

International Migration and Household Well-Being

Evidence from Uzbekistan

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Abstract

As one of the most pivotal ways that labor markets adjust to changing economic conditions, international migration is never far from the center of the national discussion in Uzbekistan. This paper summarizes the relationship between recent international migration trends and household well-being using a combination of administrative records and unique panel survey data from the Listening to the Citizens of Uzbekistan study. The panel design provides data on changes in well-being leading up to and following a migrants' departure. This feature enables analysis that controls for unobserved time-invariant respondent and location characteristics. The findings show that weak local labor markets drive labor migration from Uzbekistan. Beginning to consider migration is associated with

low life satisfaction, job loss, and unemployment. In contrast, actually migrating is associated with a remarkable improvement in labor market outcomes, alongside strong recovery in subjective and monetary measures of household welfare. The results further show that current migrants are more likely to send remittance payments when household members have deteriorating life satisfaction and/or subjective reports of worsening economic conditions at home. In the absence of remittance income, the poverty rate in Uzbekistan (measured at \$3.2/day purchasing power parity) would be expected to rise from 9.6 to 16.8 percent, or to about 12.2 percent assuming (implausibly) that all current migrants were to find formal employment at the local prevailing median wage.

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I – Introduction

In 2017, a change in government leadership brought an abrupt shift in national strategy and significant economic reform to Uzbekistan. Some of the more remarkable changes included unifying official and unofficial currency exchange rates, moves to abolish forced labor in agriculture, reductions in trade restrictions, and the relaxation of strict visa requirements. Alongside these came a re-evaluation of the government's stance on international migration.

Despite a history of sending relatively high numbers of labor migrants abroad – to countries including the Russian Federation, Turkey, and the Republic of Korea – the previous government took many steps to discourage international migration. It did this both through official policy and indirectly through messaging and criticism. An exit visa system imposed substantial bureaucratic requirements on potential migrants, and official registration procedures were both time-consuming and expensive. Avoiding official registration procedures entailed significant risks, up to and including loss of citizenship in some cases. Public statements from senior government officials were also frequently disparaging of migrants.²

However, within the wider reform effort led by the new President in 2017, a decree³ was issued stating that migrants would no longer require government permission to travel abroad (starting on January 1, 2019). Shortly thereafter, the government began negotiations with the Russian Federation regarding plans to establish a joint migration processing center in Uzbekistan. Several other notable reforms include:

- Empowering a new Agency for External Labor Migration under the Ministry of Employment and Labor relations, opening branches in each region, and overseas offices in major cities;
- Granting rights to private organizations to carry out activities to employ citizens of Uzbekistan abroad, subject to the reservation of funds in the amount of US\$50,000;
- Introduction of preferential fees and subsidized loans for the purchase of travel tickets for temporary labor migration;
- The creation of a fund to support and protect the rights and interests of citizens engaged in labor activities abroad;
- Cancellation of the procedure for issuing permits to work abroad with the introduction of the voluntary registration system.

In the future, these steps may lead to an expansion of potential migration and represent an important opportunity for Uzbekistan as it adopts wider market-oriented reforms and seeks to generate high rates of economic growth. In Uzbekistan as in every country, migration plays a key role in balancing local differences in patterns of labor demand and supply, improving economic outcomes in both sending and receiving locations. These gains are primarily felt through improvements in the functioning of the relevant labor market but have knock-on effects for proxies of people's welfare, including measures of poverty and subjective well-being.

² For instance, in 2013, president Islam Karimov famously referred to international migrants from Uzbekistan as lazy on national television, also saying that he was disgusted by them.

³ Available at <https://regulation.gov.uz/ru/document/131>

When there are strong impediments to people's movement however, differing trajectories in local labor markets can lead to costly and harmful imbalances. For instance, when there is strong competition in a local market for relatively few workers that fit the appropriate profile and restrictions on entry, wages will tend to rise and the cost of doing business will increase, potentially stifling economic expansion if allowed to progress to extremes. Conversely, in a location where there are many workers with similar skills, low levels of labor demand, and impediments to exit, wages can stagnate or fall when set competitively, and local rates of unemployment can potentially rise. This is a particularly important concern in economic downturns, as the speed of recovery often differs spatially and across sectors. A more geographically flexible labor force can potentially quicken the pace of recovery in these situations and reduce damaging spells of unemployment.

Many additional benefits of labor migration are described in the international literature. Migrant-sending countries tend to have lower domestic unemployment, greater poverty reduction, and higher disposable income than otherwise comparable countries. Better matching between the location of workers and employment opportunities lessens the strain on government services provided to people without work and leads to higher wages and economic growth through increased productivity. Because poorer and more rural areas usually send a disproportionate share of migrant workers, policies that facilitate the flow of people also disproportionately improve livelihoods of economically vulnerable people. Long-term economic transformation is supported by high rates of migration through faster rates of technology transfer, deeper international trade networks, and higher rates of investment. In contrast, there are no documented cases of transition economies reaching upper-income levels by limiting emigration. Table 1 summarizes some of the relevant literature on these points.

Table 1: A Selection of Relevant Studies

Beine et al. (2013)	A positive correlation between emigration to rich countries and the increase in the stock of human capital
Borjas (2003)	Positive wage effects for migrants, potential negative effects for host-country workers with similar skills.
Bouton, et al. (2011)	Emigration has a positive and significant impact on domestic (sending country) wages
Cantore and Cali (2015)	Migration (whether permanent or temporary) is beneficial for income as well as for poverty reduction in the home countries as it raises remittances, labor productivity, trade, and foreign direct investment and it provides incentives for human capital accumulation. These channels offset the negative impact of "brain drain."
Clemens (2013)	(a) Migrants transfer money, skills, technology, and ideas (b) Restricting exit has not been shown to yield intended benefits (c) migration helps to alleviate unemployment/underemployment issues.
Dustmann, et. al. (2012)	Emigration from Poland was largest for workers with intermediate skill levels, and that it is domestic wages for this skill group that increased most. Emigration led to a slight overall increase in wages
Hanson (2009)	Overview of economic consequences of migration. Among many points considered: (i) Having migrants abroad provides insurance to households, helping them smooth consumption in response to income shocks, be they domestic or foreign. (ii) some evidence that

	increases in remittances are associated with increased expenditure on education and health.
Mountford (1997), Stark et al. (1997)	Skilled migration could induce human capital investment in the home country
Rapoport (2016)	The role of diaspora networks in enhancing cross-border flows of goods, capital, and knowledge, eventually contributing to efficient specialization, investment, and productivity growth in the migrants' home-countries
Stillman et al. (2014)	Migration improves migrants' subjective mental health and income adequacy, reduces feelings of happiness and social respect, and does not alter self-rated overall welfare.

However, there are clearly also some costs associated with high rates of emigration. At the household level, the absence of household members is intrinsically difficult in many cases and can also lead to lower labor force participation and a concentration of household responsibilities on members who stay behind. The results of this study suggest that this tendency is indeed present in Uzbekistan as well (i.e. household members that remain in Uzbekistan tend to work slightly less than those that do not have migrant members), but that on net, households with migrants are substantially better off in monetary terms nonetheless.

At the aggregate level, migration leads to the loss of human capital, and when this group is particularly highly skilled, a situation commonly referred to as “brain drain” can develop. In this scenario, particularly educated people are more likely to leave the country, creating a deficit of highly skilled workers. However, this is a less relevant concern in Uzbekistan – as is shown in section III of this report, most international migrants are younger, and have terminal degrees in either vocational or secondary education. These groups are strongly over-represented in migrant flows in comparison to the general population. In contrast, tertiary educated people are underrepresented in current migrant flows.

The following sections of this paper proceed as follows. Section II includes an overview of the data used, section III provides an overview of aggregate migration patterns for Uzbekistan, demographic and related information on migrants, and details on the profile of sending households. Section IV investigates the drivers of migration decisions, focusing mostly on the panel survey data which allow analysis of the patterns of departing/current/returning migrants over time. Section V provides analysis of household well-being, including remittances and monetary measures, as well as subjective measures. Section VI concludes.

II – Data

The primary data used for this study come from the Listening to the Citizens of Uzbekistan (L2CU) study conducted by the World Bank together with the Development Strategy Center of Uzbekistan and other partners. The study collected information in four distinct modes:

- A comprehensive national survey conducted in-person with a representative sample of 4,010 households. Recipients of social protection benefits were oversampled using registration data maintained at the mahalla level, and sampling weights were adjusted for the inclusion of these households in the baseline results. Full data on household consumption, expenditure, income, remittances, and information on any current migrants were collected. A full module on well-being and views on local economic conditions was also included.
- Administrative data collected from mahalla officials in each of the selected PSUs of the national household survey. This included comprehensive data on all officially registered migrants, the demographic profile of migrants, the registered destination countries, local labor market information, social protection beneficiaries, and related data.
- A nationally representative panel survey conducted monthly over the phone with a randomly selected subsample of 1,503 households that participated in the baseline. The survey also collected comprehensive information on potential/intending/current and returning migrants.
- Qualitative data collected in focus groups. These data include discussions regarding hurdles to migration and the administrative procedures surrounding migration decisions.

The primary sampling units (PSU) for the L2CU baseline survey were *mahallas*, the lowest-level administrative unit in Uzbekistan. A total of 200 PSUs were randomly selected proportionate to size by World Bank staff using a full official list of mahallas provided by the National Mahalla Committee of Uzbekistan. An “omniscient” adult household member was interviewed for each household, preferably the individual with the most information about the household budget, and protocol allowed multiple people to contribute if the primary respondent did not have responses for questions about other household members (for instance, regarding incomes or work arrangements).

The design closely followed protocols applied to Living Standards Monitoring Surveys (LSMS) type surveys. The national sample was stratified by region and by urban areas. These data were cross-validated with data on “settlements” provided by the National Statistical Agency (NSO), which yielded a nearly exact match at the province level. All data collection efforts (i-iv above) were carried out within the framework of the mahallas randomly selected in the first stage.⁴ The NSO was consulted in the design of the study, including the questionnaires used and regarding the sample design. Support for review and design was provided by a panel formed of local think tanks and government representatives. Survey data collection was conducted by a private firm under the direct supervision of World Bank staff.

⁴ Additional information on the sample design, the survey instruments, and related technical details is available at:

Table 2: Mahalla Sample and Descriptive Statistics

Province	<u>First-Stage Sample</u>			<u>Admin Data</u>	
	Total PSUs	Urban	Non- Urban	Migrant Pop Share	Male Share Migrant
Andijan	15	2	13	4.6%	85%
Bukhara	18	3	15	4.5%	84%
Jizzakh	8	1	7	2.8%	80%
Kashkadarya	19	2	17	2.0%	87%
Karakalpakstan	22	4	18	2.4%	79%
Navoi	10	2	8	1.7%	79%
Namangan	16	3	13	2.8%	85%
Samarkand	16	2	14	3.9%	84%
Syrdarya	5	1	4	1.9%	78%
Surkhandarya	10	1	9	3.8%	91%
Tashkent	15	4	11	1.7%	55%
City of Tashkent	14	14	0	1.8%	54%
Fergana	18	4	14	3.0%	86%
Khorezm	14	2	12	5.6%	80%
Total	200	45	155	3.1%	80%

The administrative data collection approach was simple data entry from official mahalla records in selected PSUs. Each mahalla in Uzbekistan is legally obligated to maintain such records for every person and family residing in that location. These data cover the total population size, demographics, social protection programs, local amenities, and migrant populations. Following the conclusion of the survey data collection fieldwork, the survey data design weights were adjusted on observed population totals in the administration records within the mahallas. These estimates were assumed to be more accurate as they had been updated within three months of the time of the survey fieldwork. Although not identical, there is a strong correlation between the migration descriptive statistics derived from the mahalla records, and those observed in the baseline survey data (as reported in Table 2).

The second stage procedure was conducted using simple random selection of households with equal probability within selected mahallas. A separate stratification level for households that receive social assistance was included, totaling 4 households per mahalla. The final target sample included 20 households per mahalla, 800 of which were social protection recipients by design. The baseline survey included a full consumption and expenditure module using a list/recall approach. The resulting estimates are representative for 12 regions (referred to as provinces in Uzbekistan), 1 autonomous republic, and 1 independent city (Tashkent), crossed with their urban areas (except for the City of Tashkent, which is entirely urban). The baseline survey was conducted entirely on tablet devices (CAPI), enabling validation using cross-referencing, confirmation using geo-coordinates, and other techniques to ensure accuracy. The survey was conducted over the course of a 1.5-month period in May/June 2018. Survey descriptive statistics from the baseline and from the first wave of the panel survey are included in table (3).

Table 3: Survey Sample and Descriptive Statistics

Province	HHs	<u>Baseline</u>		<u>Panel (Round 1)</u>		
		Share w/ Migrants	Migrant Pop Share	Panel HHs	Share w/ Migrants	Migrant Pop Share
Andijan	304	26%	5.7%	115	23%	4.9%
Bukhara	358	32%	6.2%	131	25%	4.1%
Jizzakh	162	6%	1.5%	59	4%	1.5%
Kashkadarya	384	17%	3.8%	147	15%	2.9%
Karakalpakstan	440	31%	6.8%	164	30%	6.4%
Navoi	201	5%	1.1%	77	1%	0.2%
Namangan	320	21%	4.7%	122	19%	3.2%
Samarkand	321	25%	5.7%	120	24%	5.0%
Syrdarya	100	9%	2.1%	38	18%	3.6%
Surkhandarya	203	13%	2.8%	72	15%	3.0%
Tashkent	300	4%	1.2%	111	6%	1.1%
City of Tashkent	281	2%	0.5%	106	4%	0.8%
Fergana	359	21%	4.5%	135	15%	2.6%
Khorezm	280	40%	9.5%	106	36%	7.5%
Total	4013	19%	4.2%	1503	18%	3.5%

After completion of the face-to-face baseline, interviewers began regularly calling a randomly selected panel of 1,503 households over the phone to conduct short interviews, following a set monthly schedule agreed to by the participating household. The questionnaire for these phone interviews was designed to monitor trends in migration, subjective well-being, measures of income, employment, service disruptions, and related indicators. Phone-based interviews began on September 5, 2018, and the first eight rounds of the survey are used in the analysis that follows, covering the entire period to the end of April 2019. A total of 12,137 unique observations are available for analysis.

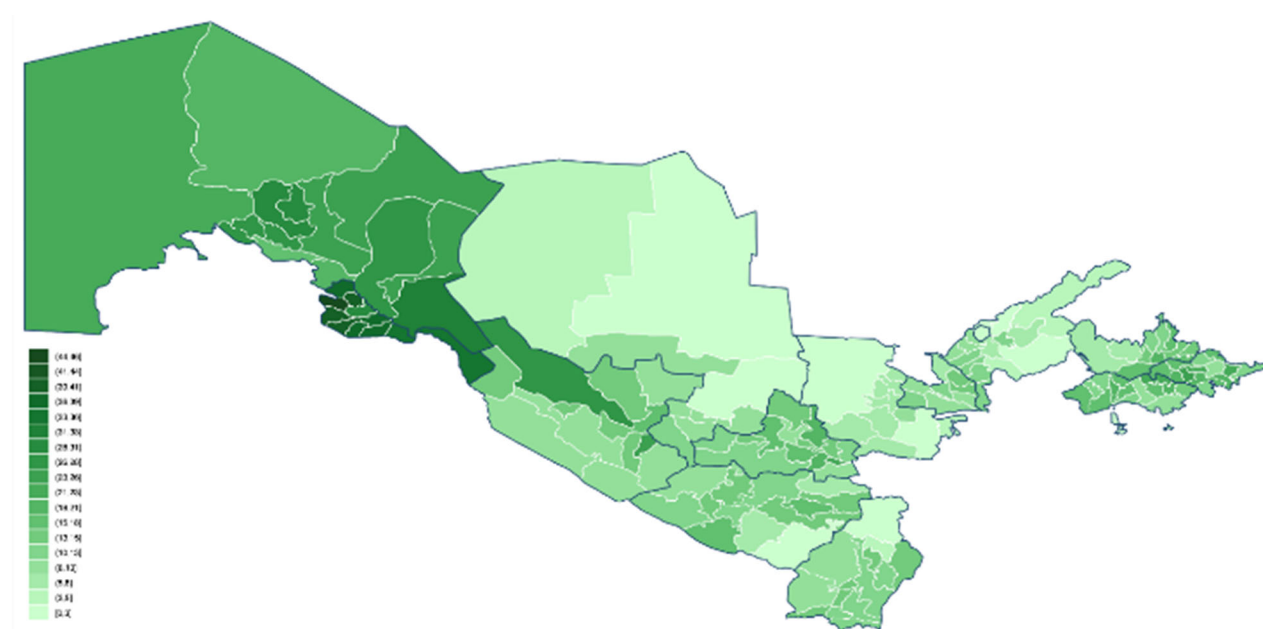
Attrition is one potential concern using panel data of this type. To ensure that non-take-up in the first round (and attrition in subsequent rounds) did not seriously affect the required sample size for survey representativeness, households that refused to participate were replaced with other households drawn from the same sample cluster. However, any systematic difference in the household characteristics due to refusal to participate could lead to bias if the replacement households were different on average (with respect to observable characteristics) from the households that refused. Among the random sample of 1,503 households originally drawn from the baseline, about 25% refused to participate in the first round (i.e. initial take-up in the first phone round totaled 1,122 randomly sampled households, and 381 randomly selected replacement households to make up for those that refused or could not be contacted). Comparing those who agreed and those who refused to participate shows that in general, relevant household characteristics such as total household consumption, migration status, and household size do not differ significantly between the two groups. The exception is that rural households are substantially less likely to drop out of the sample and require replacement. However, random selection of replacements from the same PSU results in near perfect balance when comparing to baseline summary statistics.

Attrition rates (or nonresponse rates) have tended to be low and stable across rounds of the L2CU panel survey, ranging from 1 to 3 percent, and 88 percent of the sample completed every round between September 2018 and April 2019. These results are particularly encouraging if compared to similar high-frequency surveys, in which attrition rates are generally higher. For instance, the World Bank project “Listening-to-LAC” registered attrition rates for Peru of around 67 percent for the first follow-up survey, increasing by about 3 percent with each round and reaching 75 percent in round six (Ballivian et al. 2015). Both the initial and final attrition rate for the Listening-to-LAC survey in Honduras was lower than for the survey in Peru (41 and 50 percent, respectively), but still consistently higher than for L2CU. Other examples World Bank high-frequency surveys in Africa have resulted in similar rates of attrition, or higher (Demombynes et al. 2013; Croke et al. 2012). However, a similar study in Tajikistan (Listening-to-Tajikistan) that began in 2015 met with similarly high rates of compliance.

To take non-take-up and attrition into account, the participating sample is reweighted by developing a model using observable and relatively time-invariant characteristics from the baseline to predict the probability of dropping out for each household. Responses are then weighted to account not only for the sampling design but are also reweighted in each round to partially account for any bias introduced due to households dropping out (if it is unaccounted for by randomly sampling replacement households from the same PSUs).

III – Profile of Migration in Uzbekistan

Figure 1: Share of households with at least one Migrant abroad for work, July 2018

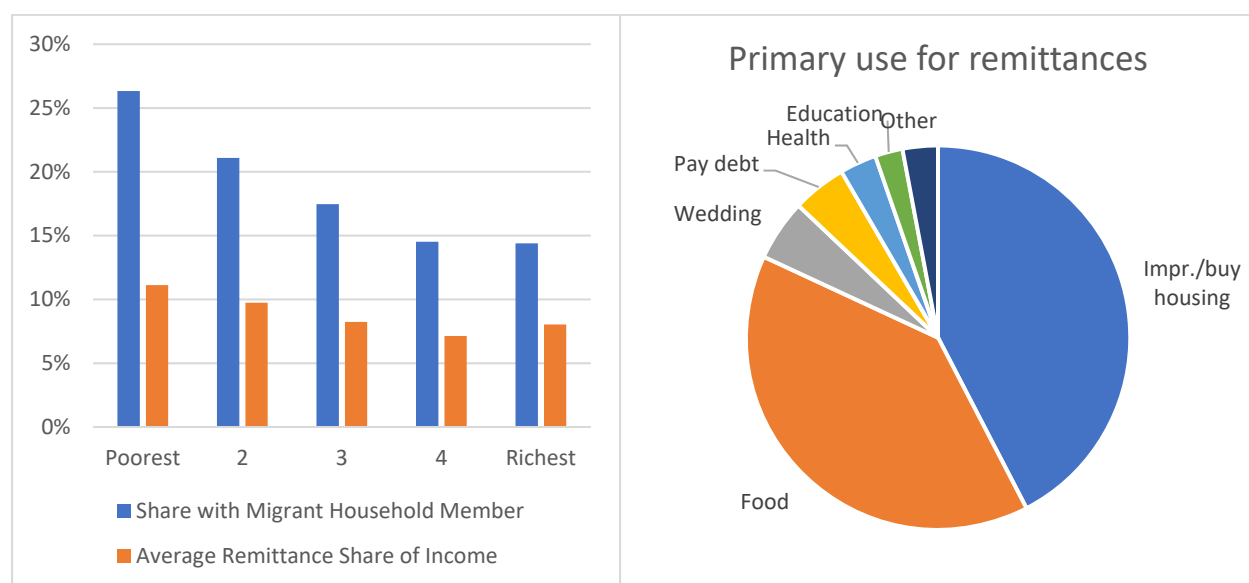


Notes: Small area estimates of share of migrant-sending households. Listening to the Citizens of Uzbekistan Baseline Survey, Author's calculations

Both in terms of absolute numbers and in terms of percentages, most Uzbek labor migrants are from poorer and more rural areas. More than 26 percent of the poorest quintile of households in Uzbekistan include at least one member who is an international migrant compared to about 14 percent in the

richest quintile. The poorest households are also most reliant on the remittances that they receive from abroad: remittances account for 11 percent of household income in the poorest quintile households, and about 8 percent in the richest quintile. The two most important uses of remittance income are for food and to buy or improve housing (combined, these account for about 82 percent of the primary use of remittance income). Expenditure on food is substantially more common among poorer households. It is important to note however that as remittance income tends to relax household budgets in general (the income is “fungible”) this is a rather subjective measure of the welfare impact of remittance income.

Figure 2: Migration and Use of Remittances



Notes: Listening to the Citizens of Uzbekistan Baseline Survey, Author's calculations

These relationships can be comprehensively summarized using a simple ordinary least squares (OLS) regression framework, though such cross-sectional comparisons are only descriptive. Table (4) reports such a set of descriptive regressions for which the dependent variable is equal to one when a household member is a current migrant, and zero otherwise. The coefficient in column (1) is negative and significant, indicating that households with current migrants abroad have lower per capita consumption on average than those that do not. This comparison controls for which province the household lives in, whether the household resides in an urban location, and the size of the household. Column (2) highlights however that this relationship is even stronger if one reduces consumption by the value of remittances sent over the same period. After accounting for the increased consumption that is assumed to be purchased using remittances provided by migrant members, households with migrants have substantially lower (log transformed) per capita consumption than other households.

Columns (3-4) further clarify the importance and contribution of remittances in household welfare. The near-zero coefficient for the log of total household income in column (3) can be interpreted as signifying that households that currently have a migrant member do not have different income than those without migrant members (in fact, average income is slightly higher when ignoring zero values). However, after removing remittance income, column (4) reveals that households with a migrant

member have substantially lower income from all other sources, and that the parity that is otherwise reached is due to the remittance income that households with migrants receive. This suggests that absent remittance income, these households would be substantially poorer than other households of similar size in the same province. Column (5) highlights this relationship more directly, showing that households with a migrant member contain significantly fewer employed people than otherwise similar households. The more employed household members, the less likely it is to find that a given household includes a migrant who is currently abroad. These results are broadly substantiated in panel regressions including a household fixed effect, i.e. when looking at changes in household income when migrants go abroad, discussed in more depth in section (V).

Table 4: Descriptive OLS Regressions on Households with a Migrant Currently Abroad

	OLS: Current Migrant = 1, No Migrant = 0						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log (per capita household consumption)	-0.016*						
	(0.010)						
Log (consumption without remittances)		-0.102***					
		(0.003)					
Log(total household income)			-0.000				
			(0.003)				
Log(Income without remittances)				-0.041***			
				(0.002)			
Number of employed members					-0.105***		
					(0.005)		
Poor at \$5.5/day Line						0.039***	
						(0.013)	
Poor at \$3.2/day Line							0.066***
							(0.020)
Household Size	0.024***	0.016***	0.025***	0.034***	0.047***	0.024***	0.024***
	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)
Urban Locality	-0.048***	-0.046***	-0.047***	-0.053***	-0.054***	-0.048***	-0.049***
	(0.017)	(0.015)	(0.017)	(0.016)	(0.016)	(0.017)	(0.017)
Constant	0.377**	0.884***	0.132***	0.431***	0.155***	0.112***	0.127***
	(0.147)	(0.031)	(0.032)	(0.029)	(0.023)	(0.025)	(0.024)
Number of observations	4,010	4,010	4,010	4,010	4,010	4,010	4,010
R2	0.101	0.305	0.100	0.168	0.182	0.103	0.103
Adjusted R2	0.097	0.302	0.097	0.164	0.179	0.099	0.099

*note: .01 - ***, .05 - **, .1 - *; Controls for Provinces included but not shown*

Subtracting remittance income from household consumption suggests that the poverty rate would be about 7.2 percentage points higher than it was at the time of the baseline (increasing from 9.6 percent to 16.8 percent) were remittance income not available to these households. If, alternatively, it is assumed that every migrant was to return to Uzbekistan and earn the median wage in their home province, the poverty rate would still be expected to rise by 2.6 percentage points (to about 12.21 percent). Given this, and the relationships described in columns (1-5) of table (4), it is no surprise then that the poverty rate at the \$5.5/day poverty line is 4 percent higher, and the rate at the \$3.2/day

poverty line 6.6 percent higher among migrant-sending households, even after remittances are accounted for.⁵ These estimates are reported in columns (6) and (7) of table (4).

Linking migration status to administrative statistics from the migrant's home mahalla further clarifies the strong descriptive association between the local economic context and migration patterns. Table (5) reports a set of regressions on the same binary variable for a household having a migrant member and demonstrates the association with several indicators of well-being grouped by national quintile. Column (1) in table (5) can be interpreted as demonstrating that the greater the share of the resident population receiving social protection payments, the higher the share of households that send a migrant abroad. The comparison should be understood as being with respect to the bottom quintile: the top three national quintiles of social protection recipient areas are significantly, and increasingly, greater sources of migrants abroad. At the upper end of the distribution of the resident share working in small family enterprises (reported in column 3 of table (5)) there is likewise a significantly greater share of households that send members abroad for work.

Table 5: Mahalla Administrative Records and Households with a Current Migrant Abroad

	OLS: Current Migrant = 1, No Migrant = 0				
	(1)	(2)	(3)	(4)	(5)
Benchmarking against Quintile 1 of...	<i>Share of residents receiving social protection</i>	<i>Share of wage employed residents</i>	<i>Share of residents employed in a family business</i>	<i>Share of resident graduates of college in 2017/ 2018</i>	<i>Share of resident graduates of lyceum in 2017/ 2018</i>
Quint 2	0.029 (0.020)	-0.041** (0.019)	-0.024 (0.019)	-0.022 (0.020)	-0.038* (0.020)
Quint 3	0.065*** (0.022)	-0.055*** (0.019)	-0.027 (0.020)	0.006 (0.021)	-0.077*** (0.019)
Quint 4	0.065*** (0.023)	-0.055*** (0.020)	-0.002 (0.019)	-0.009 (0.021)	-0.093*** (0.019)
Quint 5	0.090*** (0.025)	-0.057*** (0.020)	0.040** (0.019)	0.005 (0.020)	-0.056*** (0.019)
Household Size	0.025*** (0.002)	0.022*** (0.003)	0.025*** (0.002)	0.025*** (0.002)	0.025*** (0.003)
Urban Locality	-0.039** (0.017)	-0.072*** (0.018)	-0.043** (0.017)	-0.038** (0.018)	-0.037** (0.017)
Constant	0.087*** (0.027)	0.176*** (0.029)	0.117*** (0.027)	0.133*** (0.029)	0.151*** (0.028)
Number of observations	4,010	3,729	3,970	3,910	3,770
R2	0.104	0.104	0.105	0.102	0.114
Adjusted R2	0.099	0.099	0.101	0.098	0.109

*note: .01 - ***, .05 - **, .1 - *; Controls for Provinces included but not shown*

The converse is true for those localities with greater resident shares who are wage employed, and who are graduates of lyceum in the relevant academic year (table (5) column (5)). This demonstrates that the greater the share of the resident population that is wage employed (table (5) column 3), the lower the share of households that send a migrant abroad. A relevant statistic in this comparison is that about 96 percent of migrants identified in the L2CU phone-based panel between September and

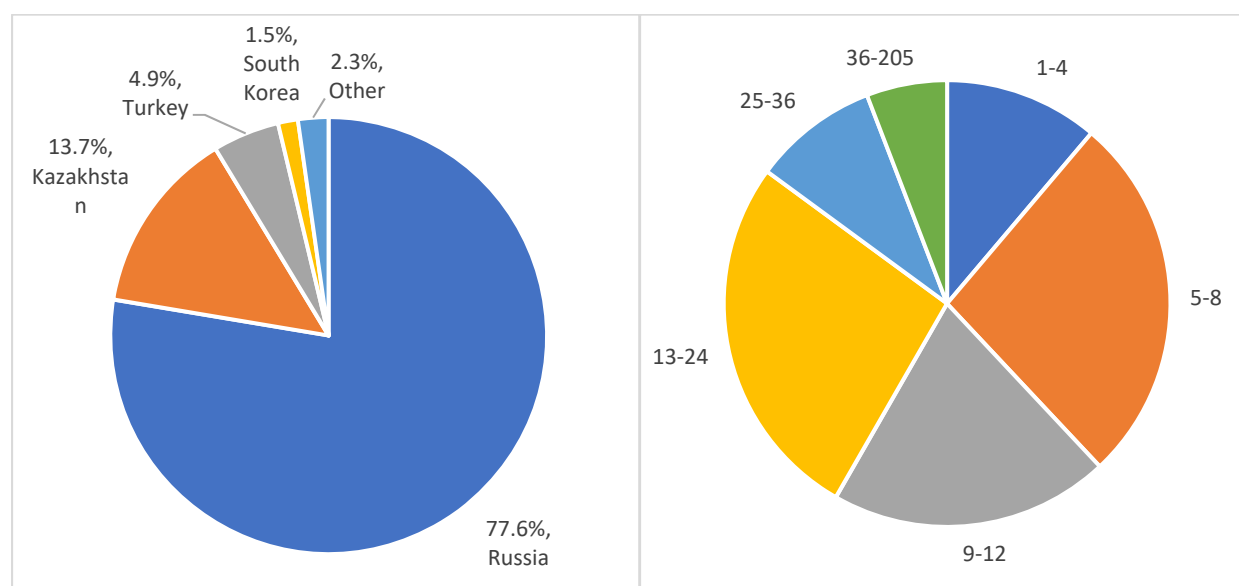
⁵ This comparison is made against other households of similar size living in the same areas.

December 2018 were currently working, according to family members. Graduation from college in the relevant academic year (reported in table (5) column 4) is negatively associated with migration without any control variables included in the regression but is so strongly associated with province and urban locations that after controlling for these factors there is no association with households having a migrant member. The large majority of college graduates are concentrated in urban areas, and especially in Tashkent, where relatively few international migrants are from.

The survey data also allow for a reasonably clear profile of current migrants. More than 80 percent of migrants are men (varying between 80-89 percent depending on the source). Migrants are younger than the overall population with an average age of slightly over 33 years, in comparison to more than 38 years in the rest of the population in the baseline survey data. Adult migrants are substantially more likely to be unmarried than other adults (27 percent, in comparison to 22 percent of non-migrants). Nearly 60 percent of current migrants received a vocational degree as their highest level of education compared to about 45 percent among non-migrants. A similar share of migrants and non-migrants completed upper secondary (29 percent). However, only about 4 percent of migrants completed a bachelor's degree or more, whereas about 11 percent of non-migrants had completed one. A remarkable difference between migrants and non-migrants is their higher propensity to speak Russian: more than 53 percent of migrants are described as Russian-speakers, while only 32 percent of the remaining population is.

The Russian Federation is by far the largest destination country for international migrants from Uzbekistan. Before 2015, regional cooperation agreements permitting visa-free entry and waiving certain registration requirements facilitated this migration (Ajwad et. al., 2014). However, changes in migration law in Russia beginning in 2015 has significantly reduced the ease with which migrants from outside of the Eurasian Union are able to legally migrate to Russia. Nonetheless, the country remains the dominant destination, accounting for more than 75 percent of current migrants abroad, followed by Kazakhstan at nearly 14 percent and Turkey at nearly 5 percent. In comparison to other Central Asian countries, this is a relatively diversified set of destination countries. This diversity is in part related to linguistic and cultural ties: Uzbek is a Turkic language, to an extent lowering the adjustment required to migrate to Turkey, and there is a large Korean community in Uzbekistan.

Figure 3: Host Country of Current Migrants (Left) and Expected Duration of Absence (Right)

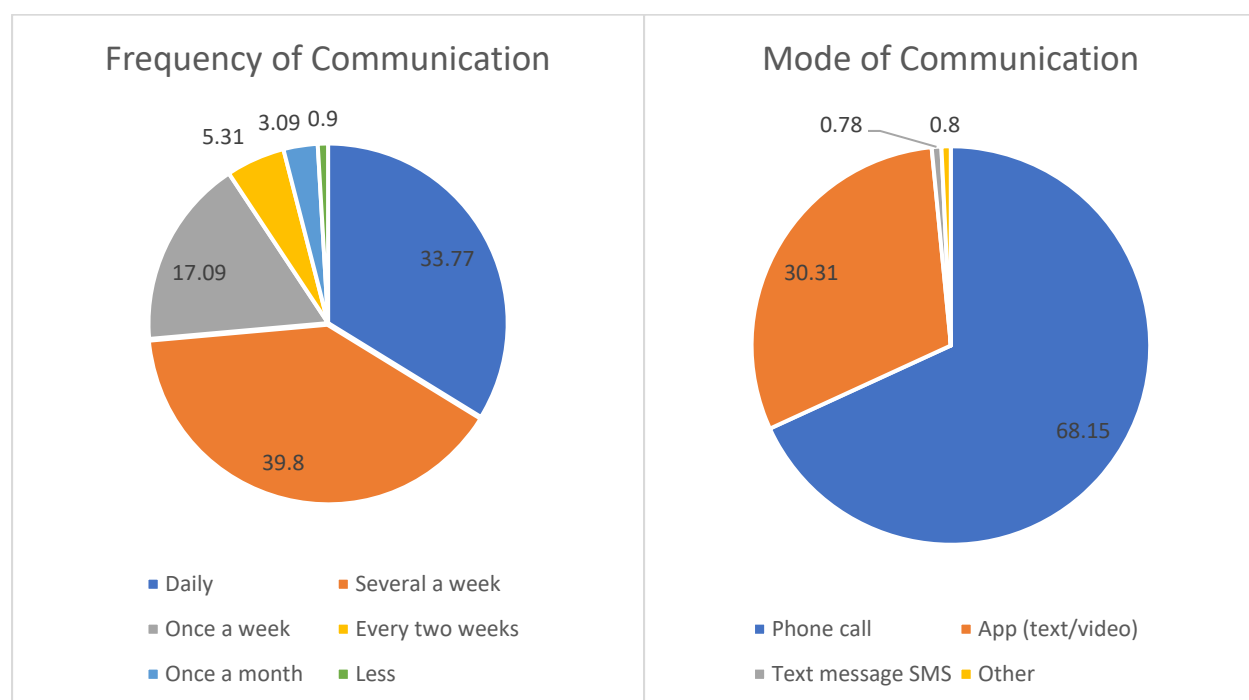


Notes: Listening to the Citizens of Uzbekistan Baseline Survey, Author's calculations

The expected duration of absence of migrants varies substantially. About 58 percent of households expect that migrants will return in on year or less. About 15 percent of households expect migrants to be away for two years or more. There is a strong seasonal component to migration flows in Uzbekistan, and at the time of the baseline survey, about 48 percent of migrants had been away for between one to four months.

Most households are in touch with migrant members several times a week or more, and nearly 32 percent of households are daily in touch with their members currently abroad. Less than 5 percent of households speak with migrant members once a month or less, and less than 1 percent are not in contact at all. The most common means of communicating with migrants is over the phone, accounting for about 72 percent of households with migrants. The second most common means of communication is smartphone and computer apps with text and/or video capability (e.g. Skype or WhatsApp, though the questionnaire did not ask about the specific apps used). Less than 2 percent use other means, such as SMS or physical mail.

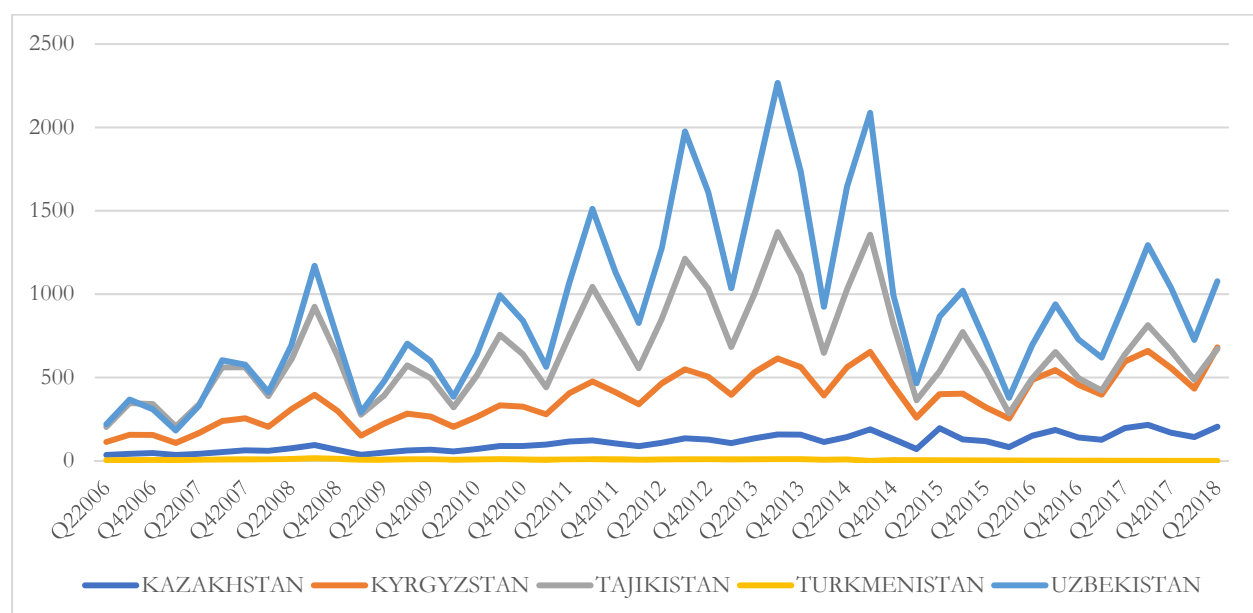
Figure 4: Frequency (Left) and Mode of Communication (Right) with Current Migrants



Notes: Listening to the Citizens of Uzbekistan Baseline Survey, Author's calculations

In terms of the money they send home, labor migrants from Uzbekistan constitute the largest value of transfers in the region of Central Asia. Data available from the Central Bank of the Russian Federation (which as noted above represents about three-quarters of the total migrant population from Uzbekistan), was equivalent to about \$2.6 billion in 2017. In any given month, about 48 percent of migrant-sending households report receiving remittance income. Almost all (about 98 percent) of these transfers are denominated in US dollars, of an average value of about \$312 per transfer. Depending on the month, between 20 and 30 percent of transfers go through foreign banks, between 43 and 50 percent through banks in Uzbekistan, and about 20 percent go through an official transfer service such as Western Union. Less than 5 percent of transfers are made by physically bringing money back or sending money with a private person. Administrative records suggest that in 2017, 45.2% of all migrants were employed in the construction industry, 12.2% - industrial production, 9.8% - in the service sector, and 7.4% - in agriculture.

Figure 5: Remittance Flows from the Russian Federation to Central Asia in USD



Source: The Central Bank of the Russian Federation

The phone-based panel component of the data collection in L2CU also enables monitoring of when migrants return, and for what reasons. Over the months between September 2018 and April 2019, between .6 and 4.2 percent of households had a migrant return in the previous month. About 24 percent of returning migrants did so due to an expiring permit or related issues. About 14 percent returned due to “homesickness”, another 10 percent of returnees came home for “vacation”, and around 12 percent cited “family reasons”. About 9.5 percent returned when they achieved an income target and 10 percent returned for health reasons. Slightly more than 5 percent returned after having found a job in Uzbekistan.

IV – When Do Migrants Consider Going Abroad for Work?

The average monthly remittance payment recorded in the L2CU study is, alone, more than twice as large as the average salary in Uzbekistan. Surely, a large share of labor migrants travels abroad simply because of the stark differences in wages, and there is little else needed to explain their behavior. However, potentially there are also economic challenges and hardships that increase the need that particular migrants feel to go abroad, and that also increase the salience of the average wage differential. This section aims to quantify the contribution of these factors in the migration decision.

In contrast to the preceding section that focuses largely on the static data from the baseline survey and administrative data collected in the L2CU study, the following two sections take advantage of the panel design of the phone-based survey conducted with a subset of more than 1,500 households that participated in the baseline. This type of information allows additional analyses that account for common confounding factors that complicate the interpretation of simple cross-sectional comparisons. However, again beginning with these simple comparisons helps to establish the overall association between the decision to migrate and the measures of interest. For this reason, table (6) reports descriptive OLS regressions like those reported in section (3). The difference between the estimates reported in table (4) and table (6) comes from the difference in data sources and the definitions of the variables. Table (6) focuses on responses for households that either consider sending a migrant during the period in question, or when a migrant departs (while table (3) focused instead on migrants that were already abroad at the time of the baseline survey).

The descriptive statistics are grouped into three broad categories: (i) shocks, (ii) labor market issues, and (iii) personal views. For ease of exposition the results are presented in separate tables (6-8), though the distinction between these in some cases is arbitrary. As was the case with the results reported in tables (4) and (5), it is important to note that simple cross-sectional regressions of this type do not distinguish between factors that directly affect migration decisions, and those that are merely associated with such decisions.

Table (6) suggests that the local labor market is associated with migration decisions, and that labor outcomes are better (lower unemployment for those households that have already sent migrants abroad). To show this, table (6) reports estimates for two dependent variables: i) at least one household member considering (columns 1-5) or ii) the household has at least one current labor migrant abroad (columns 6-9). Each column presents the association between the dependent variable and a covariate of interest while controlling for calendar month and while clustering standard errors at the household level. Column (1) indicates that households with members who are considering migrating have significantly lower share of employed adult members than otherwise similar households. Column (3) shows that this remains true when including those household members who may already be abroad working in the calculation of the share of adults employed. Column (3) suggests that such households have a larger number of members who are currently looking for a job. Column (4) suggests that households with a person considering migration have a significant (but small) lower average household income than other households. Column (5) suggests that respondents from households “considering migration” on average are significantly more likely to think that their local labor market is very bad (the worst option available).

When comparing the coefficients from column (1) with column (6), we can see that households with current migrants continue to have significantly fewer members working. However, in contrast, comparing columns 2 and 7 shows that households with current migrants have a higher share of members working on average when including current migrants in the calculation. Further, we can see by comparing columns (3) and (8) that current migrant households do not have a significantly higher number of members looking for jobs, as is the case for those that are only thinking of migrating. Households with migrants have higher income (column 8) on average than other households, also differentiating them from households that are considering sending a migrant (column 4). Finally, both respondents from households with a current migrant and those considering sending one are more likely to fully agree that their local labor market is very bad (columns 5 and 9). As with every regression table for the remainder of this paper, each of the regressions control for the calendar month of the interview.

Table (7) details the association between the same two dependent variables and four indexes of contemporaneous shocks. Columns (1) and (5) suggest that there is not a statistically significant association between the dependent variables and food shocks. However, both Services (columns 2 and 6) and Health shocks (columns 3 and 5) are positively associated with both considering migrating and already having a migrant abroad. Coping shocks, which include variables such as drawing down savings, taking out a loan for basic needs, or selling assets, is positively associated with considering migrating (column 4), but is not significantly associated with currently having a migrant (column 8).

Table (8) reports associations with whether the household includes a current migrant, and views on current economic conditions that are related to ongoing reforms in Uzbekistan. Stating that prices are rising too quickly (column 1), that the respondent is optimistic about the current direction of the country (column 2), that the household is in worse financial situation this year compared to last year (4), that the respondent is worried about losing their job (5) and that the respondent believes that there should be no limits to internal migration in Uzbekistan (column 6) are all positively associated with the presence of a migrant abroad.

Table 6: Descriptive OLS Regression of Labor-Related Indicators and Migration

	<u>OLS: Consider Migrate = 1</u>					<u>OLS: Current Migrant = 1</u>				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(9)
Share Adults UZB Working	-0.053*** (0.014)					-0.273*** (0.035)				
Share UZB+Mig Working		-0.061*** (0.015)					0.332*** (0.037)			
Members Looking for Job			0.031*** (0.005)					-0.006 (0.009)		
Ln(Household Income)				-0.007*** (0.003)					0.048*** (0.007)	
"Labor Market is Bad"					0.073*** (0.015)					0.073*** (0.020)
Constant	0.045*** (0.007)	0.049*** (0.007)	0.022*** (0.005)	0.131*** (0.038)	0.021*** (0.005)	0.238*** (0.016)	0.060*** (0.012)	0.163*** (0.011)	-0.553*** (0.093)	0.152*** (0.011)
Number of observations	12,137	12,137	12,137	10,368	12,137	12,137	12,138	12,137	10,368	12,137
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.007	0.008	0.015	0.005	0.017	0.023	0.033	0.004	0.022	0.008
Adjusted R2	0.006	0.007	0.015	0.005	0.016	0.023	0.032	0.003	0.022	0.007

note: .01 - ***; .05 - **; .1 - *;

Table 7: Descriptive OLS Regression of Migration and Welfare Shocks Indices

	<u>OLS: Consider Migrate = 1</u>				<u>OLS: Current Migrant = 1</u>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Food Shock Index	-0.004 (0.005)				-0.009 (0.010)			
Services Shock Index		0.018*** (0.005)				0.024*** (0.008)		
Health Shock Index			0.006** (0.003)				0.014** (0.006)	
Coping Shock Index				0.019*** (0.004)				0.000 (0.008)
Constant	0.032*** (0.005)	0.027*** (0.006)	0.026*** (0.005)	0.034*** (0.005)	0.166*** (0.011)	0.115*** (0.011)	0.144*** (0.011)	0.173*** (0.013)
Number of observations	12,137	12,137	12,137	12,137	12,137	12,137	12,137	12,137
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.005	0.009	0.006	0.008	0.004	0.006	0.005	0.004
Adjusted R2	0.004	0.008	0.005	0.007	0.003	0.005	0.004	0.003

note: .01 - ***; .05 - **; .1 - *;

Table 8: Descriptive OLS Regression of Views on the Current Environment and Migration

	OLS: Current Migrant = 1, No Migrant = 0					
	(1)	(2)	(3)	(4)	(5)	(6)
Rising Prices	0.048*** (0.010)					
Optimistic Country Direction		0.036*** (0.006)				
Cannot Afford Enough Food			0.052** (0.025)			
Worse Fin. Sit. this Year				0.095*** (0.033)		
Worried about Losing Job					0.075*** (0.014)	
No Restrict Movement						0.048*** (0.009)
Constant	0.030*** (0.004)	0.025*** (0.004)	0.029*** (0.005)	0.029*** (0.005)	0.022*** (0.005)	0.015*** (0.005)
Number of observations	12,137	12,137	12,137	12,137	12,137	12,137
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.012	0.012	0.006	0.008	0.017	0.014
Adjusted R2	0.011	0.011	0.006	0.007	0.016	0.013

note: .01 - ***; .05 - **; .1 - *;

Comparing the estimates reported in tables (6-8) with the panel regressions that follow highlights the importance of time-invariant associations between migration and the explanatory variables. The models in the tables (9-11) are structured so that *changes* in the dependent variables of interest are associated with *changes* in the independent variables included in the regression. This does fully not rule out other time-varying explanations for the relationships we observe (such as omitted variable bias, etc.), and there is always the potential for reverse or bi-direction causal relationships. However, as is further discussed below, the results are quite consistent, and provide strong evidence that local economic and labor market conditions are the primary driving force behind the migration patterns observed.

By considering individual and household characteristics that are either almost entirely time-invariant (such as location and gender) or nearly time invariant (such as household type, living space, and connections to services) more clearly establishes the link between migration and time-varying indicators of policy relevance. The approach accounts for both “observed” characteristics that are enumerated in the survey, as well as “unobserved” sources of heterogeneity, such as personality or unchanging cultural attributes. This also accounts for time-invariant dimensions issues relating to locations, such as unobserved amenities. The goal is to estimate a regression equation of the form:

$$MIG_{it} = \alpha_i + \beta COND_{it} + \beta I_{it} + \epsilon_{it} \quad \text{Eq. 1}$$

Where MIG_{it} is a measure of household i 's migration status at time t , α_i is the time-invariant household-level component, $COND_{it}$ is a set of “objective” welfare variables for individual i at time t , and I is a set of time-varying individual- and household-level control variables, where appropriate. Deriving estimates of the term β is the objective of the procedure, positive values suggest a positive relationship with migration (and vice versa).

The results of this approach begin in table (9) and continue through table (11). The tables are structured to mirror the simple OLS associations reported in tables (6-8). For instance, column (1) in table (9) suggests that considering migrating is associated with a lower share of a household's adult members in employment, even after including migrants abroad currently working (column 2). Considering migration is also associated with more household members looking for a job (column 3).

Similar to table (9): column (1), sending a migrant abroad is associated with a lower share of household employment among adults currently residing in Uzbekistan (column 6). But in contrast, taking the employment status of current migrants into account, employment dramatically increases (column 2 vs. column 7). Migration it is also strongly negatively associated with looking for a job (column 8), more than reversing the association reported in column (3). This suggests that job search significantly falls when migrants leave, and that the household members that stay behind are less likely to work when a migrant is abroad.

Beginning to think that the local labor market is bad is associated with starting to consider migrating abroad (table 9: column 5, i.e. changing from a better to a worse assessment). However, after sending a member abroad, households tend to no longer think that the local labor market is worse than other households (column 10).

Table (10) suggests that many of the relations described in table (7) do not translate into the dynamic context – there is less of a pattern of beginning to send a migrant abroad (or sending one abroad) in light of several of the shocks measured in the survey. Column (1) suggest that households beginning to report food shocks are significantly more likely to consider migration (though the size of the coefficient is small). Changes in reporting of shocks on service quality (column 2) and health (column 3) are no different for those households considering sending migrants abroad. Column (4) suggests that coping shocks are associated with increasing consideration of migration, again with a relatively small coefficient. In contrast to the descriptive statistical relationships reported in table (7), changes in migration status are not associated with changes in indexes measuring shocks (columns 5-8). This difference suggests that although migrant households tend to be affected by more shocks, changes in migration status are not significantly associated with changes in the frequency of reporting them.

Table (11) suggests that there is a significant association between sending a migrant abroad and becoming more optimistic about the country's direction (column 2). Households that send a migrant abroad are significantly more likely to report a worse financial situation (column 4) and a higher than average concern for losing one's job, which increases during the same period when migrants depart (column 5). Migrant-sending households are also slightly more likely to change their view to support reforms to current restrictions on free movement (column 6).

Table 9: Labor Indicators Panel Regression with Household and Temporal Fixed Effects

	<u>xt.Consider Migrate = 1</u>					<u>xt.Current Migrant = 1</u>				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Share Adults UZB Working	-0.033** (0.016)					-0.048** (0.024)				
Share UZB+Mig Working		-0.104*** (0.019)					0.384*** (0.031)			
Members Looking for Job			0.020*** (0.005)					-0.036*** (0.006)		
Ln(Household Income)				-0.009*** (0.003)					0.037*** (0.005)	
"Labor Market is Bad"					0.030*** (0.011)					-0.001 (0.011)
Constant	0.031*** (0.005)	0.051*** (0.006)	0.018*** (0.004)	0.142*** (0.046)	0.020*** (0.004)	0.161*** (0.009)	0.046*** (0.010)	0.158*** (0.005)	-0.371*** (0.067)	0.149*** (0.005)
Number of observations	12,137	12,137	12,137	10,368	12,137	12,137	12,137	12,137	10,368	12,137
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.006	0.010	0.009	0.005	0.007	0.008	0.059	0.016	0.026	0.008
r2_w	0.007	0.011	0.010	0.006	0.008	0.009	0.059	0.017	0.027	0.008
r2_o	0.006	0.007	0.016	0.005	0.014	0.013	0.029	0.001	0.023	0.003
r2_b	0.001	0.002	0.019	0.000	0.021	0.033	0.015	0.000	0.034	0.001
sigma_u	0.119	0.119	0.118	0.122	0.118	0.293	0.294	0.296	0.302	0.295
sigma_e	0.177	0.176	0.176	0.174	0.177	0.199	0.194	0.198	0.186	0.199
rho	0.311	0.314	0.309	0.331	0.308	0.684	0.696	0.690	0.726	0.687

note: .01 - ***; .05 - **; .1 - *;

Table 10: Welfare Shock Indicators Panel Regression with Household and Temporal Fixed Effects

	<u>xt.Consider Migrate = 1</u>				<u>xt.Current Migrant = 1</u>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Food Shock Index	0.010** (0.005)				-0.006 (0.005)			
Services Shock Index		0.003 (0.003)				-0.000 (0.004)		
Health Shock Index			0.002 (0.002)				0.002 (0.003)	
Coping Shock Index				0.010*** (0.004)				-0.003 (0.004)
Constant	0.019*** (0.004)	0.021*** (0.004)	0.022*** (0.004)	0.019*** (0.004)	0.151*** (0.005)	0.149*** (0.005)	0.148*** (0.005)	0.150*** (0.006)
Number of observations	12,137	12,137	12,137	12,137	12,137	12,137	12,137	12,137
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.006	0.006	0.006	0.006	0.008	0.008	0.008	0.008
r2_w	0.007	0.006	0.006	0.007	0.008	0.008	0.008	0.008
r2_o	0.003	0.005	0.004	0.006	0.003	0.003	0.003	0.003
r2_b	0.006	0.000	0.001	0.000	0.003	0.002	0.003	0.002
sigma_u	0.120	0.119	0.119	0.119	0.295	0.295	0.295	0.295
sigma_e	0.177	0.177	0.177	0.177	0.199	0.199	0.199	0.199
rho	0.314	0.312	0.312	0.312	0.686	0.686	0.686	0.686

note: .01 - ***; .05 - **; .1 - *;

Table 11: Views on the Current Environment Indicators Panel Regression with Household and Temporal Fixed Effects

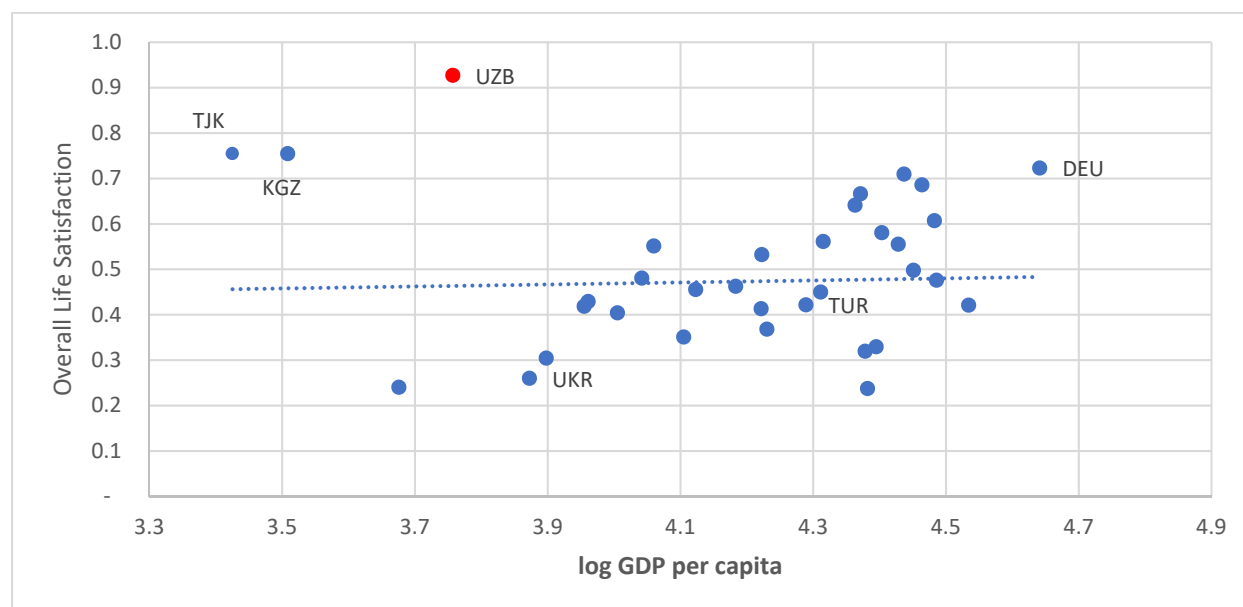
	<u>xt.OLS: Current Migrant = 1, No Migrant = 0</u>					
	(1)	(2)	(3)	(4)	(5)	(6)
Rising Prices	-0.003 (0.008)					
Optimistic Country Direction		0.012** (0.006)				
Cannot Afford Enough Food			0.021 (0.016)			
Worse Fin. Sit. this Year				0.057** (0.025)		
Worried about Losing Job					0.042*** (0.012)	
No Restrict Movement						0.018** (0.008)
Constant	0.023*** (0.004)	0.019*** (0.004)	0.022*** (0.004)	0.022*** (0.003)	0.019*** (0.004)	0.020*** (0.004)
Number of observations	12,137	12,137	12,137	12,137	12,137	12,137
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.006	0.006	0.006	0.007	0.009	0.006
r2_w	0.006	0.007	0.006	0.007	0.009	0.007
r2_o	0.003	0.008	0.005	0.007	0.016	0.011
r2_b	0.006	0.003	0.000	0.001	0.020	0.009
sigma_u	0.119	0.119	0.119	0.119	0.118	0.118
sigma_e	0.177	0.177	0.177	0.177	0.177	0.177
rho	0.313	0.311	0.312	0.312	0.308	0.310

note: .01 - ***; .05 - **; .1 - *;

V – Do Migration and Remittances Increase Well-Being and Satisfaction?

Like the other countries of Central Asia, Uzbekistan has high average life satisfaction for its income level. Figure (6) below presents the average levels of life satisfaction from the LITS 2016 survey, which was conducted in a comparable way across nearly all countries in Europe and Central Asia. By that measure, Uzbekistan has the highest average life satisfaction of any country in the region.

Figure 6: Average Life Satisfaction in Europe and Central Asia



Source: Life in Transition Survey 2016

Although it is measured using a different scale (from 1= not satisfied at all, to 5= completely satisfied), the finding that there is relatively high life satisfaction in Uzbekistan is largely replicated in L2CU. In any given round of the L2CU panel survey, about 90 percent of respondents were moderately satisfied to completely satisfied, while only about 10 percent of respondents were completely unsatisfied or not satisfied. However, although the aggregate statistics on life satisfaction remain quite stable at the national level, there is substantial churning at the individual level. The descriptive statistics presented in table (12) report transitions in life satisfaction at the individual level. Stability ranges from 20.5 percent for those who were not at all satisfied in the previous round (i.e., the majority improve in subsequent rounds) to 86 percent who were “moderately satisfied” in the previous round (i.e., about 14 percent either improve or deteriorate in the subsequent round).

Table 12: L2CU Life Satisfaction Transition Matrix

	Not Satisfied	2	3	4	Complete Satisfied	Total
Not Satisfied	20.51	25.64	44.44	5.98	3.42	100
2	1.32	26.64	68.59	1.81	1.64	100
3	0.43	3.56	86.11	6.81	3.08	100
4	0.13	0.76	54.45	33.59	11.07	100
Complete Satisfied	0.47	1.18	52.88	16.33	29.14	100
Total	0.91	8.01	74.67	7.64	8.76	100

These transitions can be analyzed using a similar fixed-effects framework to that of the concluding results presented in the preceding section. The goal is to estimate a regression of the following form:

$$SWBit = \alpha_i + \beta OWBit + \beta Iit + \epsilon_{it} \quad \text{Eq. 2}$$

Where $SWBit$ is a measure of individual i 's well-being at time t , α_i is the time-invariant individual-level component of subjective well-being, $OWBit$ is a set of “objective” welfare variables for individual i at time t , and I is a set of time-varying individual- and household-level control variables, where appropriate. The results of these estimations are presented in Table (13). The table is split into two parts: the first three columns present results for which the dependent variable is the value of the respondent’s life satisfaction at time t , with a response of 1 indicating the lowest value of life satisfaction, and 5 indicating the highest. Thus positive (negative) coefficients in the first three columns would suggest that a change in the variable of interest is associated with a rising (falling) level of life satisfaction. In contrast, columns 4-6 report results using a binary variable that is equal to one if the respondent provided a “dissatisfied” response (a value on the life satisfaction ladder of 1 or 2). Thus positive (negative) coefficients in the last three columns would suggest that an increase (decrease) in the variable of interest is associated with a falling (rising) level of life satisfaction.

Column (1) shows that households in which at least one person began to consider migration in the latest round of the survey have significantly lower life satisfaction on average, after controlling for month of interview and the household fixed effect. However, column (2) shows that those households that have moved on from *merely considering* to *actually sending* migrants abroad no longer exhibit significantly lower life satisfaction. Column (3) suggests that households that are in daily contact with migrants have significantly higher life satisfaction. Columns (4-6) report consistent results when focusing specifically on households with low life satisfaction: column (4) suggests that households with members considering migration are more often to fall into dissatisfaction, but that this is not the case for current migrants (column 5). Likewise, column (6) reports that households in frequent contact with migrants are significantly less likely to be dissatisfied.

Table (14) reports the association between sending remittances (among those with current migrants), demonstrating that shocks are not correlated with when remittances are sent (columns 3-7), but that they are strongly associated with subjective well-being indicators (columns 1-2).

Table 13: Panel Regression on Life Satisfaction and Migration

	xt.OLS: Life Satisfaction (1-5)			xt.OLS: Low Satisfaction = 1		
	(1)	(2)	(3)	(4)	(5)	(6)
Considering Migration	-0.160*** (0.043)			0.054*** (0.017)		
Current Migrant		0.019 (0.032)			0.000 (0.010)	
Daily Contact with Migrant			0.158*** (0.044)			-0.033*** (0.012)
Several Times a Week Cont.			0.078* (0.045)			-0.005 (0.014)
Weekly Contact			0.102** (0.052)			-0.021 (0.014)
Twice Month Contact			-0.004 (0.078)			-0.008 (0.027)
Constant	3.222*** (0.012)	3.215*** (0.013)	3.133*** (0.064)	0.035*** (0.004)	0.037*** (0.005)	0.053*** (0.021)
Number of observations	12,137	12,137	1,645	12,137	12,137	1,645
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.021	0.018		0.032	0.031	
r2_w	0.021	0.019	0.010	0.033	0.031	0.048
r2_o	0.012	0.012	0.040	0.022	0.021	0.041
r2_b	0.000	0.001	0.043	0.004	0.005	0.029
sigma_u	0.454	0.453	0.403	0.152	0.152	0.140
sigma_e	0.559	0.560	0.609	0.214	0.214	0.213
rho	0.397	0.396	0.305	0.337	0.336	0.301

*note: .01 - ***, .05 - **, .1 - *; Panel regression; Standard errors clustered by household; Control for month of interview;*

Table 14: Panel Regression of Remittances on Aspects of Well-Being

	Improving Life Satisfaction	Worsening Econ. Condition	Food Shock Index	Services Shock Index	Health Shock Index	Coping Shock Index	All Shocks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Real Remittances (*10Mln)	-0.043*** (0.006)	0.023*** (0.005)	-0.004 (0.007)	0.022 (0.016)	0.011 (0.017)	0.006 (0.007)	0.035 (0.024)
Constant	3.285*** (0.039)	2.180*** (0.033)	0.298*** (0.029)	0.483*** (0.038)	0.498*** (0.056)	0.361*** (0.037)	1.641*** (0.095)
Number of observations	1,645	1,645	1,645	1,645	1,645	1,645	1,645
Adjusted R2	0.012	0.013	0.003	0.076	0.025	0.036	0.067
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
r2_w	0.017	0.017	0.008	0.080	0.030	0.041	0.071
r2_o	0.004	0.008	0.006	0.052	0.023	0.039	0.048
r2_b	0.013	0.002	0.017	0.022	0.011	0.044	0.032
sigma_u	0.577	0.485	0.435	0.503	0.739	0.451	1.356
sigma_e	0.607	0.458	0.419	0.596	0.839	0.559	1.355
rho	0.474	0.529	0.519	0.416	0.437	0.394	0.500

*note: .01 - ***, .05 - **, .1 - *; Panel regression; Standard errors clustered by household; Control for month of interview;*

Finally, the FE approach from (Eq 2) can be modified to estimate the effect of migrating on income, again taking a similar form:

$$INC_{it} = \alpha_i + \beta MIG_{it} + \beta I_{it} + \epsilon_{it} \quad \text{Eq. 3}$$

Where the term *MIG_{it}* is a binary variable signifying whether the household either has a migrant (reported in Table (15) Columns 1, 3, 5 and 7) or, among the subset of households that do have a migrant, whether the migrant(s) (subscript *i*) sent home remittances at time *t* (reported in Table (15) columns 2, 4, 6, and 8).

Column (1) in Table (15) suggests that households that send a member abroad experience a significant increase in their total income. As expected, column (2) also shows that, focusing only on those households that experience a change in remittance income (going from none to a positive value) have significantly higher income.

However, column (3) reports results excluding remittance income in the dependent variable (e.g., the dependent variable is inflation-adjusted household income from sources other than remittances) and shows that when households send migrants abroad, the remaining members tend to earn slightly (but significantly) less income from other sources. A similar relationship is reported in column (4) with respect to receiving remittances (i.e., that other income is either unaffected, or negative). This result compliments column (5), which also shows that the share of adults remaining in Uzbekistan who are working falls when migrants are abroad. Column (7) shows however that households with migrants abroad have significantly higher employment than the general population when including the employment outcomes of migrants in the calculation. This relationship holds with respect to receiving remittances, as well (column 8).

Thus, as expected, remittance income significantly increases total household income overall, and as discussed in the above sections, by a greater amount for poorer households than for those with higher income from other sources. However, there is a small but detectable decline in the labor force participation of other household members when a migrant goes abroad, which also negatively impacts income from other sources. This still leaves migrant households better off on net.

Table 15: Panel Regressions on Income and Employment when Members are i) Abroad or ii) Abroad and Send Remittances

	xt.Housold Income		xt.HH-Inc w/o Remittances		xt.Share of Adults (UZB only) Working		xt.Share Adults (UZB + Migrant) Working	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Migrant Abroad	0.182**		-0.000***		-0.017**		0.134***	
	(0.076)		(0.000)		(0.008)		(0.008)	
Receive Any Remittance		0.275**		0.000		-0.006		0.077***
		(0.115)		(0.000)		(0.008)		(0.008)
Constant	-0.024	-0.010	0.001***	0.001***	0.247***	0.244***	0.248***	0.264***
	(0.016)	(0.010)	(0.000)	(0.000)	(0.003)	(0.003)	(0.003)	(0.003)
Number of observations	12,137	12,137	12,137	12,137	12,137	12,137	12,137	12,137
Calendar Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.005	0.010	0.008	0.007	0.058	0.057	0.108	0.073
r2_w	0.006	0.011	0.009	0.008	0.058	0.058	0.108	0.073
r2_o	0.003	0.007	0.010	0.005	0.027	0.021	0.045	0.034
r2_b	0.002	0.003	0.017	0.005	0.021	0.003	0.015	0.012
sigma_u	0.172	0.171	0.002	0.002	0.158	0.159	0.156	0.155
sigma_e	0.493	0.492	0.002	0.002	0.116	0.117	0.115	0.117
rho	0.109	0.108	0.400	0.401	0.648	0.650	0.651	0.639

*note: .01 - ***, .05 - **, .1 - *; Panel regression; Standard errors clustered by household; Control for month of interview;*

VI – Conclusion

In Uzbekistan, international migration is an important coping mechanism that is often a response to low domestic wages and labor market prospects, and through remittances, pushes the poverty rate in Uzbekistan down. Migrants tend to depart when local circumstances increase the expected return of doing so, and thus reducing barriers for migration would be expected to benefit those who are at the margin of greatest need to take advantage of the opportunities that migration provides. Out migration is highest for households with unemployed members, in areas with high unemployment overall, for households with low confidence in prospects for the local labor market, and in locations with high reliance on social protection benefits.

The results imply that limits on migration are costly both to the state and to potential migrants. Were migrants to return or remittance incomes were to fall, the impacts would be felt most strongly by relatively low-income households, predominantly in those mahallas with the fewest job opportunities for returning migrants, and those vulnerable mahallas to which the state provides the greatest financial support to needy families.

As discussed in the introduction to this paper, the Government of Uzbekistan intends to relax many regulations currently in place that discourage international migration. In the future, these steps may lead to an expansion of potential migration and represent an important opportunity for Uzbekistan as it adopts wider market-oriented reforms and seeks to generate high rates of economic growth. In Uzbekistan as in every country, migration plays a key role in balancing local differences in patterns of labor demand and supply, improving economic outcomes in both sending and receiving locations.

A simple exercise undertaken in this study of imagining household monetary well-being in Uzbekistan in the absence of remittance income suggests the national poverty rate would be expected to rise from 9.6 percent to 16.8 percent. This is consistent with the more detailed findings in this study that show a link between household shocks and migration behavior. What is more, it appears that even after deciding to migrate, migrants take an active role in smoothing out the well-being of members at home. Current migrants actively adjust remittance frequency and payments to respond to economic difficulties that household members experience.

Money is not the only dimension of importance in decisions about migration. One global measure that covers a more expansive definition of well-being is to look at life satisfaction as well. The results show that life satisfaction is significantly lower when households prepare to send migrants abroad, which may be due both to the approaching absence and the economic circumstances that precipitate the decision. However, life satisfaction recovers, and households that stay in more frequent contact with migrants while they are abroad have consistently higher life satisfaction. Though there are some potentially negative but small effects of migration on domestic labor market participation, however, the overall net welfare effect of migration is strongly positive. The existence of these costs from international labor migration suggests the need for complementary policies that facilitate and improve on migration's potential to advance well-being.

VII – References

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