fall of the Soviet Union, civil unrest, poor governance and macroeconomic management, strained political relations with neighbors, and other factors all led to the region's unstable economic interactions with the outside world. The country's export base shrank to a select few items (aluminum, cotton, power, fruits, and vegetables), conventional markets disappeared, and the payments system broke down (Pomfret 2006). Because of the out-of-control growth of external borrowing, businesses were compelled to conduct transactions based on trade, sometimes without the required authorization. This often led to a failure to satisfy promises, which left a great number of businesses with arrears that were guaranteed by the government. Humanitarian relief and the import of essential goods by shuttle merchants were the only sources of daily home consumption. At some point in time, families in Tajikistan found themselves in a position where they had no choice but to transfer at least one member of the family abroad in order to find work.

Both the migration out from Tajikistan and the remittances that followed were unparalleled in terms of the size of their effects on the economy. No other nation has had a decrease in its workforce of around 20 percent in only a decade, nor has it seen remittance flows approach approximately 50 percent of GDP (World Bank 2023). And no other nation has done as good of a job of addressing the challenges of shifting from a planned economy to a market one as China has. Tajikistan has accomplished this without significantly and persistently relying on foreign assistance (of which it presently gets only minor amounts), and has done so entirely via market-based methods, just by exporting its primary product for which it has a competitive advantage, namely low-cost labor.

2. Literature review

2.1. Socie – economic overview in Tajikistan

2.1.1. Economic overview and poverty

Tajikistan is a landlocked nation located in Central Asia with a low-income status. The region has vast potential for hydropower as well as multiple valuable natural resources such as gold, silver, antimony, coal, and precious stones. Tajikistan lacks substantial confirmed reserves of oil or natural gas, unlike some neighboring countries such as Kazakhstan and Russian Federation. Prior to the dissolution of the USSR in 1991, Tajikistan was the most deprived and least developed area within the nation.

Tajikistan has experienced a steady recovery from the economic slump that occurred over the course of the past decade, with real growth of GDP ranging from around 6–7% throughout the course of the previous five years (WTO 2021). The positive performance of the mining industry, the expansion of the agricultural sector, and the rise in the amount of money sent back by migrant workers have all contributed to the continuation of the general upward trend.

Irrespective of the improvements, Tajikistan remains the poorest of all post-Soviet states. In 2021, Tajikistan ranked 122nd out of 191 countries surveyed by the UNDP Human Development Index (HDI), faring worse than all other former Soviet states and scoring only slightly above its 1990 HDI value (2021: 0.685, 1990: 0.623) (UNDP 2021). Tajikistan remains one of the most remittance-dependent countries in the world. Remittances from labor migrants have been the key factor behind Tajikistan's economic growth and its progress in alleviating poverty (WTO 2021). The money sent home by typically more than one million Tajikistan migrant workers, mostly from Russia, has in recent years provided for the most basic needs of over half of the population.

However, remittance inflows to Tajikistan have shown a high level of volatility over the past decade – remittances rose in 2014 to an estimated \$3.7 billion (or 42% of GDP) but dropped sharply by over 50% by 2016 due to Russia's economic crisis following the imposition of international sanctions after its annexation of Crimea.

After a substantial recovery, remittances declined again in 2020 due to the pandemic and the closing of borders. The IMF (2020) reported that Tajikistan's GDP per capita has declined to \$833, below the 2011 level. In 2021, remittances hovered around \$2 billion (or 34% of GDP).

In 2022, the Tajik economy experienced a growth rate of 8.0%, which exceeded predictions (Figure 1). This was mostly attributed to regional instability and the significant impact of the post-COVID recovery. The negative consequences resulting from Russia's invasion of Ukraine were reduced by counterbalancing positive outcomes (IMF 2023). The economy saw positive effects due to the high demand for work in Russia and the increase in value of the Russian ruble, which is the primary currency used for earning and transferring money by labor migrants. Investment had a significant role in the increase of the Gross Domestic Product (GDP), as both public and private sectors made substantial investments (World Bank 2023). Public investments were mostly directed towards energy, education, and transport sectors, while private investments were predominantly concentrated on the mining industry. The export volume was adjusted in 2022 after significant sales of precious metals from stockpiles. Increased family incomes contributed to a decrease in net exports due to higher consumer imports (World Bank 2023).

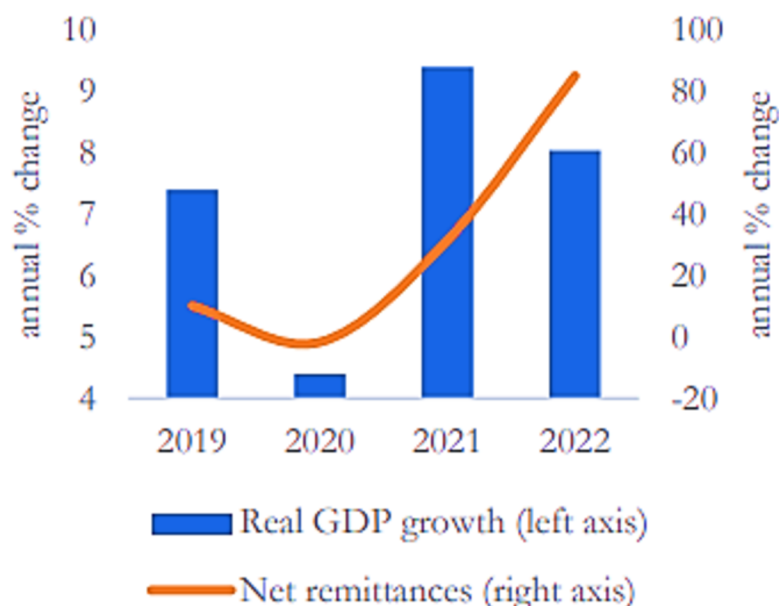


Figure 1: Remittances and GDP growth 2019-2022

Source: World Bank (2023)

Based on the Tajikistan Household Budget Survey (HBS, 2022), the poverty rate in the country decreased from 34.3 percent in 2013 to 22.5 percent in 2022. The prevalence of extreme poverty, specifically referring to the nutritional aspect of the national poverty threshold, decreased from 20 percent in 2013 to around 11 percent in 2019. The decrease in poverty returned to a temporary halt throughout the 2020 pandemic, thanks to the recovery of GDP growth and an increase in migrant remittances. The national rate of poverty in 2021 was 23.2 percent, as shown by the revised Household Budget Survey (2022) and re-estimated poverty line¹ (Figure 2). The poverty rates in both urban and rural areas remain steadily decreasing. As of 2021, the country's poverty rate is at approximately 23.7 percent, while the city-based poverty rate is at 21.8 percent. The high proportion of Tajiks living in rural areas, which exceeds 70 percent, and their predominant employment in the low-wage agricultural sector, are the key factors contributing to the high level of poverty in rural regions. On the other hand, Sughd and Dushanbe, which are areas with a high concentration of industrial businesses, have comparatively lower levels of poverty (Figure 2). Based on initial government calculations, the national poverty rate decreased to 22.5 percent in 2022.

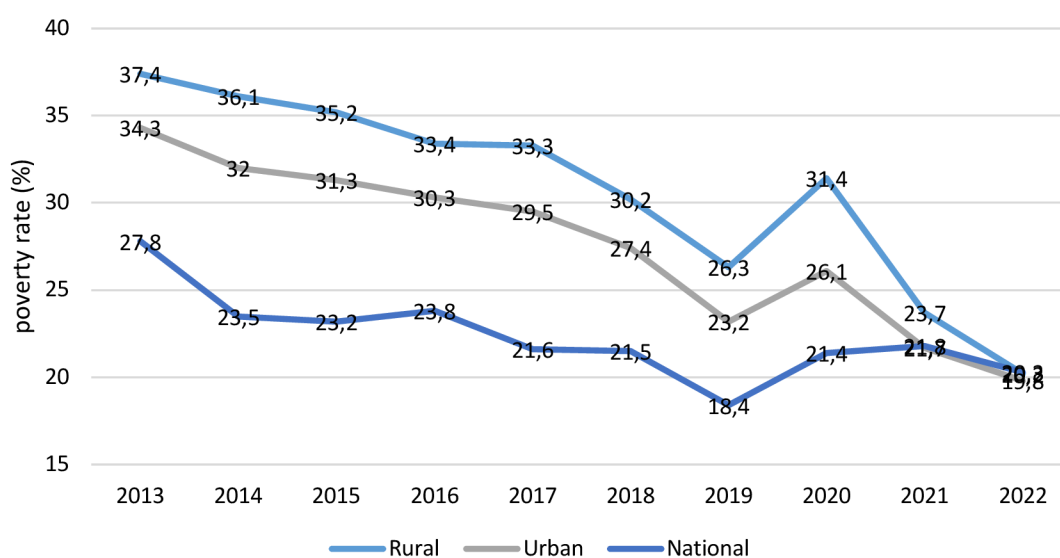


Figure 2: Poverty level across rural and urban regions, 2013-2022, in %

Source: World Bank (2023)

¹ According to the World Bank, the poverty rate decreased from 14.3 percent in 2021 to 13.4 percent in 2022, based on the US\$ 3.65 (2017 PPP) global poverty threshold for lower-middle-income nations.

In 2022, the services industry in Tajikistan had a robust growth rate of 4.3%, mostly due to the easing of mobility constraints and the establishment of cross-border connections. As a result, there was a 26.1% growth in the transportation of products by land and an 11.2% rise in the trading of commodities at the wholesale and retail level. The number of foreign nationals visiting Tajikistan increased twofold, from 634.3 thousand in 2021 to 1151.9 thousand in 2022. In 2022, the sector had a significant growth of 12.9%, mostly due to fresh investments in mining, metallurgy, energy, food processing, and textiles. Manufacturing firms constituted the largest share of industrial businesses, contributing to 62% of the overall production. Extractive industries, on the other hand, accounted for 11% of the output, while the remaining 21% was attributed to other sectors.

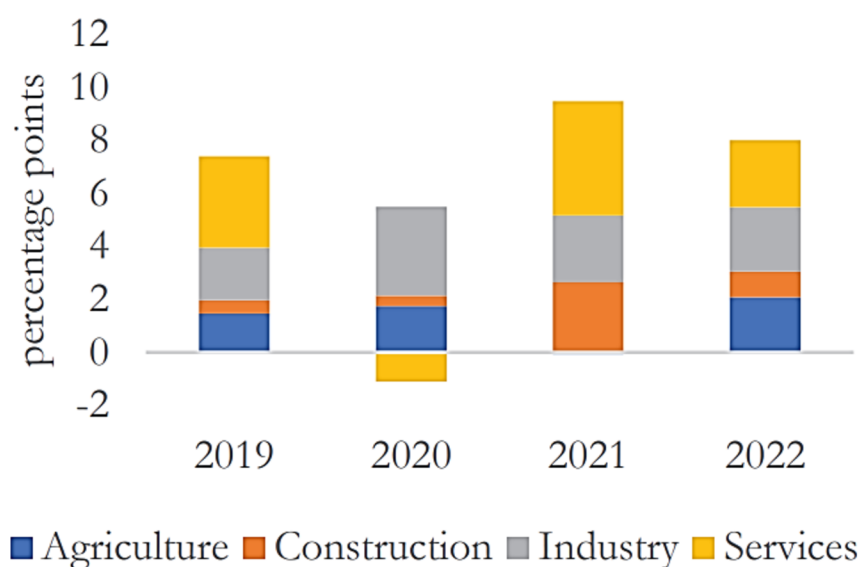


Figure 3: Composition of GDP growth by production, 2019-2022

Source: World Bank (2023)

Following a little decrease in 2021, agricultural output had a significant recovery of 8 percent in 2022. This was facilitated by warm temperatures and the increase of early planting for spring crops. In 2022, the designated land for planting spring crops early expanded by 5.8 percent, reaching a total of 19,538 hectares.

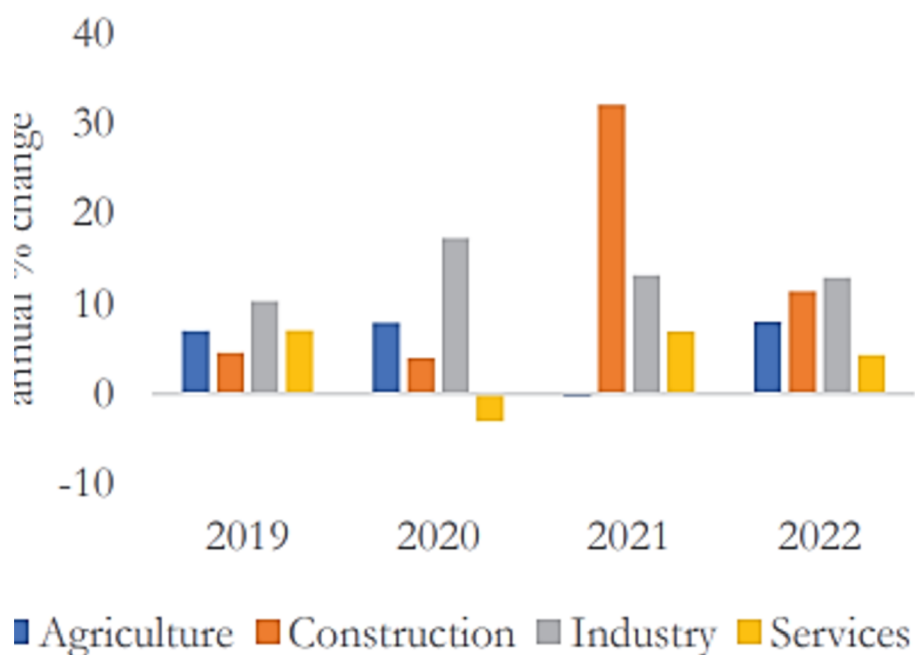


Figure 4: Growth by Sectors

Source: World Bank (2023) and TajStat (2023)

In 2022, the construction industry saw a growth rate of 11.4 percent, maintaining the upward trend that started in 2021. The surge in the real estate market is fueled by a strong demand for real estate, resulting in a 19 percent increase in sales in 2022. This growth is driven by factors such as a rapidly expanding population, urbanization, and significant investments in property. These factors are particularly evident in Dushanbe, leading to the creation of both residential and commercial structures.

2.1.2. Socio – demographic overview

The total population of the country is projected to reach 10.12 million by the middle of the year 2023, with around 775 thousand individuals living and working outside of the country. During the period from 2008 to 2020, the rate of population increase was more than 2 percent, and the AoS² projects that it will be 1.4 percent in 2023. In Central Asia, Tajikistan is the nation with the lowest level of urbanization. It is estimated that over 74% of the population lives in rural areas, and the substantial majority of them are involved in farming. There are around 71 individuals per square kilometer on average.

² Agency on Statistics under the President of the Republic of Tajikistan

The rocky environment, on the other hand, causes people to concentrate in valleys, where the population densities represent 1,200 people per square kilometers of fertile land. This is one of the greatest ratios of people to agricultural land available anywhere in the world. As of the month of June 2023, the country hosted to 9,441 refugees and asylum seekers, the vast majority of whom came from Afghanistan, which is located nearby.

2.1.3. Agricultural production

In the year 2022, agriculture was responsible for 24.6 percent of the total gross domestic product of the nation and serves as the foundation of the rural economy. There are more than sixty percent of the population that is employed in this field. Crop production accounted for 72 percent of the total agricultural output, while livestock farming contributed for 28 percent of the total agricultural output. Products derived from agriculture are an important source of revenue for the national industry. In the year 2010, the food sector's output value accounted for 28 percent of the entire value of the production sector. Almost two-thirds of the industrial businesses that are now in operation are engaged in agricultural industry.

Commodities derived from agriculture, particularly cotton, vegetables, wheat flour, canned food, dried fruits, and nuts, constitute a significant portion of the overall exports of the nation. In the year 2022, the value of cotton fiber alone amounted for nine percent of the overall value of exports. The shortfall in agricultural output is compensated for by importing cereals, wheat flour, meat, poultry, eggs, rice, buckwheat, sugar, and vegetable oil from abroad. This is done in order to meet the requirements of the domestic market. It is estimated that the nation imported around sixty percent of its grain requirements and eighty percent of its vegetable oil requirements in the year 2021. However, the nation is almost self-sufficient in meat and milk products, as well as in potatoes, vegetables, and fruits (exports are more than imports), which eventually impacts the deficit in the balance of trade. In 2022, grain and wheat flour accounted for 6.3% of the overall value of imports, which is equivalent to half of the quantity of petroleum products. Roughly one million tons of grain and wheat flour were imported, and the anticipated cost was USD 330 million.

2.1.3.1. Crop and Livestock production

Considering the rugged terrain, it is estimated that the entire amount of arable land is 847 thousand hectares, which accounts for barely six percent of the overall territory of the country. The majority of agricultural activities take place in plains that are located in lowland regions. In terms of agricultural productivity, the nation may be broken down into three primary regions (Figure 5):

- The Ferghana Valley in the north of the country along the Syr Darya River.
- The Hissor Valley between Vahdat east of Dushanbe and Tursunzoda towns bordering Uzbekistan in the west.
- The broad Khatlon lowlands in the southwest, broadly extending from Khovaling District in the east to the border with Uzbekistan in the west.

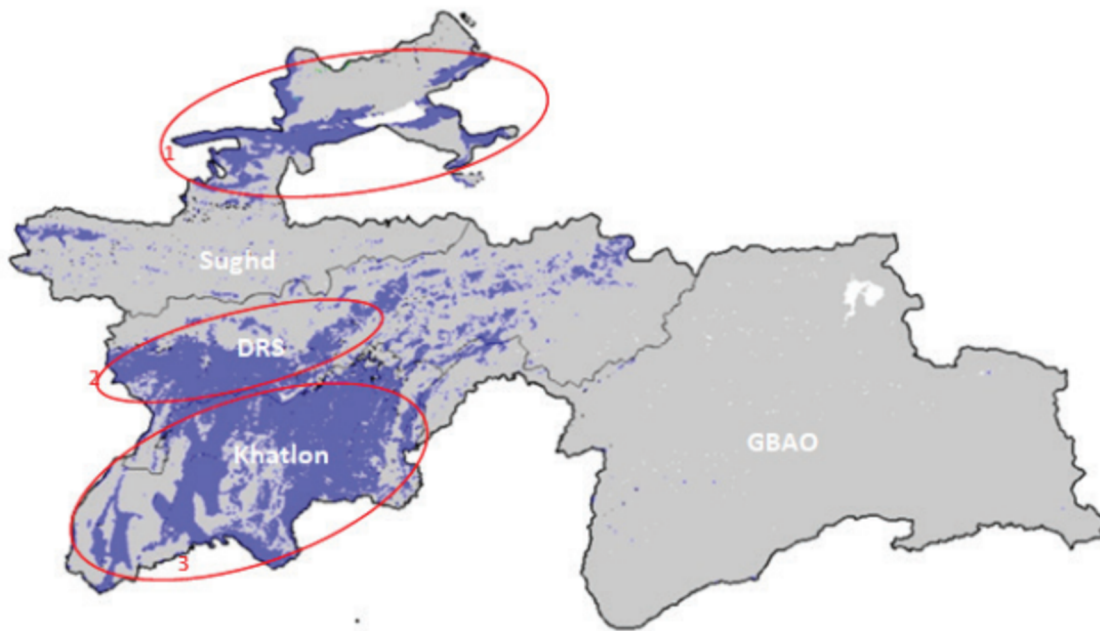


Figure 5 Tajikistan – Main cropping areas

Source: GIEWS (2023)

There are two primary systems of cultivation that make up the national agricultural system: irrigation and rainfall respectively. Cotton, fodder crops (alfalfa and maize for silage), wheat, and orchards (apricots, pomegranates, almonds, as well as grapes, apples, and stone fruits at mid-elevation) are the most important crops grown in irrigated lowland area. Irrigated area accounts for roughly eighty-five percent of the total agricultural yield.

The cultivation of cereals (wheat, barley, and rye), legumes (peas, chickpeas, vetches, and lentils), and oil crops (flax, safflower), in addition to the cultivation of certain fruit trees and grapevines, takes place on rainfall land, which spans both low and higher elevations. In the valley floors of the uplands, crops such as wheat, barley, potatoes, alfalfa, and horticulture are grown alongside pastures that are either rainfed or irrigated at the same time. The majority of barley is planted in the spring, accounting for 63 percent of the total, whereas around 77 percent of all wheat is grown in the fall. Rainfall farming in Tajikistan is fraught with danger because of the country's low and fluctuating precipitation levels; as a result, the amount of produce produced varies greatly from one year to the next. When compared to those produced on land that is rainfed, the yields of cereal crops that are grown on irrigated land are anywhere from two to four times greater. The national statistics, which are unfortunately lacking, do not give a split of the production data for rainfed and irrigated crops.

Figure 6: Crop Calendar

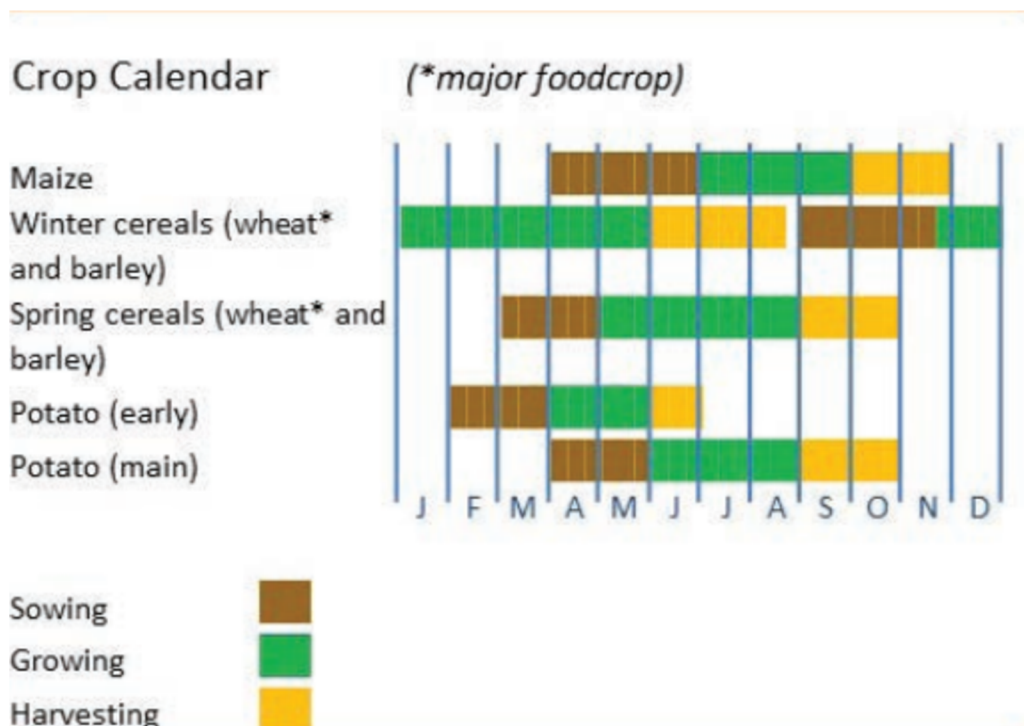


Figure 7: Crop Calendar

Source: Global Information and Early Warning System on Food and Agriculture (2023)

The altitude at which crops are grown might range anywhere from 300 to more than 3,000 meters above sea level. Because of this, agricultural planting operations continually take place from the month of October until the end of July, while harvesting takes place from the month of February to November. The American Agricultural Society (AoS) identifies three distinct cropping seasons based on the time of year during which planting takes place: autumn (from October to December), spring (from January to March), and summer (and beyond). During the fall season, the most important crops that are sown are oil agricultural products, barley, wheat, and pulses. When spring arrives, the most significant crops to harvest are cotton and grain, with wheat and barley also being grown at higher altitudes. Cotton, rice, maize for silage, sorghum, soybeans, and beans are all crop types that are grown throughout the summer season. It is possible to plant potatoes throughout any of the three seasons; however, in areas with higher elevations, the planting of potatoes takes place in the spring. The planting of vegetables is possible at any time of the year. A simplified crop calendar has been shown in Figure 4, which covers the key food crops grown in the primary producing regions.

2.1.4. Farm Structure in Tajikistan

Collaborative landowners, also known as kolkhoz, and state farms, also known as sovkhoz, were privatized and split into smaller private farms, known as dehkan, during the land reform. As a consequence of this, the agricultural industry is organized around three separate groups of producers:

Agricultural enterprises:

These include farm cooperatives, communal farms, and state-run farms, as well as farms that were once owned by the state but have since been taken over by private corporations. They run 14.4 percent of the entire agricultural land, which is equivalent to 124,000 acres, despite the fact that they only make up for roughly 0.3 percent of all generating units on the planet. Four thousand eight hundred farming companies were given registration in the year 2021, and each of these businesses cultivated an average of twenty-five hectares of land. They are responsible for around one-fourth of the production of cotton and approximately ten percent of the yields of wheat and barley, although they have a very little impact on the production of fruits and vegetables (Figure 7).

Two-thirds of the poultry heads, mostly layers, are owned by these businesses, but there are relatively few cattle, sheep, and goats in their operations.

Dehkan farms can run on their own as separate businesses. They are based on groups of people, like families, who work together to grow food on shared land. Dehkan farmers get a land leasing license, but they can't trade these certificates for land use. About 170,000 dehkan farms had been authorized in 2021. Each one used an average of 3.4 hectares of land for farming. There are about 10,000 farms like these, but they only work on about two-thirds of all farmland, which is about 567,200 hectares. They grow nearly all of the cotton, almost two thirds of the wheat and barley, and more than half of the fruits, veggies, and potatoes that are eaten. Dehkan farms don't have much to do with raising animals.

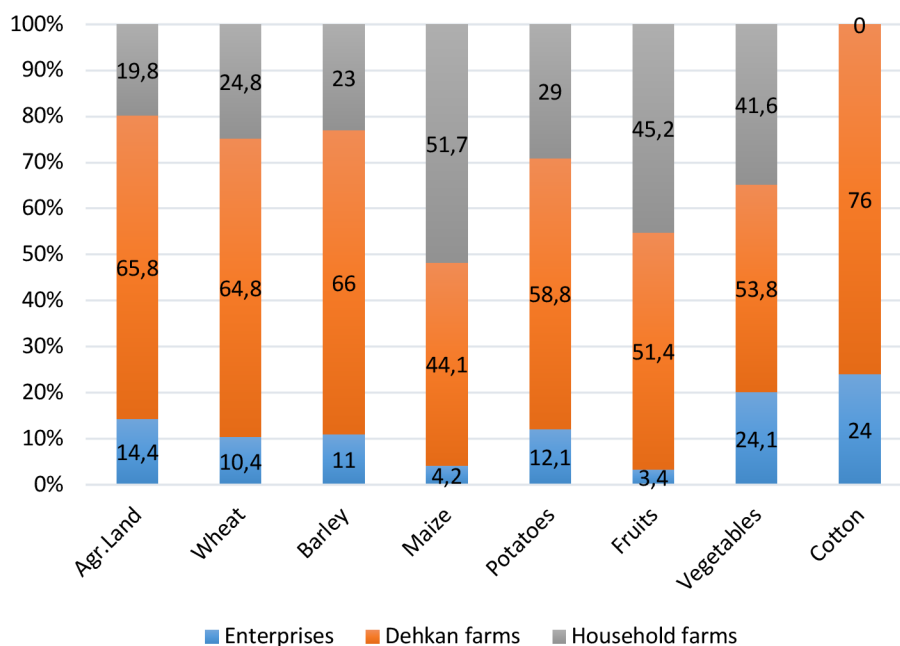


Figure 8: Share of total crop production by type of farm, 2021 (%)

Source: Agency on Statistics under the President of the Republic of Tajikistan (AoS) 2023

Overall, Dehkan farms exhibit the largest agricultural land allocation across all crops, followed by Household farms and Enterprises. The distribution of crop cultivation varies significantly between the three types of farms, reflecting different agricultural strategies and priorities.

2.2. Migration in theory

Global interconnectivity exists. Although the social sciences of the 20th century tended to prioritize the study of fixed and confined locations and individuals, the examination of movement and fluidity has now become a crucial aspect of analysis. Migration is not an abnormality or flaw in global systems, but rather an inherent component of them. There is no longer any doubt that globalization is a fundamental aspect of the contemporary world. The only dispute now is how many centuries ago it started. With the fading of discussions on globalization, it is undeniable that the globe has become more interconnected via the movement of people, wealth, and ideas. Naturally, barriers and advantageous routes still distinguish the winners from the losers under these circumstances. The attributes of individuals who migrate, the specific boundaries they cross, and the governing body that oversees their movement remain very significant. Over the last several decades, researchers have created patterns and theories to explain the changing dynamics of migration.

2.2.1. Transitional migration

The inclination of migrants to move across international boundaries does not indicate the decline of nation states (Miluka et al. 2010), contrary to the concerns raised by several political scientists. The regulation of movement across borders is a fundamental aspect of the establishment and operation of nation states. The migration patterns, motivations, and consequences of individuals are often influenced by several large-scale variables, which are further shaped by specific circumstances and conditions at a local level (Miluka et al. 2010). Therefore, the movement of people and the limitations on their movement are a vital domain for the management of individuals and regions. Transnationalism is a theoretical framework that expands the understanding of individuals' geographical positioning by emphasizing the interconnectedness of people over extensive distances. Instead of serving as a comprehensive framework to describe the phenomenon of 3% of the global population being migrants (IOM 2015), transnationalism has played a role in emphasizing the interconnectedness between migration and family dynamics (Miluka et al. 2010; Mughal & Makhoulf 2013).

As families contemplate their choices outside of their existing location, their livelihood practices extend across different geographic areas, creating interconnected and fluid social networks where the concept of family is not limited to physical proximity (Olwig and Sørensen 2002; Landolt and Da 2005).

According to Chambers and Conway (1992), families who, at first look, seem to be living traditional peasant lifestyles that are intricately connected to the land really have livelihoods that are applicable on a variety of sizes. There is a possibility that transnational livelihood strategies might be of assistance in explaining how individuals "jump" or travel across different scales (Bebbington 2000) or live in numerous locations at the same time. According to World Bank (2023), migration across international boundaries is often the most effective method for preserving sustainable rural livelihoods. This is because it alleviates population pressures and offers extra earnings from labor pools located in remote areas. Based on research conducted by Bebbington (1999) and De Haan and Zoomers (2003), it has been shown that families in both rural and urban areas are able to successfully manage diverse types of capital, which originate from both distant and local locations. It is essential for families to enhance their capital base, and this may be accomplished via the diversification of economic activities (Scoones 2009). However, these efforts should not be valued only on the basis of their adaptability since they may also result in economic instability and the loss of on-site labor, as well as impose significant stress on a variety of types of emotional and family care. According to Yeoh et al. (2005), transnational partnerships often result in families that are "stretched" and need regular changes to be made with regard to different locations. These efforts, if they become routine, have the potential to result in migration that is cyclical.

2.2.2. Circular Migration

The phenomenon known as "circular migration" is the process by which migrants typically return to the nations from where they originated. It is possible for people to opt to go back to their hometown on a sporadic basis while working in more costly regions in order to save money, celebrate certain holidays, or attend family reunions. In the event that migration between sending and receiving countries is conceivable, Newland (2009) proposes that it provides people with a greater number of options, which ultimately results in enhanced functioning.

According to the available evidence, circular migration is an enticing option, especially in circumstances when there are less constraints to movement.

Across the former Soviet Union, where freedom of movement is relatively unrestricted for former Soviet citizens to countries such as the Russian Federation and other Commonwealth of Independent States (CIS), surveys have shown that a significant majority of people who are considering migrating would rather find temporary employment outside of their home country before going back to their home country. According to Mansoor and Quillin (2007), on page 110, more than sixty percent of migrants in countries such as Bosnia and Herzegovina, Romania, Georgia, Bulgaria, the Kyrgyz Republic, and Tajikistan stated a preference for this particular option.

It is possible for people to participate in seasonal or temporary work via the process of circular migration. This enables them to take advantage of geographical job variances as well as the related changes in income and living expenditures. Those that migrate may have certain monetary objectives in mind, which may need many migration cycles in order to accomplish. Following the successful completion of these objectives, migrants are often granted permission to return permanently (Cassarino 2008). The achievement of such "success" may, however, result in the termination of circular migration, or it may be the result of limits imposed by external circumstances that bring about its termination.

2.3. Migration in Tajikistan

2.3.1. Migration in Tajikistan in numbers

According to a number of studies (ITF 2010, IOM 2020) that have been conducted over the course of many years, Tajik migration is mostly seasonal. During the brief summer time (March/April to October/November), Tajiks often leave the country to work in construction, agriculture, or other fields, and then they return home. Nevertheless, the figures do not provide any indication as to whether a migrant worker who has been registered is crossing borders for occupations that are either temporary, seasonal, or permanent.

Nearly half a million Tajiks have departed the nation each year for work opportunities in other countries throughout the course of the previous five years (Table 1). The vast majority of those who migrate for work are male. This large male participation may be explained by the fact that the host nations, particularly the Russian Federation, have a significant need for "male occupations." Additionally, the prevalent idea in Tajikistan is that males should be the ones to provide for their families financially.

Table 1: Migration inflow from 2017-2021

Year	Total number of migrants	Number of male migrants	Percentage of male migrants	Number of female migrants	Percentage of female migrants
2017	551,728	487,137	88.3	64,591	11.7
2018	517,308	435,457	84.2	81,851	15.8
2019	487,757	419,721	86.1	68,036	13.9
2020	484,176	419,664	86.7	64,512	13.3
2021	530,883	453,870	85.5	77,013	14.5

Source: IOM (2021)

The exact number of Tajik migrants who are now living in the Russian Federation in an undocumented status is unknown. The number of Tajikistani nationals who were registered on the migration register in the Russian Federation for the purpose of "work" between the years 2009 and 2021 was 936,800, according to research conducted by the International Organization for Migration (IOM 2021). According to the estimates provided by the Japan foreign Cooperation Agency (JICA) Survey (2018), there were around 780,829 foreign migrants who were working and residing outside of Japan. This represents approximately 14% of the total labor force. According to estimates provided by the Migration Policy Institute (MPI), there are around 800,000 migrants who are employed in the Russian Federation (MPI 2019).

It has been determined that Russia is the most desirable destination for Tajik migrants, as it attracts 97.6% of them. Other countries, including Germany, Kazakhstan, the Kyrgyz Republic, the Republic of Korea, Turkey, the United States of America, the United Arab Emirates, and Uzbekistan, are also included on the list of preferred destinations, according to the Joint International Cooperation Agency (JICA) in 2018.

There are a number of factors that contribute to Russia's position as the most preferred option. A number of variables, which are detailed in the JICA 2018 study, contribute to Tajikistan's labor migrants choosing to migrate to Russia. Shared historical governance, linguistic similarities, mutual recognition of educational credentials, visa-free entry, substantial wage disparities (with unskilled labor potentially earning \$78 monthly in Tajikistan compared to \$281 in Russia), extensive migrant networks and experience are some of the factors that contribute to the similarities between the two countries.

2.3.2. Remittances

It is common knowledge that Tajikistan is one of the nations that is most reliant on the influx of remittances and migration from individuals living in other countries. The growth of remittance inflows (shown as a bar) and their contribution to GDP (shown as a line) over the course of twenty years is shown in Figure 8. In the year 2002, remittances were 6.4% of Tajikistan's gross domestic product (GDP). Shortly after that, the amount of remittances received increased, and by 2007, they constituted over forty percent of the country's GDP value. This level remained high till the second half of the 2010s, with an exception of a couple of years amid the economic instability that was caused by the worldwide financial crisis. Although the total quantity of remittances and their impact on Tajikistan's gross domestic product (GDP) have seen a modest decrease from the beginning of the 2010s, the ratio of contributions to GDP has stayed close to thirty percent and was expected to be twenty-eight percent in 2019. This is the fifth-highest ratio in the world. Migrants are common in the country, as shown by the fact that two-fifths of families have at least one person working outside of the country. As a result, when the COVID-19 epidemic occurred, there was a significant drop in the amount of money that was sent back to these families, which might have had a significant impact on their welfare.

A significant number of Tajik migrants, who were once a part of the Soviet Union, work in the Russian Federation as low-skilled workers. More than ninety percent of these migrants decided to live and work in Russia, especially in the construction and service sectors. These migrants, on the other hand, are susceptible to changes in the Russian economy and migration policy since they do not come from a varied range of countries of destination and employment sectors. Attributable to Russia's macroeconomic

upheaval in 2014, the reduction in remittance inflows that has occurred since the middle of the 2010s may be found. In addition, the modification of Russia's migration policy in 2015 resulted in the establishment of a work patent system for migrant workers coming from nations that do not need visas, which led to an increase in the expenses associated with migration. The vast majority of Tajikistani migrants are men of working age who reside in rural areas and were jobless prior to leaving the country. In Tajikistan, more than half of the population that is of working age does not participate in the labor market, and even among those who are employed, informal employment is frequent. There is no consideration given to the educational or professional credentials of migrants when it comes to the vocations that are accessible in the countries of destination.

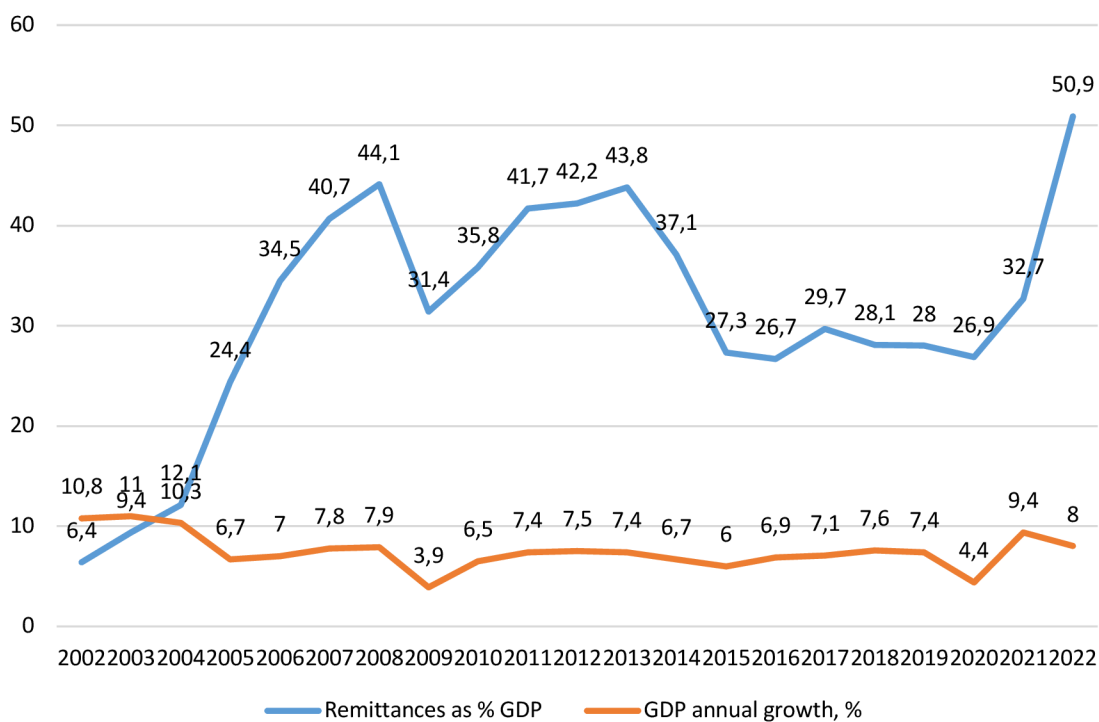


Figure 9: Remittances and GDP annual growth as a %, 2002-2022

Source: World Bank (2023)

In 2022, labor migration and remittance inflows surged, despite previous estimates that were less hopeful. In 2022, the Listening to Tajikistan Survey (L2T³) reveals that the number of people migrating to work in Tajikistan reached levels that had never been

³ Listening to Tajikistan” (L2T) is a World Bank-sponsored monthly phone survey covering over 1,400 households from all regions of Tajikistan aimed at gauging the severity of shocks for households and monitoring their well-being over time.

observed before. The percentage of families that reported having at least one person working overseas increased to fifty percent in June 2022, but then dropped to thirty-seven percent by the end of 2022 (Figure 9). By January 2022, more than forty percent of households reported having at least one member working abroad. It is quite probable that the partial military mobilization in Russia was the cause of the significant fall that occurred in the second half of the year, despite the fact that seasonal volatility is typical. More over eighty percent of households said that they were very worried about the economic repercussions of Russia's invasion of Ukraine, either for their families or for the economy as a whole, between the months of June and October 2022. With a rise from 13 percent in 2021 to 17 percent in 2022, the percentage of families who received remittances grew to 17 percent (Figure 10). The surveys conducted by TajStat (2022) indicate that remittances account for approximately 22 and 30 percent of the total income of households, with more than 90 percent of these remittances coming from Russia.

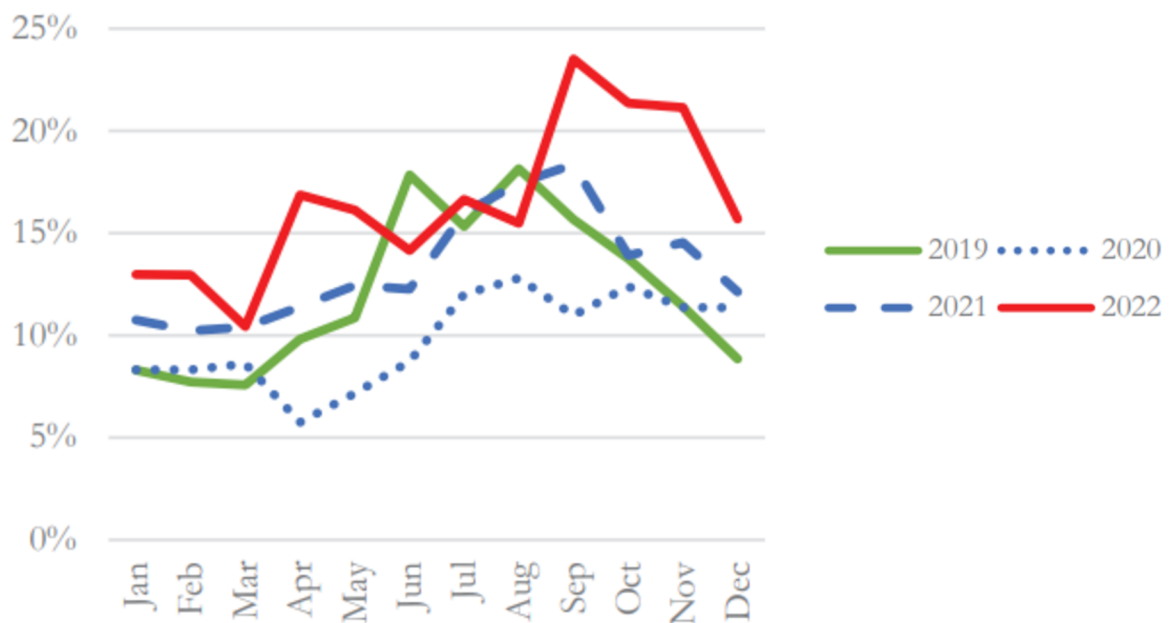


Figure 10: Share of household with remittances income

Source: L2T

2.4. Effect of migration and remittances on subsistence farming in general

One direct effect of movement on a farm family is the loss of work because the migrant member has left (Rozelle et al. 1999). When a worker send money back to their family, it increases their family's income and eases financial restrictions caused by flaws in the credit market. This lets the family spend money on tools that pay workers more, which increases farm output (McCarthy et al. 2009; Quinn 2009; Wouterse 2010; Zahonogo 2011). Because there are more risks and more money to be made, this "income effect" of movement should be larger when people send money back to their home country. The potential cost for pleasure for the family member who stays behind also goes up when migrants send money back to their home country (Atamanov & Van den Berg 2012). This can cause that people are less interested in farming and less likely to help out on the farm (Atamanov & Van den Berg 2012; Miluka et al. 2010; Mughal & Makhoulf 2013).

Abebaw et al. (2019), for example, mentioned that movement and money transfers have a good and significant effect on investments in cattle and the use of pesticides, but not on the acceptance of better seed types and nutrients. Both Bohme (2015) and Chiodi et al. (2012) focus on the benefits of Mexicans moving to other countries and find that it has a positive effect on investment in useful assets. Li and Tonts (2014) mentioned that temporary movement from rural to urban areas and money sent back to China decrease investment in agriculture in the country. In the same way, Castelhana et al. (2016) study how movement and money sent back to Mexico from other parts of the country affect investments in farms and animals and don't find any proof that investments go up. Mendola (2008) found that in Bangladesh, people moving within the country lowers investments in agriculture, while money sent back to the country by people working abroad increases the use of high-yield types.

It's not clear what the net effect of moving and sending money home is on farming output. They send money back to their families, which lets them buy high-risk, high-reward things like cash crops. But if there aren't enough workers to grow other foods, families may choose crops that don't need as much work. A lot of people from other countries don't grow crops. Instead, they do subsistence farming or grow food for animals and grains. In farming countries, land is very important.

Since there isn't a good market for farmland, it doesn't get sold very often (Atamanov & Van den Berg 2012; Taylor & Lopez-Feldman 2010).

Migration and transfers can have a mixed effect on farmland. They can lower production if they lead to a loss of workers, but they can also help if they bring in extra money. Migrants' money transfers give families a lot of additional money that they can use to grow high-risk, high-profit goods like cash crops (Castelhano et al. 2016). But if the lack of labor from a foreign member makes things impossible, families may choose crops that require less work, like corn or feed (Atamanov & Van den Berg 2012). A lot of migrant families stop subsistence farming or growing plants that can be used to feed animals and food. In an agricultural society, land has a lot of spiritual value. However, farm land is rarely sold because there isn't a good market for it in rural places (Mughal & Makhlouf 2013).

2.4.1. Effect of migration and remittances on subsistence farming in Tajikistan

The recent survey which was done in two regions Bartang and Penjikent by (CIFOR 2020: GIZ 2021) defined that local people's engagement in agriculture and forest use, their expenditures on these activities, and how remittances influenced these expenditures. The results showed that hiring agricultural laborers is rare in Penjikent (7%) and Bartang (none of the households interviewed) due to financial constraints and differences in livelihood preferences. In Bartang, locals were more likely to engage in livestock raising than commercial farming, while in Penjikent, farming was a primary livelihood activity.

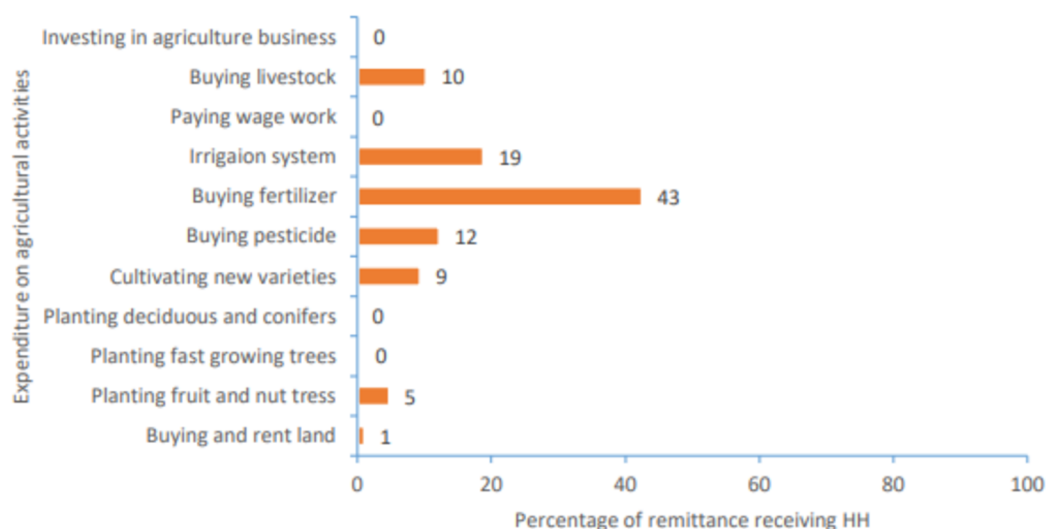


Figure 11: Percentage of households that spend remittances on different agricultural activities

Source: (CIFOT and GIZ 2021)

The most common expenditure using remittances for agriculture was buying fertilizer (43%). Other popular remittance expenditures included irrigation systems (19%), pesticides (12%), livestock (10%), cultivating new varieties (9%), and planting fruit and nut trees (5%). A small number of households (>5%) spent money on buying or renting land, planting fast-growing trees, deciduous and conifers, paying wage work, and investing in agricultural businesses. Remittances contributed too many of these expenditures, with 39% of households using remittances for planting fruit and nut trees. Remittances were used by at least 33-66% of the total households for most agricultural-related expenditures.

3. Aims of the thesis

The main aim of the thesis

The aim of the bachelor thesis is to analyze the impact of labor migration and remittances on subsistence farming in Tajikistan, considering the significant role labor migration plays as a livelihood strategy for many Tajik citizens, particularly those residing in rural areas. The thesis explores the extent of the migration phenomenon in Tajikistan and its implications for the country's high dependence on remittances, which constitute a substantial source of income for rural households reliant on agricultural production.

Specific aims

1. Identify the key issues that affect farming production in Tajikistan
2. Determine the main reasons of migration and the main destination of Tajik population?
3. Assess the how remittances are used by households in Tajikistan
4. Identify the key issues that affect farming production in Tajikistan
5. Understand the perception of Tajik subsistence farmers and how they perceive remittances affect farming

4. Methodology

4.1. Target area

Tajikistan was chosen as the target area due to its substantial importance of remittance inflows for the Tajik economy. Respondents were from different regions in Tajikistan. The Majority of respondents were from districts: Sughd (50%), followed by Khatlon (30%) and DRS (20%).

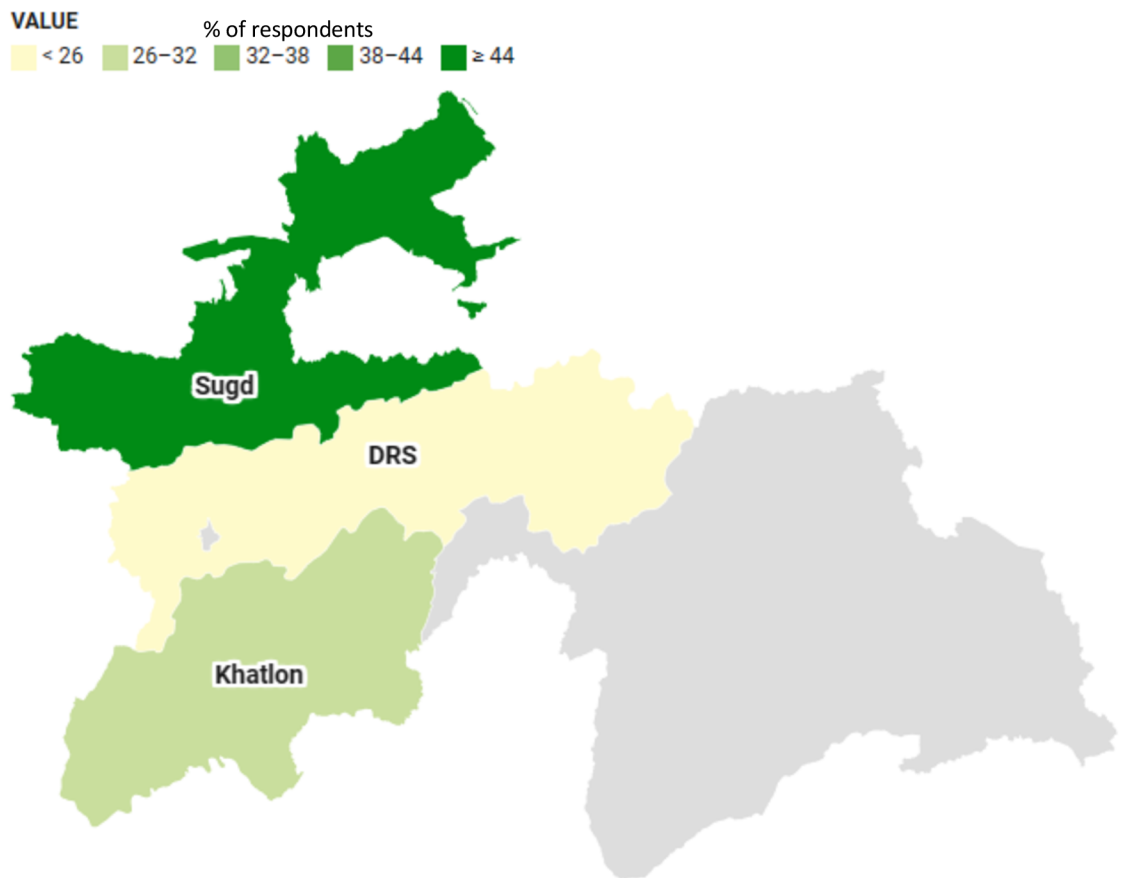


Figure 12: The distribution of respondents according to residence

4.2. Data collection

A questionnaire survey targeting local small-scale farmers in the rural regions of Tajikistan in September 2023. To facilitate the data collection process across various locations, student of the Tajik Agrarian University was trained. This collaboration was instrumental in reaching a wider sample of participants, given the student' familiarity

with the local contexts and access to agricultural communities. Before the survey, the questionnaire was tested on a pilot group of five respondents, students of the Tajik Agrarian University, and was subsequently adjusted. The final sample includes 197 respondents in total from different parts of Tajikistan.

Non-random convenience sampling was used to approach the respondents. Only one member of each household was included in the survey. In the majority of cases, this was the head of the household, usually men and only a small part of respondents were women (5%), which can be explained by the traditionally patriarchy-based households where usually only in the absence of head man (for instance if he migrated) the women take the lead.

The structured questionnaire (questionnaire is included in Annex 1) contains the following information about the respondent and farm characteristics, farm livelihood activities and migration in the survey year 2023:

- Respondent characteristics (gender of respondent, age, education, citizenship, area of residence)
- Household composition (number of household members)
- Information about the farm (farm area, number of plots, land ownership, livestock and crops production)
- Migration and remittances patterns (migrant characteristics, host country, remittances received, use of remittances)
- Perception of farmers regarding impact of migration and remittances on agricultural production
- Constraints faced in agriculture

4.3. Methods

The thesis includes both descriptive and inferential statistical techniques to evaluate the impact of migration and remittances on subsistence farming in Tajikistan, thereby providing an overview of how these factors influence rural agricultural practices.

The data from these surveys are subsequently analyzed using the Social Package for Social Sciences (SPSS) software.

The Pearson χ^2 test (Pearson 1900) and Fisher exact (Fisher 1922) test were applied for binary or categorical dependent variables to explore potential associations between personal and household experience with migration and perception of the effect of migration and remittances on subsistence farming in Tajikistan.

5. Results and Discussions

5.1. Demographic data

The Figure 13, presents demographic characteristics of Tajikistan's population. It reveals a gender imbalance, with males comprising 95% and females 5% of the total. Age distribution indicates a majority in the 47-56 age group (45%), followed by those aged 37-46 (23%). Notably, 15% fall in the 18-26 bracket, with only 5% aged over 63. Education levels vary, with 53% holding Bachelor's degrees, 23% completing high school, and 20% attaining Master's degrees. A mere 1% have PhDs, while 3% have primary education.

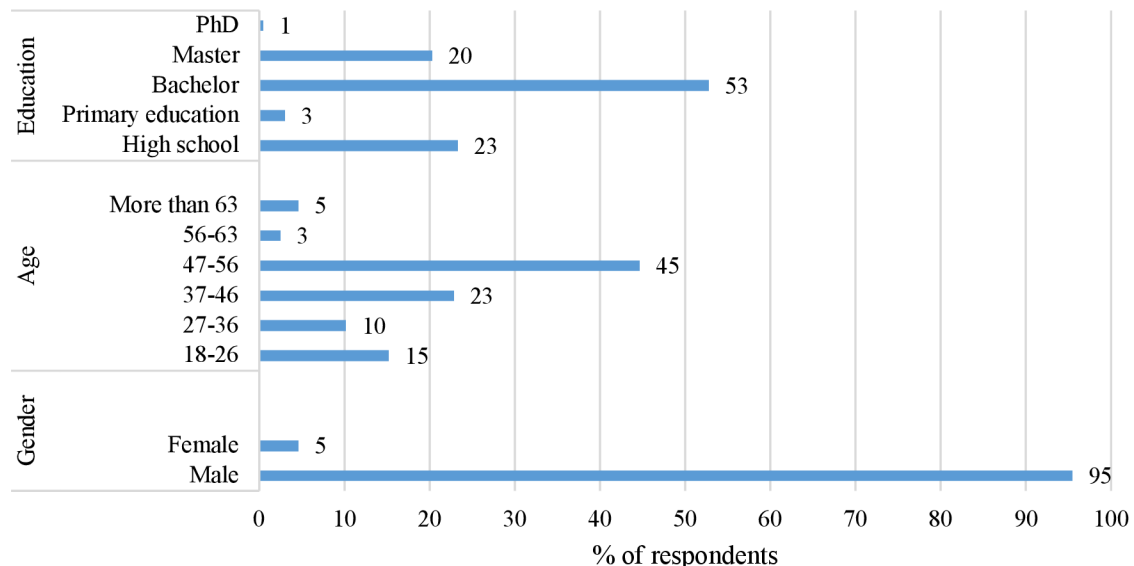


Figure 13: Demographic data

Source: Own processing

The data presents a demographic overview of Tajikistan, highlighting ethnic composition, regional distribution, and household size in Figure 13.

Ethnically, Tajiks dominate with 94%, while Uzbeks account for 6% of the population. Geographically, Sughd hosts half of the respondents (50%), followed by Khatlon (30%) and DRS (20%). Household sizes vary, with 10% having 3-4 members, 58% consisting of 5-6 individuals, and 32% comprising more than six people.

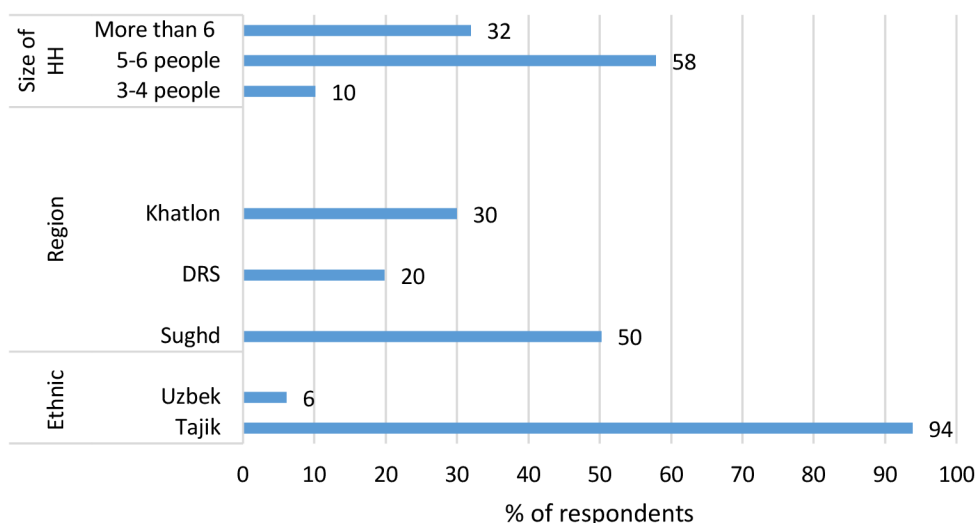


Figure 14: Size of HH, Region and Ethnic data

Source: Own processing

5.2. Agricultural production

Around 53% of households own their farming, while the remaining 47% rent. On average, each household possesses 2.7 hectares of land. The typical cost of housing is \$1085, and residences are situated at an average distance of 11 kilometers from essential farming. This data provides a snapshot of farming affordability, ownership patterns, and spatial distribution of residences in Tajikistan, see Figure 15.

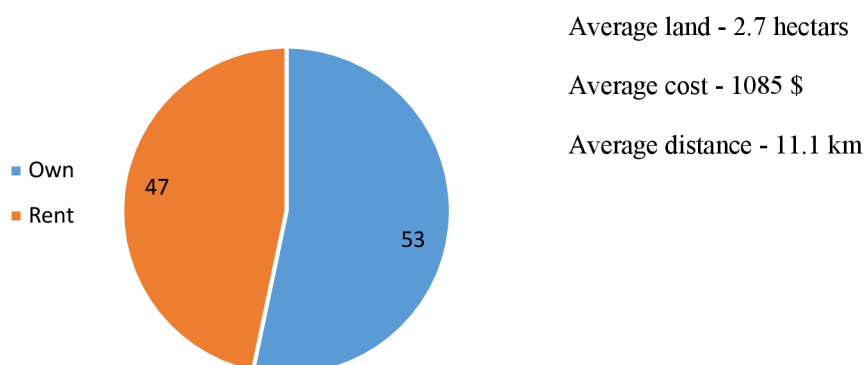


Figure 15: Farming conditions (%)

Source: Own processing

The Figure 16 delineates the distribution of various crops grown in Tajikistan, showcasing their respective percentages of cultivation. Wheat dominates the agricultural landscape with 48%, followed by onion at 42%, indicating their significant roles in crop production. Rice, carrot, cotton, watermelon, potato, and tomato hold smaller shares ranging from 7% to 18%, highlighting the diverse agricultural practices in the region. Cabbage represents the smallest portion at 1%, indicating its comparatively limited cultivation. This data provides an overview of crop diversity and cultivation patterns in Tajikistan's agricultural sector.

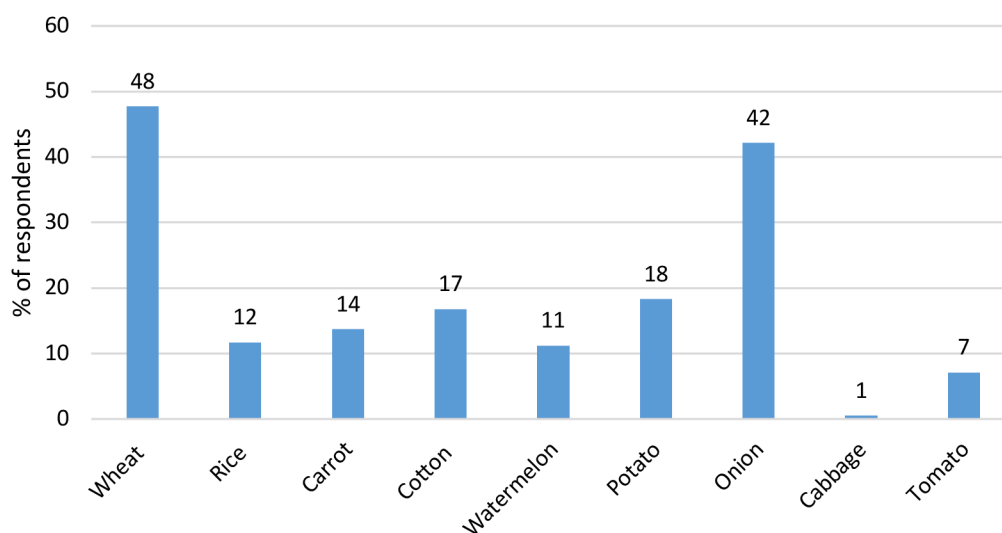


Figure 16: Farming production of Tajik households

Source: Own processing

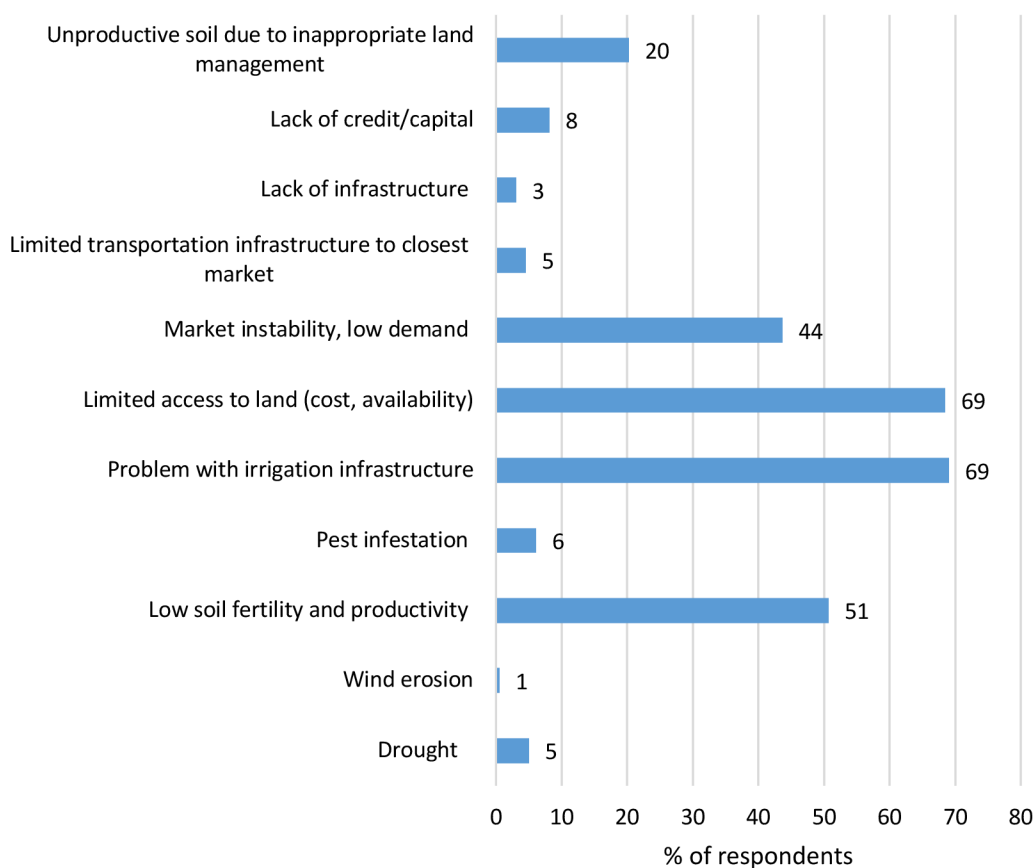


Figure 17: Common issues of farming

Source: Own processing

The Figure 17 depicts the key reasons of the problem with the farming. Drought (5%): Periods of insufficient rainfall causing water scarcity and reduced crop yields. Wind erosion (1%): Soil erosion due to wind, resulting in loss of fertile topsoil and decreased productivity. Low soil fertility and productivity (51%): Soil deficiencies hindering crop growth and yield potential. Pest infestation (6%): Crop damage inflicted by pests, such as insects or rodents, leading to yield losses. Problem with irrigation infrastructure (69%): Issues with water distribution systems affecting the efficiency of irrigation. Limited access to land (cost, availability) (69%): Challenges associated with the cost and availability of agricultural land, potentially limiting farmers' ability to expand or start farming. Market instability, low demand (44%): Fluctuations in market conditions and demand for agricultural products impacting farmers' income. Limited transportation infrastructure to the closest market (5%): Inadequate transport infrastructure hindering farmers' access to markets and sale of produce. Lack of infrastructure (3%): Absence or

inadequacy of basic facilities like roads and storage, affecting agricultural operations. Lack of credit/capital (8%): Inability to access financial resources or credit, constraining investment in agricultural inputs and technology. Unproductive soil due to inappropriate land management (20%): Soil degradation resulting from unsustainable land practices, such as overuse of chemicals or improper irrigation, leading to reduced fertility.

5.3. Migration and Remittances

The Figure 18 examines migration experiences, differentiating between personal and household (HH) perspectives, across various duration intervals in Tajikistan. For migration experiences lasting less than a year up to 2 years, 31% of individuals report personal involvement, whereas 38% of households indicate migration within this timeframe. In the 3-4 years duration bracket, personal migration experiences increase to 41%, while only 24% of households report migration. For durations exceeding 5 years, personal migration experiences decrease to 28%, mirroring the 38% of households indicating migration experiences. This comparison underscores the varying durations of migration experiences between individuals and households, providing insights into the complexities of migration dynamics within Tajikistan.

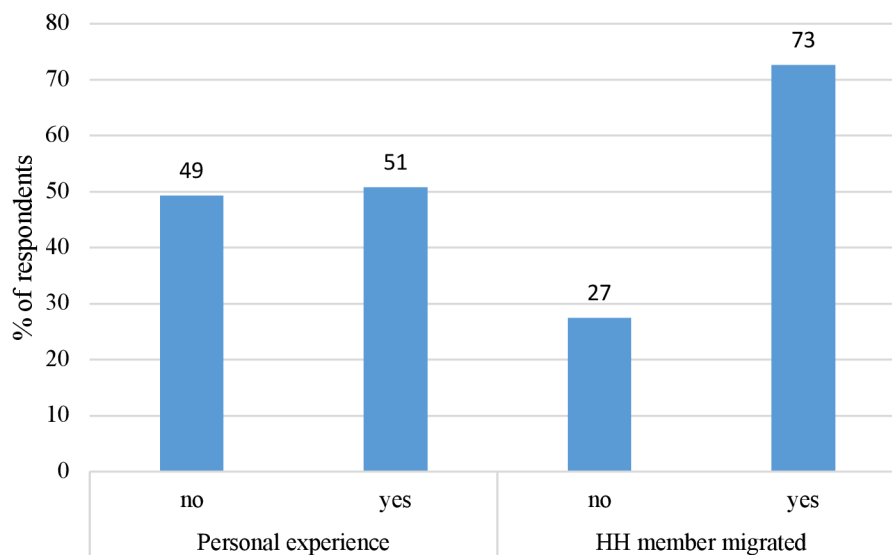


Figure 18: Migration experience

Source: Own processing

Most of the people who migrated personally and have relatives from (HH) who migrated abroad, prefer Russian Federation as a main destination (79% of personal experience) and (71%) of household members (Figure 19). Followed by Kazakhstan due to a closer proximity, however Kazakh's economy is much lower from the perspective of GDP, hence, average salary is also lower than in Russia. Turkey takes a third place with (8%) of personal migration and (1%) of household members. China, Europe and USA have relatively descent % ratio from the perspective of household members migration.

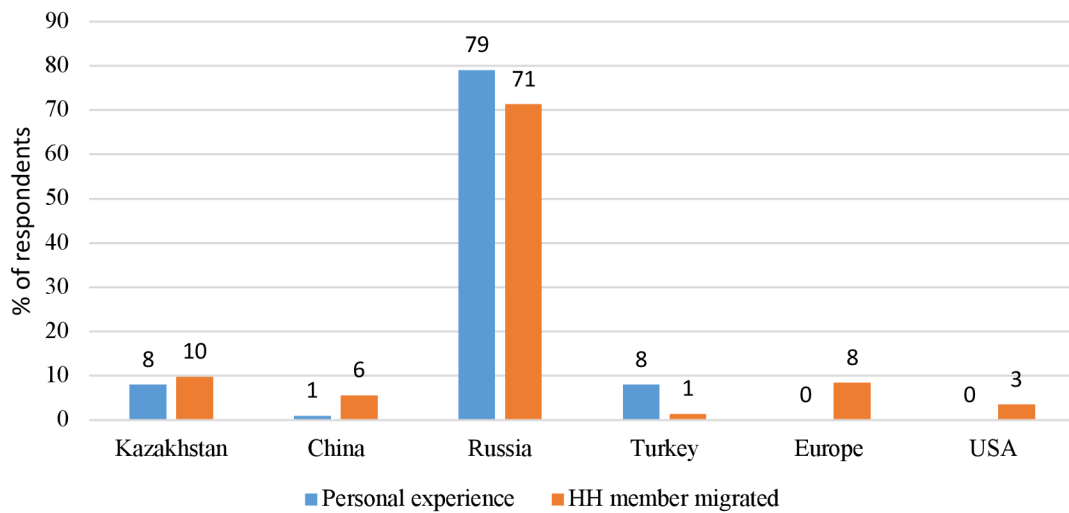


Figure 19: Main destinations

Source: Own processing

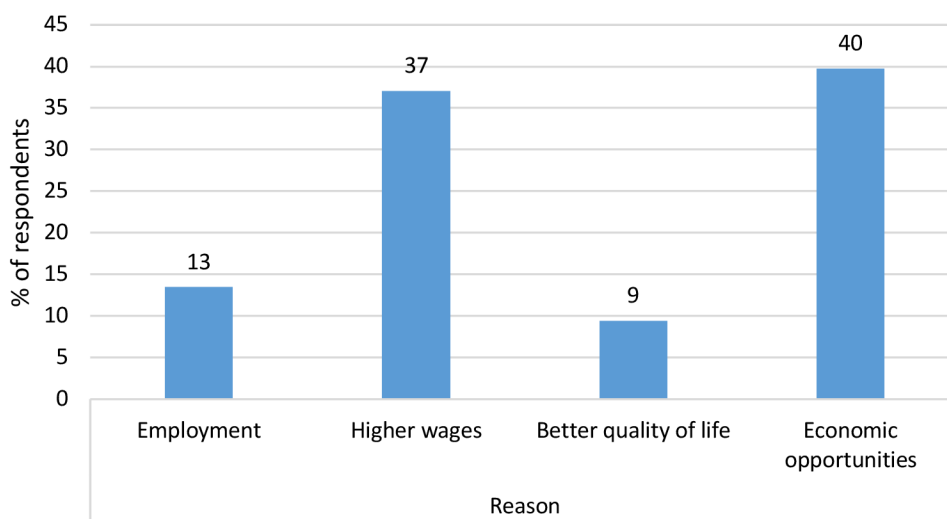


Figure 20: Reasons of migration

Source: Own processing

The Figure 20, delineates the motivations fueling migration in Tajikistan, each represented as a percentage. Employment (13%) is driven by the pursuit of job opportunities to sustain livelihoods. Higher wages (37%) reflecting the quest for better-paying employment prospects. Better quality of life (9%) indicates a desire for an improved standard of living, encompassing factors like healthcare and education. Economic opportunities (40%) highlighting the attraction towards enhanced economic prospects such as market access and entrepreneurial ventures. These percentages collectively portray the multifaceted reasons underpinning migration dynamics within Tajikistan, spanning from economic aspirations to aspirations for an elevated quality of life.

Construction (50%) emerges as the predominant occupation, showcasing substantial involvement in construction-related activities by both individuals and households. Transport and Communication (17%) represent significant but relatively smaller sectors, encompassing roles like drivers and telecommunications workers. Accounting/Finance (7%) denotes a smaller segment engaged in financial professions, while Agriculture (5%) highlights continued relevance despite urbanization. Utility Service (2%) and Housing (2%) signify minor roles in infrastructure and real estate. Trade (10%) reflects a noteworthy engagement in commercial activities. Lastly, Other (8%) encompasses diverse occupations, reflecting the multifaceted employment landscape in Tajikistan (see Figure 21).

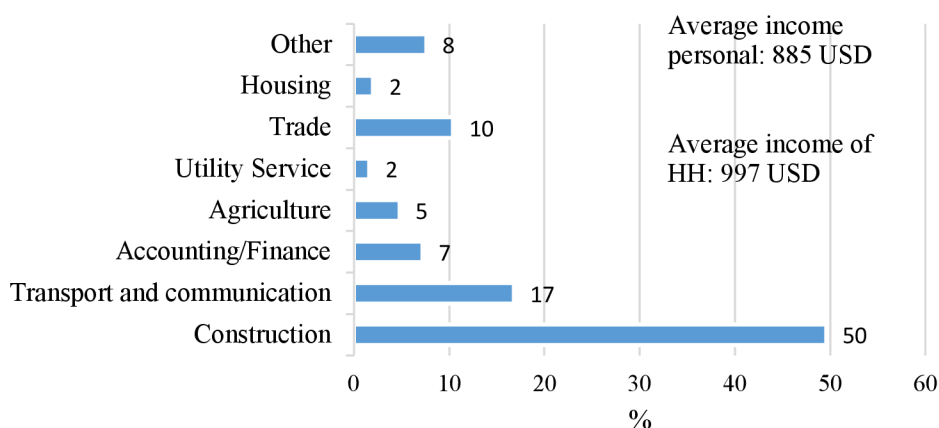


Figure 21: Occupation and Average Income of (PM) and (HH)

Source: Own processing

5.4. Effect of migration and remittances on agricultural production

A significant proportion of remittances is earmarked for Construction/repair of home (23%), reflecting a focus on housing infrastructure. Saving (27%) represents another substantial allocation, emphasizing financial planning and security. Agriculture (15%) receives notable attention, indicating investment in agricultural activities. Food and basic needs (16%) and Education of Children (10%) signify priorities towards sustaining livelihoods and supporting education. Clothes (6%) and Support family business (1%) denote smaller but present allocations. Medicaments and health expenses (2%) show a minor allocation towards healthcare needs, while Payment of mortgage (0%) reflects no allocation in this category (See Figure 22).

These allocations offer insights into the strategic utilization of remittances, addressing various aspects of livelihood, education, healthcare, housing, and entrepreneurial ventures within Tajikistan.

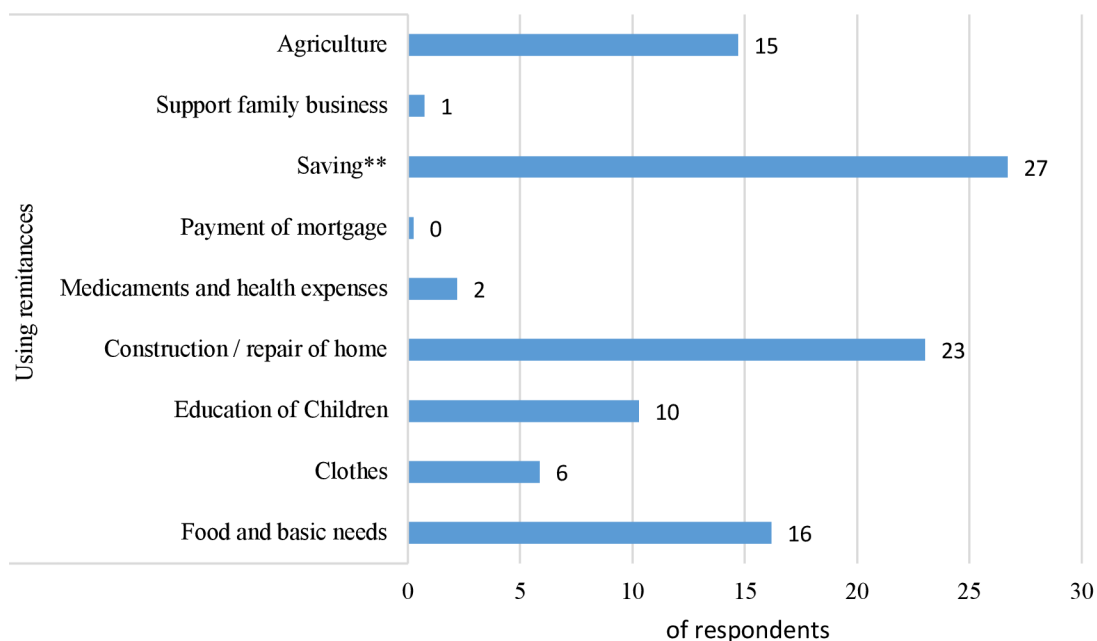


Figure 22: Remittances usage

Source: Own processing

Table 2 Perception of respondents who personally migrated and returned back regarding the effect of migration and remittances on agricultural production (Pearson χ^2 test of independence and the Fisher exact)

	Respondents who personally migrated and returned back (%)			Respondents without personal experience with migration (%)			Pearson χ^2 test of independence and the Fisher exact	
	agree	I do not know	disagree	agree	I do not know	disagree	Coefficient	p-value
Migration of family members leads to the labor shortage	31	0	69	46	5	49	11.708	0.002^a
Migration of family members leads to land abandonment	15	2	83	30	14	56	19.552	0.000
Remittances enable me to hire workers	54	8	38	43	16	41	3.637	0.162
Remittances enable me to invest in agriculture	45	18	37	31	30	39	5.543	0.033
Migration of family members lead to Increased workload for me	57	1	42	62	2	36	1.001	0.596 ^a
Migration of family members lead to Increased workload for children	31	11	58	41	4	55	4.588	0.101
Remittances enable me to run new businesses	36	28	36	33	18	49	4.594	0.101

Note: ^aFisher exact test was used

Table 3 Perception of respondents with HH members currently abroad regarding the effect of migration and remittances on agricultural production (Pearson χ^2 test of independence and the Fisher exact)

	Respondents with HH members currently abroad (%)			Respondents without HH members currently abroad (%)			Coefficient	p-value
	agree	I do not know	disagree	agree	I do not know	disagree		
Migration of family members lead to the labor shortage	35	1	64	48	7	45	11.349	0.004^a
Migration of family members lead to land abandonment	21	1	78	26	28	46	41.599	0.000^a
Remittances enable me to hire workers	54	8	38	35	20	45	8.061	0.018
Remittances enable me to invest in agriculture	41	24	36	32	24	44	1.644	0.440
Migration of family members lead to increased workload for me	61	1	38	56	2	42	0.471	0.790 ^a
Migration of family members lead to Increased workload for children	40	8	52	26	6	68	4.482	0.106
Remittances enable me to run new business	36	23	41	30	24	46	0.798	0.671

Note: ^aFisher exact test was used

The results of the Pearson χ^2 test of independence and the Fisher exact test revealed that there is a relationship between personal experience with migration and the perception of respondents whether migration leads to labor shortage, land abandonment and farm investment (Table 2). About 69% of respondents who personally migrated and returned back disagree that migration of family members leads to the labor shortage, whereas about 45% respondents without personal experience with migration disagree with the same statement suggesting, that respondents with personal experience with migration perceive the effect of migration on labor more positively.

Similarly, concerning land abandonment, approximately 78% and 46% of respondents agree that migration would not lead to negative consequences. However, there is disagreement between the two groups regarding remittances and their ability to hire new workers. Approximately 54% of respondents who have personally migrated and returned believe that remittances have facilitated the hiring of new workers, whereas respondents without personal migration experience mostly disagree, with 45% (see Table 3).

Overall, there are discrepancies in opinions between the two groups with differing migration experiences, yet there are also areas of common agreement and disagreement.

5.5. Discussions

The majority of individuals who migrated personally and those whose household members migrated abroad have a preference for the Russian Federation as the main destination. This is consistent with previous studies conducted in Tajikistan (JICA 2018). According to the Joint International Cooperation Agency, Russia is the most desirable destination for Tajik migrants, as it attracts 97.6% of them. Based on Zotova and Cohen (2016), it is a common practice among Tajik migrants to remarry in Russia and leave their original families unattended in their home country. Other countries, including Germany, Kazakhstan, the Kyrgyz Republic, the Republic of Korea, Turkey, the United States of America, the United Arab Emirates, and Uzbekistan.

Construction (50%) emerges as the predominant occupation, showcasing substantial involvement in construction-related activities by both individuals and households. This is in line with previous study of ITF (2010) and IOM 2020.

Results revealed that 16% of households spent remittances on food and basic needs. Based on previous studies major proportion of remittances is spent on fulfilling daily life necessities (Kakhkharov & Rohde 2020).

Based on the results, about 15% of households invest remittances in agriculture. Based on previous findings, the most common expenditure using remittances for agriculture was buying fertilizer. Other popular remittance expenditures included irrigation systems, pesticides, livestock, cultivating new varieties, and planting fruit and nut trees. A small number of households spent money on buying or renting land, planting fast-growing trees, deciduous and conifers, paying wage work, and investing in agricultural businesses (CIFOT and GIZ 2021).

Results suggest that returned migrants and respondents with a household member abroad perceive the effect of migration on labor, land abandonment, hire of workers more positively. Non-migrants may have different views about migration based on their knowledge, experiences, and the information available to them. They might perceive migration as a means for better economic opportunities or as a risk that leads to social and economic changes in their community (Khalid 2011). Migrant households' perceptions can be influenced by the nature and outcomes of their migration experiences (Bilgili et al. 2018).

6. Conclusion

This thesis provides an analysis of the impact of migration and remittances on agricultural production, with a focus on Tajikistan.

The theoretical part delves into the socio-economic and demographic landscape of Tajikistan, highlighting its agricultural production and the structure of farms in the region. It also explores migration theories, such as transitional and circular migration, to provide a theoretical framework for understanding migration patterns.

The empirical findings reveal significant insights into the demographic trends, agricultural production, and the role of migration and remittances in Tajikistan. The data suggests a considerable reliance on subsistence farming in the region, alongside the significant contributions of migration and remittances to the economy and household welfare.

The results underscore the complex interplay between migration, remittances, and agricultural production, with migration serving as both a coping mechanism and a driver of change in rural livelihoods. Remittances play a crucial role in supporting agricultural activities, improving household welfare, and mitigating poverty.

Pearson χ^2 test of independence and the Fisher exact test and Tajik households' perceptions shed light on the impact of migration on the agricultural sector. When considering personal migration experiences, it's evident that those who have experienced migration perceive the effect of migration on labor shortage and land abandonment differently compared to those without migration experience. On the other hand, household (HH) perceptions paint a slightly different picture. Similar to personal experiences, migration of family members is associated with labor shortage and land abandonment. However, the perception regarding the use of remittances differs, with households indicating that remittances enable them to invest in agriculture.

The majority of individuals who migrated personally and those whose household members migrated abroad have a preference for the Russian Federation as the main destination, comprising 79% of personal migration experiences and 71% of household members' migration. This preference is likely due to factors such as historical ties, linguistic familiarity, and employment opportunities.

Kazakhstan follows as the second preferred destination, likely due to its proximity to Tajikistan, despite its lower GDP and average salary compared to Russia. Turkey ranks third in preference, with 8% of personal migration experiences and 1% of household members' migration. Additionally, a notable percentage of household members have migrated to destinations such as China, Europe, and the USA, indicating a diverse range of migration destinations among Tajik households

Overall, the study contributes to our understanding of the dynamics between migration, remittances, and agricultural production in Tajikistan, highlighting the need for policies that harness the potential of migration for sustainable agricultural development and rural livelihood improvement.

7. References

- Abebaw D, Admassie A, Kassa H, Padoch C. 2019. Does rural outmigration affect investment in agriculture? Evidence from Ethiopia. *Migration and Development* 1:25.
- Atamanov A, van den Berg M. 2012. Heterogeneous Effects of International Migration and Remittances on Crop Income: Evidence from the Kyrgyz Republic. *World Development* 40:620-630.
- Bilgili Ö, Kuschminder K, Siegel M. 2018. Return migrants' perceptions of living conditions in Ethiopia: A gendered analysis. *Migration studies* 6:345-366.
- Böhme MH. 2015. Does migration raise agricultural investment? An empirical analysis for rural Mexico. *Agricultural economics* 46:211-225.
- Böhme MH. 2015. Does migration raise agricultural investment? An empirical analysis for rural Mexico. *Agricultural economics* 46:211-225.
- Castelhano M, Lawell C, Sumner DA, Taylor JE. 2016. The effects of migration and remittances on productive investment in rural Mexico. In University of California Davis Working Paper.
- Chiodi V, Jaimovich E, Montes-Rojas G. 2012. Migration, remittances and capital accumulation: Evidence from rural Mexico. *Journal of Development Studies* 48:1139-1155.
- de Hass H. 2006. Migration, Remittances and Regional Development in Southern Morocco. *Geoforum* 37:565-580.
- Fisher R. A. 1922. On the interpretation of χ^2 from contingency tables, and the calculation of P. *Journal of the Royal Statistical Society* 85: 87-94.
- GIZ. 2021. Analysis of the agricultural sector for the NDC revision in Tajikistan.
- Global Information and Early Warning System on Food and Agriculture (GEWIS). 2023. Tajikistan's farming has massive potential. Available at: <https://www.adb.org/sites/default/files/publication/656481/support-labor-migration-tajikistan.pdf>
- Harden C. 1996. Relationships Between Land Abandonment and Land Degradation: A Case from the Ecuadorian Andes. *Mountain Research and Development* 16:274-280.
- Household Budgetary Survey, HBS 2022. Household Budgetary Survey of Tajikistan. Provided by World Bank (2023) [online]. Available at: <https://documents.worldbank.org/en/publication/documents->

[reports/documentdetail/532641628870881778/tajikistan-rebounding-economy-challenges-remain](https://www.imf.org/en/Reports/DocumentDetail/532641628870881778/tajikistan-rebounding-economy-challenges-remain)

- Hyden G, Turner B, Kates R. 1993. Beyond Intensification. In B. Turner, G. Hyden, & R. Kates, Population Growth and Agricultural Change in Africa **320**:260. Gainesville: University of Florida Press.
- IMF. 2023. IMF Executive Board Concludes 2022 Article IV Consultation with the Republic of Tajikistan. Press Release PR23/92. International Monetary Fund (IMF). <https://www.imf.org/en/News/Articles/2023/03/24/pr2392-tajikistan-imf-executive-board-concludes-2022-article-iv-consultationwith-tajikistan>
- IOM. 2020. World Migration Report 2020. Retrieved from Geneva Switzerland: <https://publications.iom.int/books/world-migration-report-2020>
- Japan International Cooperation Agency (JICA). 2018. Household Survey: Migration, Living Conditions and Skills: Panel Study—Tajikistan, 2018. Tokyo
- Jokisch BD. 2002. Migration and Agriculture Change: The Case of Smallholder Agriculture in Highland Ecuador. *Human Ecology* **30**:4.
- Kakhkharov J, Rohde N. 2020. Remittances and financial development in transition economies. *Empirical Economics* **59**: 731-763.
- Khalid R. 2011. Changes in Perception of Gender Roles: Returned Migrants. *Pakistan Journal of Social & Clinical Psychology* **9**.
- Li L, Tonts M. 2014. The impacts of temporary labour migration on farming systems of the Loess Plateau, Gansu Province, China. *Population, Space and Place* **20**:316-332.
- McCarthy N, Carletto C, Kilic T, Davis B. 2009. Assessing the impact of massive out-migration on Albanian agriculture. *The European Journal of Development Research* **21**:448-470.
- Mendola M. 2008. Migration and technological change in rural households: Complements or substitutes? *Journal of Development Economics* **85**:150-175.
- Miluka J, Carletto G, Davis B, Zezza A. 2010. The Vanishing Farms? The Impact of International Migration on Albanian Family Farming. *The Journal of Development Studies* **46**:140-161.
- Mochebelele M, Winter-Nelson A. 2000. Migrant Labor and Farm Technical Efficiency in Lesotho. *World Development* **28**:143-153.
- Mughal M, Makhlof F. 2013. Labour effects of foreign and domestic remittances—evidence from Pakistan. *International Review of Applied Economics* **27**:798-821.

- Pearson K. 1900. X. On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from random sampling. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science* **50**: 157-175.
- Pomfret, R. (2006). *The Central Asia Economies Since Independence*. Princeton University Press. p.246. ISBN: 978-0-691-1246-5.
- Quinn MA. 2009. Estimating the impact of migration and remittances on agricultural technology. *The Journal of Developing Areas* **199**:216.
- Rozelle S, Taylor EJ, deBrauw A. 1999. Migration, Remittances and Agriculture Productivity in the [People's Republic of] China. *American Economic Review* **127**:287-291
- Sauer J, Gorton M, Davidova S. 2013. Migration and Agriculture Efficiency- Empirical Evidence from Kosovo. *Wie viel Markt und wie viel Regulierung* **1**:13. Berlin: Jahrestagung der GEWISOLA.
- Singh R, Singh K, Jha A. 2012. Effect of Migration on Agriculture Productivity and Women Empowerment in Bihar. Retrieved October 30, 2013, from SSRN: <http://dx.doi.org/10.2139/ssrn.2111155>
- Stark O. 1991. *The Migration of Labor*. Cambridge, MA: Basil Blackwell
- TAJSTAT. 2022. Selected indicators of industrial production, 1985–2022. Agency of statistics under President of the Republic of Tajikistan. Dushanbe. Available at: <https://www.stat.tj/en/tables-real-sector>.
- TAJSTAT. 2023. *The World Bank in Tajikistan*. Agency of statistics under President of the Republic of Tajikistan. Dushanbe. Available at: [online source]
- Taylor EJ, Wyatt T. 1996. The Shadow Value of Migrant Remittances, Income and Inequality in a Household-farm Economy. *Journal of Development Studies* **32**:899-912.
- Taylor JE, Lopez-Feldman A. 2010. Does migration make rural households more productive? Evidence from Mexico. *The Journal of Development Studies* **46**:68-90.
- UNDP. 2021. *Human Development Report*. Available at: https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22reportenglish_0.pdf
- World Bank. 2020. *Tajikistan—Tajikistan: Energy Loss Reduction Project*. Independent Evaluation Group, Project Performance Assessment Report 151202 Washington, DC: World Bank

- Wouterse F. 2010. Migration and technical efficiency in cereal production: Evidence from Burkina Faso. *Agricultural economics* **41**:385-395.
- Zahonogo P. 2011. Migration and agricultural production in Burkina Faso. *African Journal of Agricultural Research* **6**:1844-1852.
- Zotova N, Cohen JH. 2016. Remittances and their social meaning in Tajikistan. *Remittances Review* **1**: 5-16.

Appendices

List of the Appendices:

Dear respondent, I would like to thank you in advance for participating in this questionnaire. This survey aims to address the current situation of migration and its impact on agricultural production in the Republic of Tajikistan. The survey will take approximately 30 minutes to complete. The questionnaire is voluntary and completely anonymous.

Thank you for your time and your help.

Azamjon Mirkholiqov XMIRA010@studenti.czu.cz

The Czech University of Life Sciences Prague, the capital city Prague

General information

1) What is your gender?

Male

Female

2) What is your age?

18 – 26

47 – 56

27 – 36

56 – 63

37 – 46

More than 63

3) What is your highest education achieved?

Primary education

Secondary education (High school)

Bachelor degree

Master degree

PhD degree

4) In which region do you reside?

B.Gafurov

Khisor

Panjakent

Panj

Isfara
Vahdat

Other _____

5) To what ethnicity do you belong to?

Tajik
Uzbek
Kazak
Kyrgyz
Other _____

6) What is the size of your household?

1 person	4 – 6 people
2 people	More than 6
3 people	

7) What is your marital status?

Married
Divorced
Single
Widowed

Migration and remittances

Personal experience

8) Did you migrate to another country for a purpose of work in the last 10 years?

Yes
No

9) What was your choice of destination for work?

Kazakhstan
China
Russia
Turkey
Other

10) How long have you been working abroad?

Less than a year	2 years
1 year	3 years

4 years
5 years

More than 5 years

11) What was the level of your income abroad, measured in USD?

300 – 600 USD
601 – 1000 USD
1001 – 1500 USD
1501 – 2000 USD

12) What was the percentage of your monthly income you send to your household?

Less than 10%	51 – 60 %
10 – 20 %	61 – 70 %
21 – 30 %	71 – 80 %
31 – 40 %	81 – 90 %
41 – 50 %	100%

13) What kind of work did you do, when you traveled abroad?

Construction	Utility services
Transport and communication	Trade
Accounting/Finance	Housing
Agriculture	Other services

Family member's experience

14) Is somebody from your family currently working abroad?

Yes
No

15) Please mention who

Wife/husband
Daughter/son
Sister/brother
Mother/Father
Other _____

16) What is his/her/their choice of destination for work?

Kazakhstan

China
Russia
Turkey
Other

17) How long have he/she/they been working abroad?

Less than a year	4 years
1 year	5 years
2 years	more than 5 years
3 years	

18) What is the level of his/her/their income abroad, measured in USD?

300 – 600 USD
601 – 1000 USD
1001 – 1500 USD
1501 – 2000 USD

19) Do you receive remittances? (Money sent from family member working abroad)

Yes
No

20) How often do you receive remittances?

Monthly
Twice a month
Quarterly
Semi-annually
Annually

21) For which purposes do you use remittances?

Food and basic needs	Payment of mortgage
Clothes	Saving
Education of children	Support family business
Construction / repair of home	Agriculture
Medicaments and health expenses	

22) What kind of work do they/he/she do, when migrated abroad?

Construction
Transport and communication
Accounting/Finance
Agriculture

Utility services
Trade
Housing
Other services

23) What is the reason for your family members to go and work abroad?

Employment
Higher wages
Access to a better healthcare
Better quality of life
Economic opportunities
Education

Effect of migration and remittances on agricultural production

24) Do you think that migration has effect on the following issues?

Migration of family member lead to the labour shortage

Agree
Disagree
I don't know

Migration of family member lead to land abandonment

Agree
Disagree
I don't know

Remittances enable my family to hire workers

Agree
Disagree
I don't know

Remittances enable me and my family to invest in agriculture

Agree
Disagree
I don't know

I have to work more hours on the farm due to the migration of family member(s)

Agree

Disagree

I don't know

My children have to work more hours on the farm due to the migration of family member(s)

Agree

Disagree

I don't know

Remittances enable me to run my own business

Agree

Disagree

I don't know

Agricultural production

25) Do you own farm?

Yes (own)

No (rent)

26) What is size of your farm? (in ha)

27) In case of rent, how much are you paying for 1(ha)?

28) What is the distance from residence (m)

29) Do you plant vegetable, fruit or cereals?

Yes

No

30) Please specify constraints affecting your production

Drought

Hail

Wind erosion

Low soil fertility and productivity

Pest infestation

Problem with irrigation infrastructure

Limited access to land (cost, availability)

Market instability, low demand

Limited transportation infrastructure to closest market

Lack of infrastructure

Lack of credit/capital

Unproductive soil due to inappropriate land management