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## Abstract

This study investigates whether there is a gender gap in health among migrants. Focusing on migrants from Uzbekistan and Tajikistan in Russia, where both immigration and gender inequality are important, this paper exploits unique data collected by the authors recording detailed information on health and migration trajectories. We find that migrant women are on average in poorer health than men. This gender gap is only partly explained by gender differences in socioeconomic, demographic, living and working observed characteristics and by differences in pre-migration health. We show that migrant women's health is more likely to deteriorate during migration. This women's health disadvantage is sensitive to the migration profile as it only appears after a certain time spent in migration and for migrants with a vulnerable legal status.

*Keywords:* Health disparities, Migration, Gender, Russia, Central Asia.

*JEL codes:* F22, I12, I14.

# 1 Introduction

In a world where approximately 1 in 7 people is an internal or international migrant ([Schenker et al., 2014](#); [Skeldon, 2017](#)), population migration is one of the crucial issues discussed in several fields of economics. While migrants generally arrive in better health than natives due to a positive selection - the so-called Healthy Immigrant Effect ([Abraido-Lanza et al., 1999](#); [Beiser, 2005](#); [Chen et al., 1996](#); [Courbage and Khlat, 1995](#); [Lu and Qin, 2014](#); [Trovato, 1985](#)) -, this initial health advantage tends to disappear in the long run because of many potential adverse factors faced by migrants such as stress, low socioeconomic position, adoption of unhealthy habits, lack of social capital or access to healthcare in the host country ([Anson, 2004](#); [Berchet and Jusot, 2010, 2012](#); [Jusot et al., 2009](#); [Moullan and Jusot, 2014](#); [Namer and Razum, 2018](#); [Subedi and Rosenberg, 2014](#); [Wallace et al., 2019](#)). This phenomenon, known as the Convergence theory, explains why migrants may eventually end up in poorer health than natives ([Ukrayinchuk and Drapier, 2017](#)).

Poor migrant health has major economic implications beyond their own well-being for both host and home countries. Unhealthy migrants represent a less productive labor force that will potentially contribute less efficiently to the host countries' output and send fewer remittances to their home countries. It is also a challenge for healthcare systems, both for host countries (or regions) that have to adapt to the health needs of these new mobile populations ([Hernández-Quevedo and Jiménez-Rubio, 2009](#)), and for countries (or regions) of origin, which see their healthiest individuals leave and the sickest return. This last phenomenon is evidenced by the "salmon bias" ([Abraido-Lanza et al., 1999](#); [Guillot et al., 2018](#); [Wallace and Kulu, 2014](#); [Wallace and Wilson, 2019](#)).

While migrants' health has been extensively investigated in the past decades ([Beiser, 2005](#)), the specific question of women migrants' health has received less attention in the migration literature.<sup>1</sup> Yet, women account for almost half of the international migrants in the world (UN DESA, 2020) and their share in labor and high skilled migration has increased ([De Haas et al., 2019](#); [Docquier et al., 2009](#); [Dumont et al., 2007](#)). In the general population, despite an advantage in life expectancy, women are on average in poorer health than men ([Macintyre et al., 1996](#)).<sup>2</sup> This gender gap might be

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<sup>1</sup>Some studies considered gender as a potential factor, among others, of health heterogeneity between migrants and showed that women are in poorer health than men ([Berchet and Jusot, 2010](#); [Khlat and Guillot, 2017](#); [Setia et al., 2012](#)).

<sup>2</sup>In some countries, especially in Asia, the sex ratio is even in favor of men (higher excess female mortality)

even more pronounced for migrants as gender shapes every stage of the migration experience. Even before setting foot in the host country, the health of future men and women migrants may differ due to gender norms and potential gender inequalities in the country of origin. Selection within migration may also be gendered, with women not responding to traditional push factors in the same way as men (Docquier et al., 2012) and having gender-specific reasons for migrating (Antman, 2018; Llácer et al., 2007), such as escaping discrimination or gender-based violence (Ferrant and Tuccio, 2015; Ruysen and Salomone, 2018). In line with the tied migration theory (Mincer, 1978), if women are tied-movers who migrate for marriage or family reunification, they may be less positively selected on their health and potential productivity.<sup>3</sup> On the contrary, if restrictions on women's role are strict and women's migration remains a stigmatized activity, only the best-educated and healthiest women may overcome social and cultural barriers to migration, leading to a higher selection for female migration (Hofmann, 2017). All these factors might result in a women engaging in migration having a different health status than men even before leaving their countries. The migration journey itself may be harmful to health, especially for women who are more likely to be victims of violence. Once in the host country, gender shapes migrants' lives in several ways. The host country's gender norms will affect women's experience in migration.<sup>4</sup> Racial and gender segregation is also quite common in labor markets of host countries, implying that migrant women occupy positions based on a gendered construction of their skills and roles (Fleury, 2016). Migrant women are more likely to be engaged in low-paid and less-regulated service sectors such as domestic and care services, while men are employed in construction and industry (Hofmann, 2017). Women in migration could also be at a higher risk of social isolation, suffer from an unequal access to healthcare services in the host country or being burdened by childcare and domestic duties (Llácer et al., 2007). All of these factors, occurring before or during migration, suggest the existence of a potential gender gap in health among migrants. Should such a gap exists, it could call for targeted public health policies.

This article presents a four-fold contribution to the literature. First, while an extensive literature due to some preference for male and gender prioritization (Coale, 1991).

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<sup>3</sup>Recent evidence, however, suggests that women are increasingly independent migrants rather than the wife, mother or daughter of male migrants (Hofmann, 2017).

<sup>4</sup>Even if residing in countries with more gender-equal norms, depending on the situation - especially on women's family situation -, there can be some reluctance or difficulty to adopt host country's norms and a reinforcement of traditional and restrictive social gender norms (Fleury, 2016).

ture compares migrants' and natives' health, whether gender influences migrants' health is still an unanswered question. This paper therefore fills the existing gap by investigating the existence of a gender gap in health among migrants. Second, we are interested not only in testing whether there is a potential gender gap but also in understanding the potential drivers of this disparity. In particular, we determine whether it is due to differences in observed characteristics, to a pre-migration gap or whether it is constructed by the migration experience and varies across migrant profiles. Third, this study also adds to the literature by using a retrospective health question to estimate whether or not women in migration are more likely than men to experience a deterioration in health. Using this question allows us to control for time-invariant unobserved characteristics. Last, we focus on Central Asian migrants living in Russia, an important but understudied population. Russia is one of the largest destination countries with 11.7 million migrants where gender inequality is high<sup>5</sup> and gender norms are more patriarchal and traditional than in other destination countries (Table S.A1). In addition, gender norms in Tajikistan and Uzbekistan, the two countries of origin of migrants in this study, reflect a patriarchal society with a gendered representation of women's roles, who are seen as having primary responsibility for home and children (Table S.A2). In such societies, these norms might translate into practices that limit women's access to basic services, such as education or healthcare, potentially resulting in a disadvantage in health prior to migration (Llácer et al., 2007). We use a rich and original database we collected ourselves. In 2019, we surveyed 1213 migrants from Uzbekistan and Tajikistan who were currently living in Russia, a population that is usually missing in general population surveys. We measure migrants' health using several objective and subjective indicators and use a wide range of control variables capturing not only living and working conditions but also migration trajectories that are rarely available in health surveys.

The results of the analyses presented show a significant gender gap in health among migrants, to the detriment of women. Differences in observed characteristics and pre-migration health only partly explain this gender disparity. It appears to result from migration experience and is reinforced by migration-related features such as the time spent in migration and the degree of institutional integration.

The remainder of the paper is structured as follows. Section 2 presents the context of migration

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<sup>5</sup>Russia ranks 45th out of 62 highly developed countries in the Gender Inequality Index in 2019.

and healthcare in Russia. Section 3 introduces the original data used, the indicators mobilized and summary statistics. Section 4 discusses the empirical framework. Section 5 provides the estimation results. Section 6 concludes and discusses avenues for future migration research.

## 2 Migration and healthcare in Russia

### 2.1 International migration in Russia

Since 1991, migration in the post-soviet area has stepped up as a result of economic crises and civil wars. Until 2015, Russia was ranked the second largest destination for migrants, and today it ranks fourth<sup>6</sup> with 11.7 million migrants, half of whom are women. Central Asians account for half of these migrants, followed by Ukrainians whose number sharply increased since the 2014 war.

In this article, we focus on migrants from Tajikistan and Uzbekistan, who account for more than 47% of foreigners engaged in labor activities in Russia (Federal Migration Service, 2011), mostly in unskilled jobs (Mukomel et al., 2013). Recent estimates show that 10% of Tajikistanis travel between their home country and countries of their employment, mainly Russia (IOM, 2015). Given the importance of this phenomenon, remittances sent from Russia represent an important source of revenues in these two countries. The inflow of remittances to Tajikistan amounted to 27% of GDP in 2020, maintaining its position as a world record for economic dependence on migration. In Uzbekistan, even though the economy is more diversified and less dependent on remittances, the inflow of remittances still represented 12% of GDP in 2020.<sup>7</sup>

Despite the importance of this phenomenon, little is known about the living conditions and health of migrants in Russia due to a lack of available data. Migrants are a highly mobile population that is generally not captured by national surveys such as the Russian Longitudinal Monitored Survey (RLMS), which is sampled on the residents' database (Kim et al., 2019).

Migrations in Russia are mostly temporary labor migrations that are highly structured by migration policies aiming at fill the labor force gap. Indeed Russia have faced for decades demographic

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<sup>6</sup>Behind the United States of America, Germany and Saudi Arabia (World Bank Bilateral Migration Matrix 2017).

<sup>7</sup>Before the Covid-19 crisis, the figures were slightly higher with 28% of Tajikistan's GDP and 15% of Uzbekistan's GDP. Data comes from World Bank Annual Remittances Data (updated as of May 2021).

challenges such as low fertility and high emigration. However, long-term migrations and setting-ups are less encouraged than short-term ones. Consequently, migration to Russia consists mainly of circular migrants who travel back and forth between Russia and their country of origin (temporary and repeated stays), often on an annual basis (Danzer and Dietz, 2018; IOM, 2015; Zimmermann, 2014).

The duration of stay depends on the legal documents obtained. Some migrants simply alternate short stays in Russia and in their country of origin since citizens from Commonwealth of Independent States (CIS) can enter in Russia without a visa and stay for 3 months.<sup>8</sup> If they pay for a patent, they are allowed to stay and work in Russia for one year, then they have to go out of the country to renew their work permit.<sup>9</sup> If they get a temporary stay permit they are allowed to live and work for 3 years in the region where the permit was issued. The permit is delivered under quotas and is not renewable.<sup>10</sup> Finally, temporary residents can apply for a permanent residence permit, provided they have lived in Russia on a regular basis for at least one year. The permanent residence permit is delivered under restrictive quotas and difficult to obtain. It is valid for 5 years and can be renewed thereafter without any limitations.<sup>11</sup>

Although migrants play an important role in Russian economy, attitudes towards migration in Russia are rather negative, more than in other countries such as the United States, European countries, or China (Table S.A1). For instance, more than two-thirds of Russians consider that immigration increases crime rate, risks of terrorism and social conflict. Moreover, attitudes towards migrants from Central Asia are increasingly negative. According to the independent Levada Center surveys, 38% of the respondents in 2017 declare having a bad attitude towards labor migrants from Central Asia, compared to 31% in 2007 and 19% for migrants from Ukraine. Migrants from Uzbekistan and Tajikistan are therefore likely to suffer from xenophobia, discrimination and sometimes even violence.

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<sup>8</sup>In January 2014, the so-called “90/180/90” rule came into effect. It allows migrants from states that have a visa-free regime with Russia to legally stay in the country only for 90 days. They must then leave Russia and can only return 90 days after their departure (Mukomel, 2016).

<sup>9</sup>They must apply for this patent within 30 days of arriving in Russia and find employment within 60 days of receiving the work patent. The cost of a patent varies across regions. In Moscow, in 2020, it costs 5350 roubles per month (85 US\$).

<sup>10</sup>Many certificates are required proving that migrants are not drug-addicts, not infected by HIV and that they speak Russian and know Russian history and legislation.

<sup>11</sup>Nevertheless, just like the temporary residence permit, it must be authenticated annually.



## 2.2 Health and healthcare in Russia

The Russian healthcare system is partly inherited from the so-called Semashko system of USSR, which was financed by state budgets and aimed at providing free universal care to all Soviet citizens. In the early 1990s, the system was under-financed and several reforms were implemented in order to promote accessibility, quality and efficiency (Reshetnikov et al., 2019; Popovich et al., 2011). Mandatory health insurance (MHI) was introduced to increase financing sources, while the right of all citizens to receive medical care free of charge was inscribed in the Russian Federation's constitution in 1993. The MHI is paid by employers' contributions and by regional and local budget revenues. The MHI (federal and territorial) funds are independent entities guaranteeing a free healthcare package to all citizens. Private insurance scheme was also introduced. Voluntary Health Insurances (VIH) can be contracted, either individually or collectively through one's employer, to cover potential medical needs not included in the MHI package. If their take-up increased, VHI contracts remain marginal (about 4.5-8% of the Russian population) (Aistov et al., 2021). Overall, government expenditure represents between 50 and 65% of total health expenditure (WHO database and Aistov et al. (2021)) and private expenditure 35 to 50%. In addition to VIH, this private expenditure includes formal and informal out-of-pocket: medicine expenditure (usually not covered by insurances), fee-based medical services in public or private clinics and informal payments directly made to the staff or to pay for services and materials that are supposed to be free (Aistov et al., 2021; Cook et al., 2015; Danishevski et al., 2006; Mavisakalyan et al., 2021). Decades after free medical care was enshrined in the constitution, the effectiveness of this right and the accessibility of medical services remain an issue (Aistov et al., 2021; Popovich et al., 2011). There are strong disparities in the scope and quality of services available for different regions, localities and income groups (Cook et al., 2015; Manning and Tikhonova, 2012). As a result, the health indexes in the general population are low, and despite a recent decline in mortality (Grigoriev et al., 2014),<sup>12</sup> life expectancy is still struggling to catch up with that of comparable countries (about 72 years in 2020). A majority of Russian citizens declare having forgone care due to a lack of time (queuing is unavoidable for free care), a lack of money (transportation, paying a specialist) or a lack of connections. Indeed, social capital

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<sup>12</sup>After a huge increase between 1960-2000, mortality rate has steadily declined since 2005. However it sharply raises in 2020 due to the Covid-19 pandemic.

(involvement in formal and informal networks, connections in medical structures, friends to rely on when ill, etc.) was important for receiving good quality care during Soviet and transition times, and it seems to still be the case (Manning and Tikhonova, 2012; Rose, 2000).

In theory, migrants' access to health care depends on their legal status. For example, migrants with a residence permit are entitled to receive for free all the benefits guaranteed by the MHI. Migrants without a residence permit benefit from free medical assistance only in case of life-threatening emergency or delivery (Mukomel, 2013). When buying a patent, migrants should theoretically also contract a VIH, which does not cover so much services, according to the testimonies collected by the qualitative team of REFPoM project.

However, migrants in Russia, regardless of their legal status, face the same barriers as natives (financial, social and geographic barriers), plus migrant-specific barriers (potential discrimination, information, language and cultural gap). This may limit their access to care and in the end affect their health. Regarding the specific situation of women migrants from Central Asia in Russia, qualitative surveys show that they face chronic and acute diseases due to many factors such as poor living conditions, the need to adapt to a new culture and climate, a tendency to delay visits to doctors (lack of health insurance and cost of medical care), gender norms or language and cultural barriers (King and Dudina, 2019).

## 3 Data

### 3.1 Data collection

We conducted an original survey among 1213 migrants from Tajikistan and Uzbekistan, in the Moscow region, between July and August 2019. It was part of a larger project - the REFPoM project<sup>13</sup> - funded by the French National Research Agency (ANR). Our criteria to be surveyed was to be an adult Tajikistani or Uzbekistani migrant, i.e. being at least 18 years old, having the citizenship of Tajikistan or Uzbekistan<sup>14</sup> and currently living in Russia. The sampling excluded

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<sup>13</sup>More details on the REFPoM (*Rituels et Economie Funéraires Postsocialistes en contexte Migratoire*) project can be found on <https://refpom.hypotheses.org/>.

<sup>14</sup>Contrary to Uzbekistanis, citizens from Tajikistan can have both the citizenship of Tajikistan and Russian Federation. In the sample, 7% of Tajikistani migrants are also Russian citizens.

touristic stays: 97% of surveyed migrants had been in Russia for more than a month, only 0.2% were there for the first time and for less than a month; 80% of them were working, while the remaining 20% were looking for a job. For ethical consideration, we informed the respondents about the study and asked for their official consent to be involved in the study.

In order to make our sample representative at least of the Tajikistani and Ouzbekistani migrant population, we follow a certain citizenship and gender distribution in and around Moscow, with one third of Tajikistanis for two thirds of Uzbekistanis and one fifth of women, based on figures given by the Federal Migration Service and estimates from previous work (King and Dudina, 2019; Mukomel, 2014; Rocheva and Varshaver, 2017). In the absence of a sample frame, we cannot fully verify the representativeness of the sample, but our sample is comparable to previous survey of migrants from across the CIS in terms of education and age (Mukomel, 2017) (see Appendix B. for more details on data collection).

## 3.2 Construction of indicators

### 3.2.1 Dependent variables

To measure migrants' health status, we rely on four indicators: (1) current self-assessed health, (2) mental health, (3) chronic diseases and (4) illness/injury in the past six months. Self-assessed health is commonly used in Health studies (Antón and De Bustillo, 2010; Atella et al., 2019; Berchet and Jusot, 2012; Denton et al., 2004; Jusot et al., 2009; Moullan and Jusot, 2014; Subedi and Rosenberg, 2014) as it reflects certain aspects that are not always taken into account by objective measures. Past research has shown that subjective self-assessed health is a good proxy for health status and predicts mortality well (DeSalvo et al., 2006; Idler et al., 2000; Lee, 2000). Respondents were asked if their overall health was excellent, good, fair, poor or very poor. A dichotomous measure of excellent/good self-assessed health versus fair/poor/very poor was created.<sup>15</sup> To investigate changes in health status, we also use a retrospective question that asks respondents to assess their general

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<sup>15</sup>36% of the respondents declared being in excellent health, 43% in good health, 20% in fair health, 1% in poor health and 0% in very poor health. Studies show that such dichotomous models give similar results to ordinal methods (Manor et al., 2000).

health before their first stay in Russia.<sup>16</sup> This question is similar to the one used to evaluate current self-rated health.

The second indicator for health status measures mental health. Respondents were asked how often, in the past 12 months, they have been sad, depressed, felt a loss of energy or a loss of interest in life, with options of “never”, “sometimes”, “often” and “all the time”.<sup>17</sup> We created a dichotomous measure, coding respondents as having a good mental health if they answered “never” or “sometimes” to the question.

The third health status indicator captures the prevalence of chronic diseases. We created a dichotomous measure indicating whether the respondent answered yes to the question “Do you have chronic diseases that last longer than 3 months or occur regularly?”.<sup>18</sup> The last independent variable indicates whether the respondent has been ill or injured in the last 6 months, while she or he was in Russia.

### 3.2.2 Explanatory variables

We select four different sets of characteristics that are associated with migrants’ health: sociodemographic characteristics, migration-related characteristics, living and working conditions. For sociodemographic characteristics, we include gender - our main variable of interest -, citizenship, age, education, marital status, an indicator for migrants speaking Russian at home as a child, and place of residence during childhood (capital, large city, urban-type village, village). Migration-related characteristics include the duration of migration (cumulative time spent in Russia, considering all migratory stays), an indicator of first migration at age 17 or earlier, of the presence of relatives<sup>19</sup> in Russia and a dummy indicating whether the migrant (or spouse) owns a house in the country of origin. For living conditions, we include the place of residence (center of Moscow, inside or outside the Moscow Ring Road, in the Moscow region), dwelling conditions (own apartment/house, own room, shared room or barracks/basement/etc.), whether the migrant declares having a health in-

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<sup>16</sup>The retrospective question was not asked right after the current health question to avoid an induced response bias.

<sup>17</sup>65% of the respondents chose the option “never”, 24% the option “sometimes”, 9% “often” and 2% “all the time”.

<sup>18</sup>Among the 8% of migrants who declared having a chronic disease, on average they have been suffering from it for 8 years.

<sup>19</sup>Parents, husband/wife, children and siblings.

insurance policy and an additional insurance covering the costs of returning home in case of illness or death and migrants' legal status. We distinguish four levels of legal status based on the degree of protection and institutional integration they offer: very vulnerable (no document or migration card), vulnerable (patent, renewable fee-based work permit valid for a year), more secure (temporary residence permit, valid for 3 years) and very secure (permanent residence permit, valid for 5 years, or Russian passport). Finally, as work characteristics, we include an indicator of managing a team, having a written contract, work satisfaction, working conditions (measured by an index created using a multiple correspondence analysis of 6 working conditions)<sup>20</sup>, an indicator for having been assaulted (physically or verbally) blackmailed or extorted at work in the past 12 months and average hourly earnings.<sup>21</sup> When investigating how migrants' health has evolved since their first migration, we include labor market trajectories as previous research showed that adverse employment changes (job loss, underemployment, etc.) affect health in general population (Burgard et al., 2007; Dooley et al., 2000; Mossakowski, 2009) but also migrants' health (Ro, 2014; Ro and Goldberg, 2017). Respondents were asked to retrospectively describe their work status (whether they worked or not) and whether they managed a team before their first migration. Comparing these two variables with migrants' current situation allows us to distinguish five employment trajectories: (1) labor market entry, (2) exit from the labor market, (3) upward mobility, (4) downward mobility and (5) no change.

### 3.3 Sample characteristics

Most migrants in our sample, regardless of gender, are typical circular migrants who have been alternating temporary stays in Russia for several years (Table S.A7). Only one in five migrants intend to stay in Russia permanently. Most of them plan to do short and potentially repeated stays.

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<sup>20</sup>Six variables were used to construct an index for working conditions: job requiring physical effort or heavy, painful positions; job involving loud noises, smells or noxious substances; night work; work on Sundays; health at risk at work (Tables S.A4 and S.A5 in Appendix). Of the total inertia, the first component (axis) of the multiple component analysis accounts for 67%, that is most of the total variation of variables (Table S.A6 in Appendix).

<sup>21</sup>This average hourly earning is computed using the number of worked hours and average monthly earnings in Russia for the past 3 months to take into account the fact that migrants may not be paid on a regular basis. When individuals were unable to give a precise estimate of their earnings (94 migrants), we asked them to place it in a category and we took the average value of the category.

Almost all migrants, both men and women, work in Russia.<sup>22</sup> Although it is rarer than for men, a significant proportion of women (45%) live in Russia without children or husband, which undermines the idea that female migration is totally tied.

Table 1 describes the sample, separately for each gender. On average, women are in poorer health than men, regardless of the indicator used. For instance, 59% of women report a good or excellent health, compared with 83% of men (a significant difference of 24 percentage points). This gender difference observed for migrants is twice as pronounced as the one observed between male and female Russian citizens living in Moscow. We used the 2018 RLMS wave and randomly select a sample comparable with the REFPoM sample: individuals living in Moscow, same age and gender distribution. 39% of women and 51% of men report a good or excellent health, a significant difference of 12 percentage points.

There are significant sociodemographic differences between gender. Women migrants are on average older and more often divorced or widowed than male migrants. Women also migrate at older ages and come more frequently from large cities, they are better educated and they are more likely to have family members in Russia. These results are in line with [Rocheva and Varshaver \(2017\)](#), [Mukomel \(2017\)](#) and [Hofmann \(2017\)](#). Women migrants also differ from men migrants regarding some aspects of living conditions. In particular, legal status categories are distributed differently across gender, with women being more represented in the extreme categories (very vulnerable and very secure). A smaller share of women reports having medical or supplementary insurance.

With regard to work characteristics, migrant women's place in the production system is less advantageous than that of migrant men, which itself is less advantageous than that of the Russians. 8% of women migrants manage a team, compared to 15% of male migrants and 27% of Russian Muscovites.<sup>23</sup> Migrant women report working longer hours than men (67 compared to 62 hours) and Russian Muscovites (44 hours).<sup>24</sup> Migrant women earn 26% less than migrant men and 74% less than Russian Muscovites, which corroborates what [Rocheva and Varshaver \(2017\)](#) found.

These differences between gender in terms of sociodemographic characteristics, institutional integration, living or working conditions, which potentially reflect a gender-specific selection and

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<sup>22</sup>The pilot survey showed that 88% of migrants went to Russia for economic reasons.

<sup>23</sup>RLMS, 2018.

<sup>24</sup>RLMS, 2018.

experience in migration, could partly explain the gender gap in health status.

Table 1: Descriptive statistics

	All		Women		Men		Diff.
	Mean	Sd	Mean	Sd	Mean	Sd	W-M
<i>Health outcomes</i>							
Self-assessed health: very good/good	0.78	0.41	0.59	0.49	0.83	0.37	-0.24***
Self-assessed health before first migration: very good/good	0.93	0.26	0.84	0.37	0.95	0.22	-0.11***
Depression/insomnia: never / sometimes	0.89	0.31	0.75	0.43	0.93	0.25	-0.18***
Chronic disease	0.08	0.28	0.18	0.39	0.06	0.23	0.13***
Suffered any illness, injury in Russia, last 6 months	0.22	0.41	0.27	0.45	0.21	0.40	0.07*
<i>Socio-demographic characteristics</i>							
Woman	0.21	0.40					
Uzbekistani	0.68	0.47	0.71	0.45	0.67	0.47	0.04
Tajikistani	0.32	0.47	0.29	0.45	0.33	0.47	-0.04
Age	34.07	9.78	39.12	9.61	32.76	9.39	6.36***
Educ: primary and incomplete secondary	0.10	0.30	0.08	0.28	0.10	0.30	-0.02
Educ: complete general secondary	0.54	0.50	0.48	0.50	0.56	0.50	-0.08*
Educ: complete professional secondary	0.24	0.43	0.28	0.45	0.23	0.42	0.05
Educ: tertiary	0.12	0.33	0.16	0.36	0.11	0.31	0.05*
Single	0.25	0.43	0.08	0.27	0.29	0.46	-0.21***
Divorced/widow	0.07	0.26	0.24	0.43	0.03	0.16	0.21***
Married/couple	0.68	0.47	0.68	0.47	0.68	0.47	0.00
Spoke Russian at home when child	0.31	0.46	0.48	0.50	0.27	0.44	0.21***
Residence when young: city (capital or others)	0.42	0.49	0.55	0.5	0.38	0.49	0.17***
Residence when young: large urban-type village	0.18	0.38	0.20	0.40	0.17	0.38	0.04
Residence when young: village	0.41	0.49	0.24	0.43	0.45	0.50	-0.21***
<i>Migration characteristics</i>							
Cumulative time spent in Russia: <1 year	0.13	0.34	0.18	0.39	0.12	0.33	0.06*
Cumulative time spent in Russia: [1-5] years	0.30	0.46	0.29	0.45	0.31	0.46	-0.02
Cumulative time spent in Russia: ]5-10] years	0.18	0.39	0.19	0.39	0.18	0.39	0.01
Cumulative time spent in Russia: >10 years	0.38	0.49	0.34	0.48	0.39	0.49	-0.05
Age at first migration	25.30	8.64	31.10	9.26	23.80	7.81	7.30***
Relatives in Russia	0.68	0.47	0.80	0.40	0.65	0.48	0.15***
Owens a home in country of origin	0.38	0.49	0.50	0.50	0.35	0.48	0.15***
<i>Living conditions</i>							
Residence: Moscow center/internal ring road	0.53	0.50	0.47	0.50	0.54	0.50	-0.07*
Private apart/house	0.18	0.38	0.26	0.44	0.15	0.36	0.11***
Own room in apart/house/hostel	0.23	0.42	0.36	0.48	0.20	0.40	0.16***
Shared room in apart/house/hostel	0.58	0.49	0.37	0.48	0.63	0.48	-0.27***
Barracks basement etc	0.02	0.12	0.01	0.11	0.02	0.13	0.00
Legal status: very vulnerable	0.22	0.41	0.30	0.46	0.19	0.40	0.11***
Legal status: vulnerable	0.62	0.49	0.52	0.50	0.65	0.48	-0.13***

*Continued on next page*

	All		Women		Men		Diff.
	Mean	Sd	Mean	Sd	Mean	Sd	W-M
Legal status: more secure	0.11	0.32	0.09	0.29	0.12	0.32	-0.02
Legal status: very secure	0.05	0.22	0.09	0.28	0.04	0.20	0.04**
Medical insurance	0.58	0.49	0.47	0.50	0.60	0.49	-0.13***
Additional insurance	0.09	0.29	0.05	0.22	0.10	0.30	-0.05*
<i>Work characteristics</i>							
Manages a team at work	0.14	0.34	0.08	0.28	0.15	0.36	-0.06**
Satisfied by working conditions	0.89	0.32	0.87	0.34	0.89	0.31	-0.02
Written contract	0.47	0.50	0.45	0.50	0.47	0.50	-0.02
MCA for work conditions	0.00	1.00	-0.03	0.94	0.01	1.01	-0.04
Verbally or physically assaulted (12 last months)	0.11	0.31	0.13	0.33	0.11	0.31	0.02
Average hourly remuneration in Russia (Rubles)	138.52	125.12	107.99	96.58	145.97	130.11	-37.98***
LM evolution bef 1st mig/now: enter LM	0.31	0.46	0.31	0.46	0.30	0.46	0.01
LM evolution bef 1st mig/now: leave LM	0.01	0.09	0.02	0.14	0.00	0.06	0.02**
LM evolution bef 1st mig/now: no mobility	0.51	0.50	0.46	0.50	0.52	0.50	-0.06
LM evolution bef 1st mig/now: upward mobility	0.04	0.21	0.04	0.20	0.05	0.21	-0.01
LM evolution bef 1st mig/now: downward mobility	0.13	0.34	0.17	0.38	0.12	0.33	0.04
Observations	1213		249		964		1213

Notes: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

## 4 Empirical framework

Our analysis proceeds in three parts to estimate separately 1) a gender gap in migrants' current health status, 2) the effect of migrant profile on this gender gap, and 3) how gender influences health dynamics.

### 4.1 Gender gap in current health status

First, we examine whether the health status of migrants is likely to differ between women and men and whether this gap is due to differences in observed characteristics (Results in Section 5.1).

The latent health status of the migrant  $i$  is denoted  $H_i^*$ , which represents health status on a continuous basis. It is determined by several characteristics, which were described above: sociodemographic characteristics ( $X_i$ ), migration-related features ( $M_i$ ), living conditions ( $L_i$ ), working



conditions ( $W_i$ ) and other unobserved factors included in the error term ( $\epsilon_i$ ):

$$H_i^* = \alpha_0 + \alpha_1 X_i + \alpha_2 M_i + \alpha_3 L_i + \alpha_4 W_i + \alpha_5 I_i + \epsilon_i \quad (1)$$

Migrants declare a good (or very good) health ( $H_1 = 1$ ) and not suffering from sadness/depression ( $H_2 = 1$ ) if their latent health status is above a certain threshold, which may be different for each health outcome ( $h_1^*$  and  $h_2^*$ , respectively). Therefore, for migrant  $i$ , health outcome  $j$ ,  $H_{ij}$  ( $j = [1, 2]$ ), is determined as follows:

$$\begin{cases} H_{ij} = 1 \text{ if } H_i^* > h_j^*, \text{ with } j = [1, 2] \\ H_{ij} = 0, \text{ otherwise} \end{cases} \quad (2)$$

On the contrary, they will report having a chronic disease ( $H_3 = 1$ ) and having been ill in the past 6 months ( $H_4 = 1$ ) if their latent health status is below a certain threshold ( $h_3^*$  and  $h_4^*$ , respectively):

$$\begin{cases} H_{ij} = 1 \text{ if } H_i^* < h_j^*, \text{ with } j = [3, 4] \\ H_{ij} = 0, \text{ otherwise} \end{cases} \quad (3)$$

These dichotomous models can be estimated using probit or logit specifications as it is common in the literature (Berchet and Jusot, 2012; Moullan and Jusot, 2014; Subedi and Rosenberg, 2014). In baseline regressions, we use a probit regression where the dependent variables are the four variables assessing migrants' health status at the time of the survey (self-assessed health, mental health, chronic disease and illness/injury). Average marginal effects (AME) are presented. We conduct this analysis in five steps. The first step only includes gender as an independent variable. Then, we gradually add four sets of explanatory variables to assess whether the initial gender gap is due to differences in the distribution of observed characteristics between men and women. In the second step, we add sociodemographic controls. In the third step, we add migration-related characteristics and living conditions. In the fourth step, current working conditions in Russia are added.<sup>25</sup> In the fifth and final step, we add migrants' hourly wage.<sup>26</sup>

<sup>25</sup>The sample is reduced to migrants who were working at the time of the survey (93% of the sample) or who were not currently working but had worked in Russia in the past (6%, among them 75% had been unemployed for 4 months or less).

<sup>26</sup>At this stage, we loose 79 observations due to difficulties to declare wage.

## 4.2 Migration profiles and gender gap in current health status

To investigate whether the gender gap in health status is constructed by migration and varies across migration profiles, interaction models are used (Results in Section 5.2). We focus on the relation between gender gap and two migration-related factors: (1) duration of migration and (2) legal status. We first identify whether the gender gap emerges or widens with a longer time spent in Russia, or, on the contrary, whether it narrows as a result of the potential greater integration of women. To address this issue, gender is interacted with duration of migration - measured by the cumulative time spent by migrants in Russia (all migration stays). Average marginal effects (AME) associated with gender are computed for different lengths of migration. We then explore how a greater institutional integration through a more protective legal migration status can potentially limit the health gap between migrant men and women. To conduct this analysis, gender and the degree of vulnerability of the legal status are interacted, allowing us to compute average marginal effects associated with gender for each legal status.

## 4.3 Gender gap in health “dynamics”

While we try to control for a maximum of factors, it is important to keep in mind that the present analysis does not claim for causality as several biases may come from unobserved heterogeneity or reverse causality. One crucial issue is that when observing current migrants’ health status, we cannot ensure that the observed gender gap does not simply reflect a gender difference in health status prior to migration, which could be due to a gender health gap in the country of origin or to a gendered selection in migration (Brabete, 2017; Fleury, 2016). For instance, men may be more positively selected than women if they migrate primarily for work reasons (Atella et al., 2019). If so, women may appear in worst health just because of a lower selection process and poorer pre-migration health.

To overcome this issue, we rely on self-assessed health pertaining to two stages of the life course: pre-migration (retrospective) health and in-migration (current) health (Results in Section 5.3). We start by including pre-migration self-reported health as a predictor of health in migration. Similar strategies including pre-migration health as a control were used to investigate post-migration health

in Indonesia and in Mexico (Lu, 2010; Ullmann et al., 2011).

Then we move the analysis one step further by exploring dynamics in self-reported health between the pre-migration and current situation. As before, latent health of migrant  $i$  at time  $t$  ( $h_{it}^*$ ) is assumed to depend on socio-demographic, migration-related (if in migration), current working and living conditions, as well as unobserved constant and time-varying individual characteristics ( $u_i$  and  $\epsilon_{it}$ ). Each migrant was asked to report their health for two periods: before he first migrates ( $t = O$ ) and at the time of the survey when in migration ( $t = T$ ). The specification can be expressed as follows:<sup>27</sup>

$$h_{iO}^* = \alpha_{1O}X_i + \alpha_{3O}L_{iO} + \alpha_{4O}W_{iO} + u_i + \epsilon_{iO} \quad (4)$$

$$h_{iT}^* = \alpha_{1T}X_i + \alpha_{2T}M_{iT} + \alpha_{3T}L_{iT} + \alpha_{4T}W_{iT} + u_i + \epsilon_{iT} \quad (5)$$

Theoretically, if the latent health before migration is higher than the latent health at the time of the survey, it implies that the individual has experienced a deterioration in health:

$$\left\{ \begin{array}{l} Deterio = 1 \text{ if } h_{iO}^* > h_{iT}^* > 0 \Leftrightarrow h_{iO}^* - h_{iT}^* > 0 \\ \Leftrightarrow (\alpha_{1O} - \alpha_{1T})X_i - \alpha_{2T}M_{iT} + (\alpha_{3O} - \alpha_{3T})(L_{iO} - L_{iT}) + (\alpha_{4O} - \alpha_{4T})(W_{iO} - W_{iT}) + \epsilon_{iO} - \epsilon_{iT} > 0 \\ Deterio = 0, \text{ otherwise} \end{array} \right. \quad (6)$$

This equation can be estimated using a probit model where the dependent variable (*Deterio*) is a dummy variable indicating whether the migrant's pre-migration self-reported health is better than his current self-reported health. It measures a deterioration in self-assessed health over time and migration. Focusing on health deterioration is justified by our data. For most migrants, self-rated health either deteriorated or remained the same, while very few experienced an improvement (Table S.A8 in Appendix). On average, health is significantly more likely to deteriorate for migrant women than for men.

By differentiating pre- and post-migration health status, this “dynamic” model allows us to remove time-invariant unobserved characteristics that affect pre-migration and current health status

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<sup>27</sup>The coefficients associated with the different factors are indexed by the period ( $O$  or  $T$ ) to allow characteristics to have a different impact on health depending on whether the individual is in the country of origin or in Russia. For instance, gender does not necessarily have the same impact since norms, culture between the two countries are likely to differ.

in the same way ( $u_i$ ). For instance, if there is a gender declarative bias or fixed unobserved endowments (such as individual risk aversion, genetic components of health, preferences, etc.) that impact pre- and post-migration health to the same extent, this “dynamic” model will remove these biases.

Ideally, we would like to observe all time-varying independent variables before and during migration. However, as we rely on cross-sectional data instead of longitudinal data, all characteristics were not observed in the country of origin before migration. Only some of them are reported using retrospective questions. The survey allows us to build some dynamic variables as it recorded information on age at first migration and migrants’ situation on the labor market before first migration. The first variable allows us to compute the number of years since migrants first migrated and to control for both life-cycle and cohort effects. The second set of variables allows us to distinguish different labor trajectories. Given the distribution of labor market trajectories (Table 1), in the “dynamic” model, we add two dummies: one that indicates whether the migrant has entered the labor market since he migrated for the first time and a second one indicating whether he has experienced a downward employment mobility (the reference being no/upward mobility or leaving the labor market). We finally re-estimate this pseudo-dynamic model while adding interaction variables to investigate whether the relation between gender and health dynamics varies according to duration of migration and legal status.

## 5 Results

### 5.1 Baseline model

Tables 2 and 3 report the estimated gender gap in health status for each outcome and specification. The highest estimate is observed in column (1). Due to the important differences between migrant women and men in our sample (Table 1), without any control, women are 20 percentage points less likely to report being in good health. After controlling for sociodemographic characteristics, although the estimated gender gap is halved, it remains high and significant.

Even after controlling for living and working conditions, being a woman decreases the likelihood of reporting being healthy by about 10 percentage points, from 78% to 68%. It reduces by 8 percentage points the likelihood of never (or rarely) experiencing sadness or depression. Women are

also 8 percentage points more likely to declare suffering from a chronic condition. Sudden illness or accidental injury is the only health outcome that is not significantly associated with being a woman, after controlling for sociodemographic characteristics. These results are consistent with the existing literature showing a female disadvantage in health ([Almeida-Filho et al., 2004](#); [Berchet and Jusot, 2010, 2012](#); [Case and Deaton, 2005](#); [Kobayashi and Prus, 2012](#); [Malmusi et al., 2010](#); [Subedi and Rosenberg, 2014](#)). The disadvantage of women migrants in health observed in Table 1 is therefore not entirely due to differences in age and marital status nor due to poorer living and working conditions.

Table 2: Health status (1/2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Estimators: Probit / AME										
Dep. Var.:	Self-assessed health: Good or very good									
		Depression/insomnia: Never or rarely								
Woman	-0.202*** (0.02)	-0.109*** (0.03)	-0.099*** (0.03)	-0.098*** (0.03)	-0.097*** (0.03)	-0.137*** (0.02)	-0.099*** (0.02)	-0.085*** (0.02)	-0.084*** (0.02)	-0.079*** (0.02)
Uzbekistani (ref: Tajikistani)		0.048** (0.02)	0.040 (0.03)	0.031 (0.03)	0.032 (0.03)		0.035** (0.02)	0.022 (0.02)	0.005 (0.02)	0.001 (0.02)
Age: [30-40] (ref: <30)		-0.055 (0.03)	-0.052 (0.04)	-0.062* (0.04)	-0.047 (0.04)		-0.021 (0.03)	-0.023 (0.03)	-0.023 (0.03)	-0.035 (0.03)
Age: 40 or more (ref: <30)		-0.141*** (0.03)	-0.148*** (0.04)	-0.150*** (0.04)	-0.131*** (0.04)		-0.020 (0.03)	-0.019 (0.03)	-0.008 (0.03)	-0.018 (0.03)
Tertiary educ (ref: below tertiary)		0.045 (0.03)	0.049 (0.03)	0.070** (0.03)	0.061* (0.04)		-0.023 (0.02)	-0.012 (0.03)	0.012 (0.03)	0.001 (0.03)
Single (ref: married/couple)		0.058 (0.04)	0.072* (0.04)	0.066* (0.04)	0.083** (0.04)		-0.002 (0.03)	0.011 (0.03)	-0.001 (0.03)	0.002 (0.03)
Divorced / widow (ref: married/couple)		-0.163*** (0.04)	-0.144*** (0.04)	-0.128*** (0.04)	-0.136*** (0.04)		-0.088*** (0.03)	-0.069** (0.03)	-0.073*** (0.03)	-0.070*** (0.03)
Spoke Russian at home when child		-0.039 (0.02)	-0.035 (0.02)	-0.038 (0.02)	-0.045* (0.03)		-0.022 (0.02)	-0.025 (0.02)	-0.021 (0.02)	-0.028 (0.02)
Residence when young: urban-type village (ref: city)		-0.027 (0.03)	-0.025 (0.03)	-0.010 (0.03)	-0.012 (0.03)		-0.013 (0.02)	-0.015 (0.02)	-0.004 (0.02)	-0.007 (0.02)
Residence when young: village (ref: city)		0.001 (0.03)	-0.003 (0.03)	-0.011 (0.03)	-0.003 (0.03)		0.017 (0.02)	0.019 (0.02)	0.016 (0.02)	0.013 (0.02)
Cumulative time spent in Russia: [1-5] years (ref: <1y)			-0.068* (0.04)	-0.062 (0.04)	-0.061 (0.04)			0.001 (0.03)	0.005 (0.03)	-0.007 (0.03)
Cumulative time spent in Russia: [5-10] years (ref: <1y)			-0.084* (0.04)	-0.064 (0.04)	-0.072 (0.05)			-0.002 (0.03)	0.018 (0.03)	0.006 (0.03)
Cumulative time spent in Russia: >10 years (ref: <1y)			-0.046 (0.04)	-0.025 (0.04)	-0.027 (0.04)			0.032 (0.03)	0.047 (0.03)	0.032 (0.03)
Age at first mig: 17 or less (ref: >17)			0.034 (0.05)	0.045 (0.05)	0.071 (0.05)			0.029 (0.03)	0.043 (0.03)	0.045 (0.04)
Relatives in Russia			-0.004 (0.03)	-0.010 (0.03)	0.004 (0.03)			-0.023 (0.02)	-0.032 (0.02)	-0.028 (0.02)
Owns a home in country of origin			0.039 (0.03)	0.021 (0.03)	0.018 (0.03)			0.006 (0.02)	-0.016 (0.02)	-0.011 (0.02)
Residence: Moscow center/internal ring road (ref: outside)			-0.020 (0.02)	-0.025 (0.02)	-0.028 (0.02)			-0.044** (0.02)	-0.047*** (0.02)	-0.044** (0.02)
Own room in apart/house/hostel (ref: private apart/house)			0.046 (0.04)	0.041 (0.04)	0.055 (0.04)			0.010 (0.03)	-0.014 (0.03)	-0.025 (0.03)
Shared room in apart/house/hostel (ref: private apart/house)			0.034 (0.03)	0.032 (0.03)	0.043 (0.04)			0.008 (0.02)	0.001 (0.02)	-0.015 (0.03)
Barracks basement etc (ref: private apart/house)			-0.086 (0.08)	-0.091 (0.08)	-0.088 (0.09)			0.092 (0.08)	0.065 (0.07)	0.046 (0.07)

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Estimators: Probit / AME	Depression/insomnia: Never or rarely									
Dep. Var.:	Self-assessed health: Good or very good									
Legal status: v. vulnerable (ref.: very secure)			-0.007 (0.06)	0.002 (0.06)	-0.005 (0.06)			0.003 (0.04)	0.002 (0.04)	0.012 (0.04)
Legal status: vulnerable (ref.: very secure)			0.066 (0.05)	0.055 (0.05)	0.045 (0.06)		0.049 (0.04)	0.035 (0.04)	0.051 (0.04)	0.051 (0.04)
Legal status: more secure (ref.: very secure)			0.042 (0.06)	0.041 (0.06)	0.026 (0.06)		0.011 (0.04)	0.003 (0.04)	0.015 (0.04)	0.015 (0.04)
Medical insurance			0.047* (0.03)	0.051* (0.03)	0.057*** (0.03)		0.020 (0.02)	0.020 (0.02)	0.020 (0.02)	0.016 (0.02)
Additional insurance			0.024 (0.04)	0.005 (0.04)	-0.019 (0.04)		0.025 (0.03)	0.014 (0.03)	0.035 (0.03)	0.035 (0.04)
Manages a team at work				0.007 (0.03)	0.017 (0.04)			-0.020 (0.02)	-0.020 (0.02)	-0.019 (0.02)
Satisfied by working conditions				0.148*** (0.03)	0.156*** (0.03)			0.081*** (0.02)	0.077*** (0.02)	0.077*** (0.02)
Contract: written (ref: oral, none or self-emp.)				0.028 (0.02)	0.024 (0.02)			0.032* (0.02)	0.028 (0.02)	0.028 (0.02)
MCA for work conditions				0.018 (0.01)	0.013 (0.01)			0.038*** (0.01)	0.038*** (0.01)	0.038*** (0.01)
Verbally or physically assaulted (12 last mths)				-0.078** (0.03)	-0.085** (0.03)			-0.046** (0.02)	-0.046** (0.02)	-0.053** (0.02)
Log of hourly remuneration in Russia					0.004 (0.01)					0.003 (0.01)
Observations	1,213	1,211	1,181	1,149	1,070	1,213	1,211	1,181	1,149	1,070
Mean dependent variable	0.784	0.784	0.783	0.783	0.780	0.894	0.894	0.895	0.895	0.894
Pseudo R2	0.0473	0.104	0.126	0.156	0.159	0.0681	0.0952	0.120	0.195	0.201

Notes: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%. Robust standard errors in parentheses.

Table 3: Health status (2/2)

Estimators: Probit / AME	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dep. Var.:	Illness/injury (last 6 months, in Russia)									
Woman	0.100*** (0.02)	0.062*** (0.02)	0.069*** (0.02)	0.078*** (0.02)	0.082*** (0.02)	0.064** (0.03)	0.026 (0.03)	0.020 (0.03)	0.033 (0.03)	0.051 (0.04)
Uzbekistani (ref: Tajikistani)		-0.016 (0.02)	-0.016 (0.02)	-0.015 (0.02)	-0.023 (0.02)		-0.048* (0.03)	-0.034 (0.03)	-0.020 (0.03)	-0.036 (0.03)
Age: [30-40] (ref: <30)		0.051** (0.03)	0.041 (0.03)	0.039 (0.03)	0.034 (0.03)		-0.019 (0.03)	-0.031 (0.04)	-0.022 (0.04)	-0.033 (0.04)
Age: 40 or more (ref: <30)		0.106*** (0.03)	0.094*** (0.03)	0.086*** (0.03)	0.079*** (0.03)		0.005 (0.04)	-0.010 (0.04)	-0.014 (0.04)	-0.035 (0.04)
Tertiary educ (ref: below tertiary)		-0.002 (0.02)	-0.005 (0.02)	-0.012 (0.02)	-0.020 (0.02)		0.007 (0.04)	0.001 (0.04)	-0.021 (0.04)	-0.011 (0.04)
Single (ref: married/couple)		0.016 (0.03)	0.007 (0.03)	0.009 (0.03)	0.008 (0.03)		0.028 (0.04)	0.046 (0.04)	0.055 (0.04)	0.054 (0.04)
Divorced / widow (ref: married/couple)		0.010 (0.03)	-0.007 (0.03)	-0.023 (0.03)	-0.031 (0.03)		0.119*** (0.05)	0.122*** (0.05)	0.103** (0.05)	0.117** (0.05)
Spoke Russian at home when child		0.027* (0.02)	0.031* (0.02)	0.031* (0.02)	0.033** (0.02)		0.029 (0.03)	0.023 (0.03)	0.021 (0.03)	0.020 (0.03)
Residence when young: urban-type village (ref: city)		-0.019 (0.02)	-0.021 (0.02)	-0.019 (0.02)	-0.017 (0.02)		0.025 (0.03)	0.016 (0.03)	0.020 (0.03)	0.016 (0.03)
Residence when young: village (ref: capital/large city)		-0.013 (0.02)	-0.017 (0.02)	-0.004 (0.02)	-0.004 (0.02)		-0.054** (0.03)	-0.047* (0.03)	-0.030 (0.03)	-0.031 (0.03)
Cumulative time spent in Russia: [1-5] years (ref: <1y)			0.027 (0.03)	0.028 (0.03)	0.043 (0.03)			0.112*** (0.04)	0.118*** (0.04)	0.090** (0.05)
Cumulative time spent in Russia: [5-10] years (ref: <1y)			0.046 (0.03)	0.038 (0.03)	0.045 (0.03)			0.170*** (0.05)	0.158*** (0.05)	0.147*** (0.05)
Cumulative time spent in Russia: >10 years (ref: <1y)			0.024 (0.03)	0.022 (0.03)	0.034 (0.03)			0.141*** (0.04)	0.140*** (0.04)	0.125*** (0.05)
Age at first mig: 17 or less (ref: >17)			-0.032 (0.03)	-0.034 (0.03)	-0.033 (0.03)			-0.066 (0.05)	-0.082* (0.05)	-0.092** (0.05)
Relatives in Russia			0.003 (0.02)	0.007 (0.02)	0.006 (0.02)			0.067** (0.03)	0.071** (0.03)	0.072** (0.03)
Owns a home in country of origin			-0.006 (0.02)	-0.004 (0.02)	-0.006 (0.02)			-0.020 (0.03)	-0.003 (0.03)	0.008 (0.03)
Residence: Moscow center/internal ring road (ref: outside)			-0.007 (0.02)	-0.008 (0.02)	-0.007 (0.02)			-0.009 (0.02)	-0.003 (0.02)	-0.018 (0.03)
Own room in apart/house/hostel (ref: private apart/house)			0.010 (0.02)	0.018 (0.02)	0.016 (0.03)			0.073* (0.04)	0.081** (0.04)	0.082** (0.04)
Shared room in apart/house/hostel (ref: private apart/house)			0.045** (0.02)	0.053** (0.02)	0.051** (0.02)			0.011 (0.04)	0.011 (0.04)	0.017 (0.04)
Barracks basement etc (ref: private apart/house)			-0.015 (0.06)	-0.001 (0.06)	0.007 (0.06)			-0.079 (0.12)	-0.070 (0.11)	-0.056 (0.12)

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Estimators: Probit / AME	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dep. Var.:	Chronic disease			Illness/injury (last 6 months, in Russia)						
Legal status: v. vulnerable (ref.: very secure)			-0.033 (0.03)	-0.042 (0.03)	-0.040 (0.03)			0.027 (0.06)	0.002 (0.06)	0.000 (0.06)
Legal status: vulnerable (ref.: very secure)			-0.083*** (0.03)	-0.080*** (0.03)	-0.082** (0.03)			-0.015 (0.06)	-0.007 (0.06)	-0.013 (0.06)
Legal status: more secure (ref.: very secure)			-0.069* (0.04)	-0.082** (0.04)	-0.077** (0.04)			-0.035 (0.07)	-0.051 (0.06)	-0.054 (0.07)
Medical insurance			-0.007 (0.02)	-0.010 (0.02)	-0.003 (0.02)			0.047* (0.03)	0.036 (0.03)	0.044 (0.03)
Additional insurance			-0.016 (0.03)	-0.002 (0.03)	0.006 (0.03)			-0.048 (0.04)	-0.028 (0.04)	-0.002 (0.05)
Manages a team at work				0.021 (0.02)	0.011 (0.02)				0.037 (0.03)	0.025 (0.04)
Satisfied by working conditions				-0.038* (0.02)	-0.031 (0.02)				-0.099*** (0.04)	-0.105*** (0.04)
Contract: written (ref: oral, none or self-emp.)				-0.019 (0.02)	-0.019 (0.02)				-0.032 (0.03)	-0.047* (0.03)
MCA for work conditions				-0.018** (0.01)	-0.018** (0.01)				-0.029** (0.01)	-0.025* (0.01)
Verbally or physically assaulted (12 last mths)				0.012 (0.02)	0.017 (0.02)				0.096*** (0.04)	0.102*** (0.04)
Log of hourly remuneration in Russia					-0.009 (0.01)					0.024* (0.01)
Observations	1,212	1,210	1,181	1,149	1,070	1,213	1,211	1,181	1,149	1,070
Mean dependent variable	0.0825	0.0818	0.0830	0.0809	0.0804	0.220	0.220	0.224	0.224	0.231
Pseudo R2	0.0523	0.0995	0.133	0.166	0.167	0.00386	0.0226	0.0493	0.0737	0.0759

Notes: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%. Robust standard errors in parentheses.

In order to quantify the part of the raw gender gap that is explained by observed characteristics, a Fairlie decomposition was estimated. Results reported in Table S.A9 in Appendix show that only socio-demographic differences - especially marital status and age - significantly explain the gender gap in self-assessed and mental health. A large part of the gender gap is unexplained (36% to 87%), regardless of the measure of health considered. This residual gender gap may result from unobserved characteristics, an issue that is addressed in more detail by the pseudo-dynamic model. It could also be due to a differential effect of observed factors for men and women, an assumption that is investigated when using interaction terms.

## 5.2 Interaction models

In order to understand whether the gender gap is partly built by migration trajectories and conditions, we test the sensitivity of the gender differential to different profiles. In Tables 4 and 5, we estimate the AME of gender on health for different lengths of stay and different legal statuses, through probit models interacting gender with these migration profiles.

The gender gap is only significant for migrants who spent more than a year in Russia (Table 4). This result suggests that health status is not different among male and female recent migrants, but women start having a disadvantage in health after a while in Russia. Health may deteriorate more rapidly for women during migration stay.

The relationship between gender and health also varies depending on migrants' legal status. Being a woman is significantly negatively associated with the likelihood of being in good health only for subgroups of legally vulnerable migrants, i.e. those who have no legal document and those who only have the patent. A more protective legal status reduces the health differential between men and women. Gender inequalities are higher for the most vulnerable profiles. This is in line with the results of previous works analyzing health in an intersectional perspective in other countries, showing that there is a cumulative negative effect of being a woman from a poorer background (Gkiouleka and Huijts, 2020).<sup>28</sup>

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<sup>28</sup>When we estimate a model where gender and working conditions are interacted, the health gender gap is not sensitive to working conditions. Whatever the degree of hardness, women have a disadvantage for the three first outcomes. However for illness within the past six months, only women working in worse conditions are more likely to get sick (Table S.A10 in Appendix).

Table 4: Gender gap and time in Russia

Probit / AME associated with gender Dep. Var.	(1) Self-assessed health: good/very good	(2) Depression/insomnia (never, rarely)	(3) Chronic disease	(4) Illness/injury past 6 mths
AME at cumul. time in Russia:				
<1 y	0.05 (0.07)	-0.10 (0.08)	0.08 (0.06)	0.15* (0.08)
[1 – 5] y	-0.16*** (0.06)	-0.12** (0.05)	0.13*** (0.05)	0.03 (0.06)
>5 y	-0.12*** (0.05)	-0.09*** (0.04)	0.09*** (0.04)	0.04 (0.05)

*Notes:* We control for all observable characteristics, such as in baseline model, reported in Table 2. Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

Table 5: Gender gap and legal vulnerability

Probit / AME associated with gender Dep. Var.	(1) Self-assessed health: good/very good	(2) Depression/insomnia (never, rarely)	(3) Chronic disease	(4) Illness/injury past 6 mths
AME at legal status:				
Very vulnerable	-0.13* (0.07)	-0.07 (0.05)	0.13** (0.06)	0.12* (0.0)
Vulnerable	-0.12*** (0.05)	-0.12*** (0.04)	0.09*** (0.03)	0.02 (0.05)
More secure	-0.07 (0.10)	-0.11 (0.08)	0.11 (0.08)	0.02 (0.09)
Very secure	0.01 (0.11)	-0.15 (0.11)	0.05 (0.11)	0.23* (0.13)

*Notes:* We control for all observable characteristics, such as in baseline model, reported in Table 2. Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

It seems that women’s health is more sensitive to the length of stay and its conditions than men’s and more sensitive to less institutional integration, such as legal status.

### 5.3 Gender and health deterioration

Table 6: Health status, controlling for self-assessed health (SAH) before migration

Estimators: Probit / AME	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Self-assessed health: Good or very good		Sadness/depression Never or rarely		Chronic disease		Illness/injury (last 6 mths, in Russia)	
Woman	-0.097*** (0.03)	-0.071** (0.03)	-0.079*** (0.02)	-0.079*** (0.02)	0.082*** (0.02)	0.073*** (0.02)	0.051 (0.04)	0.044 (0.04)
SAH before first migration: Good or very good		0.324*** (0.04)		0.005 (0.03)		-0.078*** (0.02)		-0.095** (0.05)
Observations	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070
Mean dependent variable	0.780	0.780	0.894	0.894	0.0804	0.0804	0.231	0.231
Pseudo R2	0.159	0.223	0.201	0.201	0.167	0.186	0.0759	0.0795
Sociodemographic characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Migration characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Living conditions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Working conditions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wage	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

Other controls not reported are those included in Table 2.

When controlling for self-assessed health before migration, women are still more likely to be in poorer health than men, even though the coefficients slightly decrease (Table 6). The gender difference in health status does not seem to only reflect a pre-migration gap. Table 7 reports the results of the “dynamic” model where we compare self-assessed health before and during migration. Being a woman is strongly positively associated with the probability of enduring a health deterioration in Russia, even after controlling for observed living and working characteristics. Migrant women are on average 11 percentage points more likely to experience a deterioration in health than men.<sup>29</sup>

This strong relationship between gender and health dynamics confirms that a substantial part of the gender gap in health among migrants is built up during migration. As in the baseline model, results from interacted models suggest that the gender gap we observe for health “dynamics” appears

<sup>29</sup>This pseudo-dynamic model helps us to deal with unobserved time invariant characteristics - such as declaration bias - affecting health in the same way prior and during migration. Our results could be reinforced by further studies mobilizing panel data, which could allow a more in-depth study of migration and work trajectories and to fully control for time-invariant characteristics.

after some time spent in Russia and only for migrants who have a less protective legal status (Table S.A11 in Appendix).

Table 7: Pseudo-dynamic model

Estimators: Probit / AME Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)
	Health deterioration (before mig / in migration)					
Woman	0.137*** (0.03)	0.112*** (0.03)	0.109*** (0.03)	0.108*** (0.03)	0.106*** (0.03)	0.114*** (0.04)
No. of y since 1st mig		0.010*** (0.00)	0.009*** (0.00)	0.008*** (0.00)	0.008*** (0.00)	0.008*** (0.00)
Cumulative time spent in Russia: [1-5] years (ref: <1y)			0.084* (0.05)	0.087* (0.05)	0.095* (0.05)	0.082 (0.05)
Cumulative time spent in Russia: ]5-10] years (ref: <1y)			0.117** (0.05)	0.121** (0.05)	0.124** (0.05)	0.116** (0.06)
Cumulative time spent in Russia: > 10 years (ref: <1y)			0.076 (0.05)	0.081 (0.05)	0.091* (0.05)	0.078 (0.06)
Legal status: v. vulnerable (ref.: very secure)			0.049 (0.06)	0.050 (0.06)	0.031 (0.07)	0.024 (0.07)
Legal status: vulnerable (ref.: very secure)			0.020 (0.06)	0.022 (0.06)	0.024 (0.06)	0.021 (0.06)
Legal status: more secure (ref.: very secure)			0.053 (0.07)	0.055 (0.07)	0.046 (0.07)	0.041 (0.07)
LM evolution before migration/now: enter LM				0.019 (0.03)	0.012 (0.03)	0.017 (0.03)
LM evolution before migration/now: downward mobility				0.034 (0.04)	0.028 (0.04)	0.035 (0.04)
Observations	1,212	1,197	1,187	1,183	1,145	1,066
Average dependent variable	0.264	0.264	0.264	0.264	0.264	0.271
Pseudo R2	0.0151	0.0581	0.0645	0.0642	0.0759	0.0738
Socio-demographic characteristics	No	Yes	Yes	Yes	Yes	Yes
Migration characteristics	No	No	Yes	Yes	Yes	Yes
Labour market trajectories	No	No	No	Yes	Yes	Yes
Current living conditions	No	No	No	No	Yes	Yes
Current working conditions	No	No	No	No	Yes	Yes
Current wage	No	No	No	No	No	Yes

Notes: Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%. Other controls not reported are those included in Table 2.

## 6 Discussion

### 6.1 Main results

Most of the studies examining the migrants' health advantage compare natives' and immigrants' health outcomes. They rarely focus on the heterogeneity within migrants. The present article investigates whether there is a gender gap in health status among migrants by using an original

database collected by the authors in the Moscow region. This study found that there is a gender gap with women being on average in poorer health than men. Descriptive statistics showed that women in migration differ from their male counterparts, suggesting that both selection and experience in migration may be gendered. Nevertheless, the gender gap in health status is only partly explained by these observed differences. This gender gap appears with time spent in migration and only concerns migrants with a vulnerable legal status. We also show that even though migrant women report being in a poorer health than men before migration, their health is also more likely to deteriorate over time and during migration.

## 6.2 Robustness checks

We run several robustness checks that confirm our main results. First, we may expect differences in health outcomes for circular, temporary, or long-term migrants. If the type of migration affects health and is correlated with gender, the estimated gender gap may be biased. Although we control for the duration of migration, it may also be important to differentiate between circular and other migrants. To do so, we distinguish new migrants and migrants with multiple stays in Russia. For the latter, we know the number of times migrants returned to their country of origin and the number of months they spent in Russia in the past year, which provide us with proxies for circular migration. As expected, migrants with several short-term stays have specific profiles, as they are for instance less likely to have relatives in Russia and are less institutionally integrated, as measured by legal documents and medical insurance (Table S.A12 in Appendix). When we control for the type of migration, whatever the proxy used, the gender gap in self-assessed health, chronic disease and mental health remains positive and significant (Table S.A13 in Appendix).

Secondly, a potential issue with the pseudo-dynamic model is the existence of a recall bias, as we use retrospective questions to capture health trajectories. If migrants are subject to a recall bias when answering retrospective questions and if this potential bias is correlated with gender, gender gap estimates would be biased. To mitigate this potential bias, we estimated the “pseudo-dynamic” model while keeping only migrants whose first migratory stay is more recent, as recall bias is likely to be lower for them. Regardless of the sample considered, women remain more likely to experience a deterioration in health during migration (Table S.A14 in Appendix). Another problem

with retrospective questions, related to recall bias, is the possibility that current health status influences recall of past pre-migration health status. If the way it is influenced is systematically correlated with gender, this could affect our results. For example, if women are systematically nostalgic (“before is always better”) but men are not, currently unhealthy women would under-report their past poor health and we could overestimate a deterioration in women’s health. On the contrary, if women systematically extrapolate the past from the present (past health seen through current health: “I feel bad now, I have always felt bad” or “I feel good now I have always felt good”), then the greater deterioration in health observed among women would be underestimated compared to reality. However, there is no theoretical intuition to suggest that nostalgia outweighs extrapolation from the present, nor that women behave differently from men in this regard.

Third, the variable recording the cumulative time spent in Russia may potentially capture not only the total stay duration but also some differences in characteristics between cohorts of migrants. Descriptive statistics computed separately for older and more recent cohorts show some disparities, with recent migrants having migrated at an older age, being less educated and speaking Russian more rarely in childhood. If selection mechanisms changed over time for one gender and not the other, it could explain a potential gender gap for older cohorts. To check whether this endangers our results, we run the same estimations, first, with a continuous variable indicating the year of arrival, then, with a binary variable indicating being arrived before or after 2014 economic downturn, and finally separately for cohorts arrived before and after 2014.<sup>30</sup> Our main results remain valid since the gender gap is always significant, while controlling for the date of the first arrival in Russia (Table S.A15 in Appendix). Nevertheless, some differences are noticeable when looking separately at migrants who first migrated before and after 2014. The gender gap in self-assessed current health is only significant for older cohorts of migrants (columns (3) and (4)). One explanation could be that selection in migration could have changed over time with a more pronounced gender disadvantage in pre-migration health for older cohorts. However, this explanation is not validated by our results. Even though women in recent cohorts were in poorer health than men prior to migration, this was not the case for women in older cohorts (columns (19) and (20)). This suggests that the gender gap

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<sup>30</sup>Taking the date of an economic downturn is an easy way to divide into two different groups who had potentially different conditions of departure and stay. We chose the 2014 downturn instead of 2008, first to have more individuals in the sub-sample - they were fewer who arrived before 2008 - but also because the 2014-2015 crisis was very dramatic in Russia and led to a deep drop in remittances (Figure S.A2 in Appendix).

in current self-assessed health among the older cohorts is likely to be due, again, to the migration experience, which lasted longer for them than for the recent cohorts. It is corroborated by the results regarding health “dynamics” (column (23)). For older cohorts, women are more likely than men to experience a deterioration in health since they have migrated .

### 6.3 Further interpretations and investigations

Our findings suggest that the gender disparity we observed is not entirely caused by a pre-migration health gender gap nor by observed gender differences in sociodemographic, migration, living or working characteristics. How to explain this residual gender gap ? Our results show that it is reinforced by the experience in migration, suggesting that men and women may not be not equally affected by the identified factors. This could have serious consequences for the economies of host and origin countries as women experience a faster deterioration of their health and a decrease in their productivity and remittances. Especially if our results can be extended to migrants from other countries, as women represent half of the migrants. In any case, this situation calls for public policies and prevention measures targeting in particular women in more vulnerable situations and those forced to repeat their stay every year.

The residual gender gap we found may also result from several unobserved differences between women and men. Further research should be undertaken to investigate these potential explanations. First, migrant women may experience a triple discrimination (as migrants, minorities and women) (Llácer et al., 2007) or fear being discriminated by Russian doctors (King and Dudina, 2019). Second, family situation may also have evolved differently for men and women, which could potentially explain the greater deterioration of health experienced by women. When controlling for having children and their presence in Russia, gender gaps for current mental health, chronic disease or health deterioration decrease by around one quarter, even though they remain significant.<sup>31</sup> This suggests that the family situation may play a role in explaining disadvantage of women in mental health, chronic disease and health deterioration. Unfortunately, with the present data, we cannot reconstruct the family trajectory (date of marriage, divorce, childbirth etc.) and further research should be undertaken to investigate this potential source of gender gap.

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<sup>31</sup>Detailed results are available on demand.



Third, as shown by previous literature, social capital plays a great role in health (Rose, 2000). Migrant women may also be more socially isolated, especially housewives who have followed their husbands and immigrant women working in the domestic sector who have little chances of establishing social relationships (Llácer et al., 2007). This higher social isolation can be detrimental to their health (Litwin, 2006; Wong et al., 2007). Immigrant women in lack of institutional integration may have fewer alternative resources and be less included in informal solidarity networks that can be mobilized to face health shocks. This is the research track we follow in one of our ongoing papers. In our sample, half of the respondents participate to informal solidarity networks that collect money to help migrants in difficult situations (financing legal documents, emergency medical care, funerals, etc.). Our survey showed that fewer women participate in these informal funds (41% of women compared to 52% of men).

Fourth, women may face specific barriers to getting care leading to poorer health, such as the lack of time (women's double day) or lack of information about their rights. This idea is corroborated by King and Dudina (2019) who found that Central Asian women delay their visits to doctors. However, the authors focus only on women and do not provide any comparison with men. In our sample women declare more often than men forgoing care and have less medical insurance, despite their higher health needs. In the present article, we focused on health status and not on the utilization of services. Further research investigating the role of access to care in the gender difference in health are ongoing.

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# Appendix

## A. Gender norms and attitudes towards migration

Table S.A1: Gender norms and beliefs about migrants in Russia and other destination countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Russia	USA	EU	China	Diff. Russia - USA	Diff. Russia - EU	Diff. Russia-China
<i>Gender norms</i>							
When job are scare, men should have more right to a job than women (agree)	0.41 (0.49)	0.05 (0.22)	0.28 (0.45)	0.46 (0.50)	0.36*** (0.01)	0.13*** (0.01)	-0.04*** (0.01)
Men make better political leaders than women do (agree)	0.60 (0.49)	0.16 (0.37)	0.23 (0.42)	0.50 (0.50)	0.44*** (0.01)	0.36*** (0.01)	0.09*** (0.01)
University is more important for a boy than for a girl (agree)	0.28 (0.45)	0.10 (0.30)	0.10 (0.30)	0.22 (0.41)	0.19*** (0.01)	0.17*** (0.01)	0.07*** (0.01)
Pre-school child suffers with working mother (agree)	0.38 (0.49)	0.21 (0.41)	0.39 (0.49)	0.59 (0.49)	0.19*** (0.01)	-0.02 (0.01)	-0.21*** (0.01)
Men make better business executives than women do (agree)	0.56 (0.50)	0.13 (0.33)	0.21 (0.41)	0.34 (0.47)	0.44*** (0.01)	0.34*** (0.01)	0.20*** (0.01)
Women have the same rights as men is essential for democracy (8 or more out of 10)	0.76 (0.43)	0.77 (0.42)	0.88 (0.33)	0.88 (0.32)	-0.02 (0.01)	-0.12*** (0.01)	-0.12*** (0.01)
<i>Beliefs about migrants</i>							
When jobs are scarce, employers should give priority to natives over immigrants	0.75 (0.43)	0.45 (0.50)	0.60 (0.49)	0.74 (0.44)	0.31*** (0.01)	0.16*** (0.01)	-0.00 (0.01)
Would not like to have immigrants/foreign workers as neighbors	0.32 (0.47)	0.09 (0.28)	0.15 (0.36)	0.26 (0.44)	0.23*** (0.01)	0.16*** (0.01)	0.06*** (0.01)
Immigrants have a bad impact on the development of the country	0.27 (0.44)	0.16 (0.37)	0.31 (0.46)	0.08 (0.27)	0.11*** (0.01)	-0.06*** (0.01)	0.19*** (0.01)
Immigrants do not fill useful jobs in the workforce	0.36 (0.48)	0.07 (0.26)	0.32 (0.46)	0.14 (0.35)	0.28*** (0.01)	0.04*** (0.01)	0.21*** (0.01)
Immigrants do not strengthen cultural diversity	0.53 (0.50)	0.10 (0.29)	0.29 (0.45)	0.10 (0.31)	0.43*** (0.01)	0.24*** (0.01)	0.42*** (0.01)
Immigrants increase the crime rate	0.70 (0.46)	0.31 (0.46)	0.61 (0.49)	0.30 (0.46)	0.39*** (0.01)	0.08*** (0.01)	0.38*** (0.01)
Immigrants increase the risks of terrorism	0.72 (0.45)	0.42 (0.49)	0.63 (0.48)	0.18 (0.38)	0.32*** (0.01)	0.09*** (0.01)	0.54*** (0.01)
Immigrants increase unemployment	0.64 (0.48)	0.33 (0.47)	0.54 (0.50)	0.31 (0.46)	0.31*** (0.01)	0.10*** (0.01)	0.32*** (0.01)
Immigrants lead to social conflict	0.73 (0.44)	0.41 (0.49)	0.65 (0.48)	0.21 (0.40)	0.30*** (0.01)	0.08*** (0.01)	0.52*** (0.01)
Observations	1809	2594	6197	3036	4403	8006	4845

*Notes:* Data come from the 7th wave of World Value Surveys (WVS) collected between 2017 and 2020. EU contains all European countries in the 2017/20 wave (Germany, Cyprus, Greece, Portugal and Romania). In columns (1) to (4), standard deviations are reported in parentheses. In columns (5) to (7), standard errors are reported in parentheses. \*\*\*, \*\* and \* denote significance at 1%, 5% and 10% levels computed after T-tests.

Table S.A2: Gender norms in Russia and countries of origin

	(1)	(2)	(3)	(4)	(5)	(6)
	Russia <sup>a</sup>	Uzbekistan <sup>a</sup>	Diff. Uzb.-Russia <sup>a</sup>	Russia <sup>b</sup>	Tajikistan <sup>b</sup>	Diff. Taj.-Russia <sup>b</sup>
When job are scare, men should have more right to a job than women (agree)	0.29 (0.45)	0.60 (0.49)	0.31*** (0.02)	0.41 (0.49)	0.63 (0.48)	0.22*** (0.02)
Men make better political leaders than women do (agree)	0.60 (0.49)	0.77 (0.42)	0.17*** (0.02)	0.60 (0.49)	0.74 (0.44)	0.15*** (0.02)
University is more important for a boy than for a girl (agree)	0.24 (0.43)	0.49 (0.50)	0.26*** (0.02)	0.28 (0.45)	0.52 (0.50)	0.24*** (0.02)
Pre-school child suffers with working mother (agree)	0.40 (0.49)	0.35 (0.48)	-0.06*** (0.02)	0.38 (0.49)	0.51 (0.50)	0.12*** (0.02)
Job best way for women to be independent (agree)	0.55 (0.50)	0.53 (0.50)	-0.02 (0.02)			
Men make better business executives than women do (agree)	0.52 (0.50)	0.68 (0.47)	0.16*** (0.02)	0.56 (0.50)	0.66 (0.47)	0.11*** (0.02)
Women have the same rights as men is essential for democracy (8 or more out of 10)	0.78 (0.41)	0.85 (0.36)	0.06*** (0.01)	0.76 (0.43)	0.84 (0.37)	0.08*** (0.02)
Observations	2498	1500	3998	1809	1200	3009

Notes: <sup>a</sup> data come from the 6th wave of World Value Surveys (WVS) collected between 2010 and 2014. <sup>b</sup> from the 7th wave of WVS collected between 2017 and 2020. In columns (1), (2), (4) and (5) standard deviations are reported in parentheses. In columns (3) and (6), standard errors are reported in parentheses. \*\*\*, \*\* and \* denote significance at 1%, 5% and 10% levels computed after T-tests.

## B. Data collection

### B.1. General overview of the survey

We conducted an original survey among 1213 migrants from Tajikistan and Uzbekistan, living in the Moscow region, between July and August 2019. It was part of a larger project - the REFPoM project - funded by the French National Research Agency (ANR).<sup>32</sup>

For practical and financial reasons, we limited the study to Tajikistani and Uzbekistani adult migrants<sup>33</sup> living in Moscow and its region. Deploying the survey to several regions of the Russian Federation, with different contexts and varying rates of migration, was not feasible within a reasonable budget. We chose to focus on migrants from Tajikistan and Uzbekistan as they represent an important part of migrants in Russia and their conditions to live and work in Russia are very similar. It was also a question of consistency within the REFPoM project since the qualitative field-works focus on Tajik and Uzbek communities.

<sup>32</sup>For more details, see the website of the projet: <https://refpom.hypotheses.org/>.

<sup>33</sup>Only migrants with the citizenship of Tajikistan or Uzbekistan were surveyed.



## B.2. Questionnaire design

To design the questionnaire, we drew on existing surveys. We used quantitative questionnaires specific to our context such as the Russian Longitudinal Monitoring Survey (RLMS) - a representative longitudinal survey conducted in Russia by the Higher School of Economics since 1992 - and the Tajikistan Living Standards Survey (TLSS) - a survey conducted by the World Bank in Tajikistan. We were also inspired by surveys targeting specifically migrants, such as the MIDDAS survey, which focuses on Senegalese migrants living in France, Spain and Italy and their families in Senegal, or the *Parcours* survey, which analyses the migratory, social, administrative and health trajectories of African immigrants in Ile-de-France. We also drew on the field observations of our anthropologist and sociologist colleagues in the REFPoM project. We also benefited from discussions with Vladimir Mukomel (Institute of Sociology, Russian Academy of Science), a sociologist specialised in migration in Russia, and Anne Gosselin (INED), who both provided feedback on our questionnaire. These different surveys and discussions enabled us to construct questions relating to the socio-demographic characteristics of migrants, their health, their housing and working conditions and their migration trajectories.

Our survey was carried out in two phases. First, in April 2019, the pilot survey was conducted with 116 migrants interviewed. The final survey was then conducted in July-August 2019 with 1213 respondents. The pilot questionnaire was almost twice as long as the final questionnaire and allowed us to test all the questions and response categories we wanted to test. Because the recruitment method and locations were similar, it also allowed us to gain insight into the sub-population we were surveying. For example, we asked interviewers to begin the survey by asking potential respondents if they spoke enough Russian to participate. Then, they reported the number of migrants lost in the process. Given the limited number of drop-outs because of the Russian language and the very high complexity of translating the questionnaire into each potential language of Uzbekistanis and Tajikistanis, we stuck to the Russian questionnaire.

One of the problems we faced was to make sure that our design allowed us to interview migrants and not tourists or Russian citizens of Tajik or Uzbek origin (since Tajikistanis can have both nationalities). Another issue was whether we wanted to interview an individual or a household and to distinguish labor and family migration. To guide our choice, we asked in the pilot questionnaire

the reasons for migration. As specified in the core of the text, almost all of the migrants came for economic reasons. Therefore, we decided to remove this question from the final questionnaire and interview women and men individually, as actors of their choice (to get rid of the bias of the distribution of leader/follower roles).

### **B.3. Ethical considerations**

As our survey involves human participants, and more specifically migrants who may be a vulnerable group, we paid particular attention to the ethical issues. The topics covered are not particularly sensitive, except maybe for the legal documents owned by migrants, but they were not asked to show their documents.

All potential participants in the survey were explicitly informed about the objectives of the survey and that the information provided will remain confidential and answers anonymous. No personal data or identifiable information were collected (names or addressees) and only adults (over 18) were interviewed migrants. Participants were fully anonymized. Note that this confidentiality may have been questioned if migrants responded in the presence of others ([Alderman et al., 2013](#)), which was not the case for the majority of them.

After introducing the survey, interviewers specifically ask respondents if they consented to participate. As the survey was administered on a tablet, this took the form of an explicit tick-box after the study information was presented at the start of the survey. Informed written consent was therefore explicitly required to conduct the interview.

### **B.4. The issue of the financial incentive**

Before conducting the pilot survey, we discussed a possible way to compensate respondents in kind for their time, as it is sometimes done (a meal, a sim card, etc.). However, we did not realize the necessity of such an incentive until we were in Moscow. In the last few years, sociological studies, political polls and marketing studies have developed so much that Muscovites are used to being interviewed in the street. Most of these institutes have the habit of encouraging passers-by to answer surveys by offering them either "goodies" or money. This practice, which has become very common, has created expectations, and fellow sociologists and economists have had to align

themselves with these practices to avoid refusals. As the practice grew and became monetized, what was once a reward and then an incentive became a requirement. In-kind rewards are generally refused, which was verified in the pilot.

As a result, a market for questionnaires has emerged. Potential interviewees have an idea of the "price" of the questionnaire and refuse to answer if the interviewer offers a reward below the current market price. Indeed, interviewers themselves agreed that the reward should be high enough to compensate them for the opportunity cost of time spent answering the questionnaire rather than doing their own activities. This is especially true for task-based activities. For example, many migrants are taxicab drivers. Interviewed on the street, the time spent answering the questionnaire may cause them to miss an opportunity. The average price for a 30-minute questionnaire was at the time of the survey in the range of 200-800 and 350-400 rubles on average. This cost is taken into account in the interviewer's remuneration. If there are few people in the streets, the respondent may be more demanding. Or if the respondent has not reached his/her target, he/she may agree to increase the incentive and reduce his/her own remuneration for doing an additional questionnaire.

We were surprised by these practices and would have liked to see more equal revenue for interviewers and more consistent rewards among respondents. During the pilot survey, interviewers were instructed first to offer a meal and then only money if the respondent refused to participate. Despite their attempts, the interviewers told us that they all had to pay the respondent in cash in the end. These practices were established and we could not propose new rules of the game. In fact, the interviewers themselves were uncomfortable with this, as it was not part of "normal" practice and could therefore seem suspicious or even inappropriate. We abandoned the idea. For the final survey, it was decided to set an amount (300-400 rubles) and try to impose a maximum (500 rubles), knowing that this could only be indicative for the interviewers who could ultimately choose to give up part of their remuneration.

## **B.5. Recruitment of respondents**

As mentioned in the core article, this study aims at studying and comparing different profiles of migrants, including the most mobile and the unregistered ones, who do not appear in any census. Given these elements, in the absence of a representative sampling frame of migrants in Russia, it was

not possible to ensure that our sample was truly representative of the whole migrant population. Therefore, we followed a quasi-random sampling design by randomly recruiting Tajikistani and Uzbekistani men and women migrants in numerous locations. As stated in the core paper, we checked whether the population obtained was similar to those observed in similar studies.

Data were collected through a street survey with the cooperation of 22 experienced Russian interviewers. Face-to-face interviews were conducted after obtaining the consent of the migrant. The interviewers and the authors crosschecked the questionnaires every night to ensure that there was no misunderstanding or missing data.

We asked interviewers to find Uzbekistanis and Tajikistanis and to diversify the places of recruitment. As a result, interviews were conducted in the city center (21%), in the suburb (73%) and the rural region of Moscow (2%). We asked them to interview people in the places where they live, work, and socialize: on the street, in markets, supermarkets, chaikhonas (tea houses), construction sites, residences, train and metro stations, and in transport hubs, wherever these communities live or work. Table S.A3 presents descriptive statistics that summarise the interview conditions.

Table S.A3: Interview conditions

	All		Women		Men		Diff.
	Mean	Sd	Mean	Sd	Mean	Sd	W-M
<i>Area of interview</i>							
City center	0.21	0.41	0.29	0.46	0.19	0.39	0.10***
Suburb	0.73	0.45	0.63	0.48	0.75	0.43	-0.12***
Rural region of Moscow	0.06	0.24	0.07	0.26	0.06	0.24	0.01
<i>Place of interview</i>							
Street	0.40	0.49	0.33	0.47	0.42	0.49	-0.09*
Workplace	0.28	0.45	0.35	0.48	0.26	0.44	0.09**
Market	0.16	0.37	0.18	0.39	0.15	0.36	0.03
Home	0.06	0.24	0.05	0.22	0.07	0.25	-0.01
Eating place	0.03	0.18	0.04	0.21	0.03	0.18	0.01
Transport	0.00	0.06	0.00	0.00	0.00	0.06	0.00
Other	0.06	0.24	0.04	0.21	0.07	0.25	-0.02
<i>Conditions of interview</i>							
Alone with the interviewer	0.64	0.48	0.69	0.46	0.62	0.48	0.07*
With others	0.36	0.48	0.31	0.46	0.38	0.48	-0.07*
<i>Other individuals present</i>							

*Continued on next page*

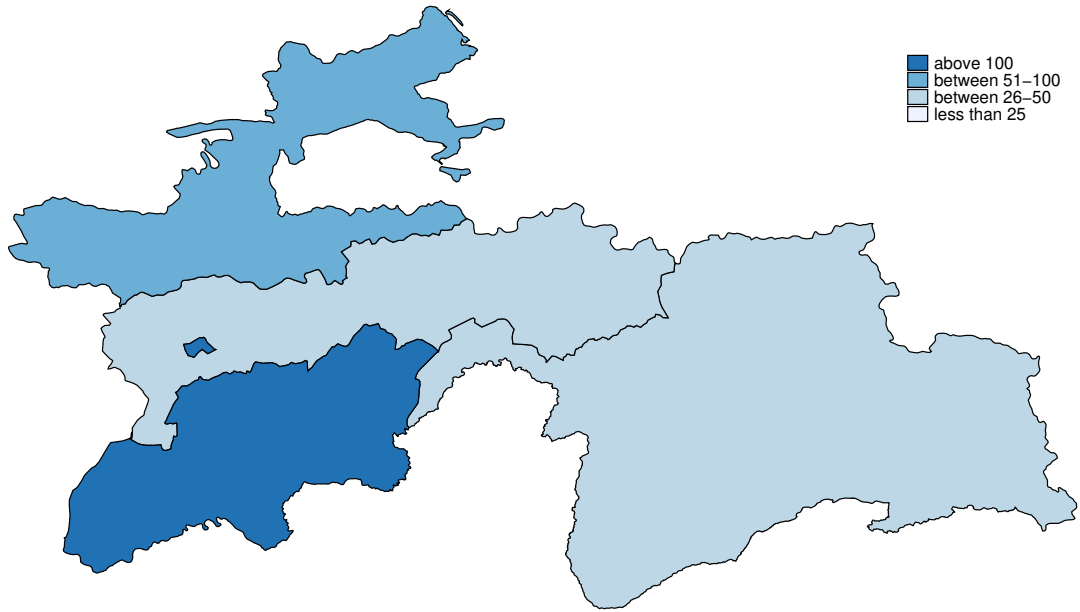
	All		Women		Men		Diff.
	Mean	Sd	Mean	Sd	Mean	Sd	W-M
Friends, co-workers	0.46	0.50	0.24	0.43	0.51	0.50	-0.27***
Compatriots	0.36	0.48	0.22	0.42	0.39	0.49	-0.16**
Family members, close relatives	0.10	0.29	0.32	0.47	0.05	0.22	0.27***
Boss	0.03	0.17	0.03	0.16	0.03	0.17	0.00
Others (people passing by, etc)	0.24	0.43	0.29	0.46	0.23	0.42	0.06
Observations	1212		249		963		1212

*Notes:* \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

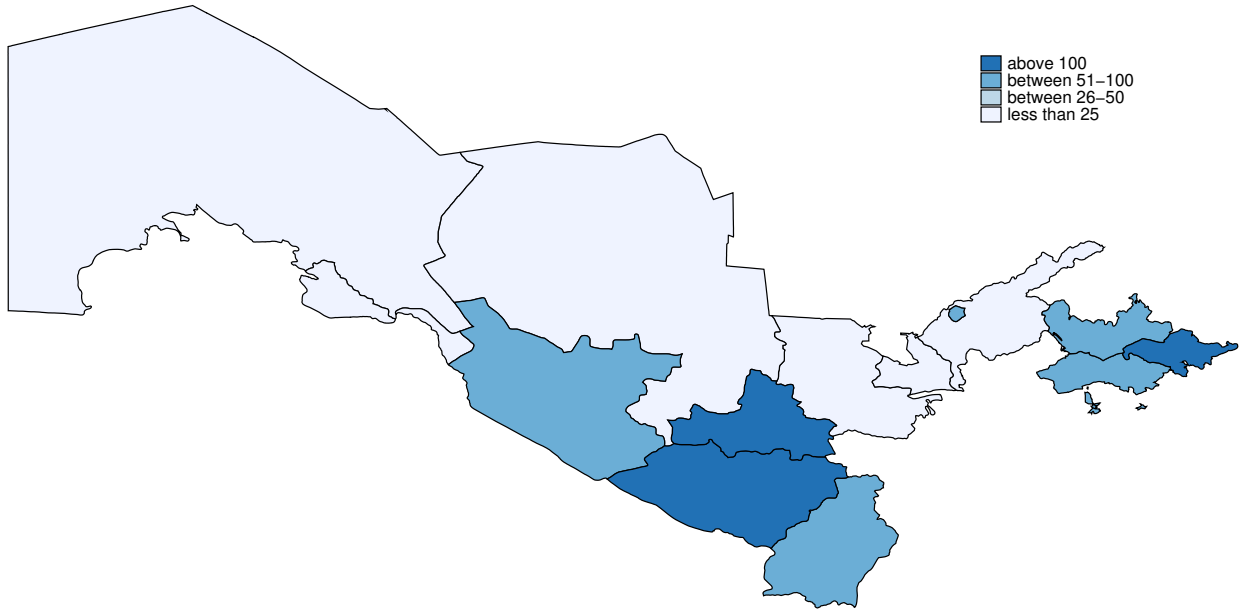
Interviewed migrants come from diverse areas, geographically spread in Tajikistan and Uzbekistan (Figure S.A1), even though some regions - densely populated ones and capitals - are more represented (Khatlon and Dushanbe in Tajikistan, Kashkadarya, Samarkand and Andijan in Uzbekistan).

Figure S.A1: Numbers of migrants interviewed by region of birth

(a) Tajikistan



(b) Uzbekistan



## C. Additional descriptive statistics

Table S.A4: Variables describing working conditions

	All		Women		Men		Diff.
	Mean	Sd	Mean	Sd	Mean	Sd	W-M
Job always/often requires physical effort, tedious painful positions (carrying weights, bending over, kneeling down, etc)	0.35	0.48	0.34	0.47	0.35	0.48	-0.01
At work, always/often encounter heavy noise, unpleasant smells, harmful substances, etc	0.29	0.45	0.30	0.46	0.28	0.45	0.01
At work, health always/often exposed to danger	0.14	0.35	0.12	0.33	0.14	0.35	-0.02
Work at night (at least 2 hours between 10pm and 5am)	0.23	0.42	0.19	0.39	0.24	0.43	-0.06
Work on Sundays (at least from time to time)	0.71	0.45	0.81	0.39	0.68	0.47	0.13***
No of worked hours per week	62.87	18.82	66.73	22.12	61.90	17.78	4.84***
No of worked hours per week > 70	0.36	0.48	0.49	0.50	0.33	0.47	0.16***
Observations	1190		237		953		1190

Notes: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

Table S.A5: Correlation between working conditions

	Physical effort, etc	Heavy noise, etc	Health exposed to danger	Work at night	Work on Sundays	No of worked hours
Physical effort, etc	1.00					
Heavy noise, etc	0.35*	1.00				
Health exposed to danger	0.29*	0.38*	1.00			
Work at night	0.08*	0.13*	0.11*	1.00		
Work on Sundays	0.07*	0.04	0.01	0.22*	1.00	
No of hours worked per week	0.12*	0.08*	0.01	0.18*	0.37*	1.00

Notes: Pairwise correlation coefficients are reported. \* denotes a significance at 5%.

Table S.A6: Multiple/Joint correspondence analysis

Total inertia : 0.0360  
 Number of axes 2  
 Number of observations 1,178

Dimension	Principal inertia	Percent	Cumul. Percent
Dim 1	0.02421	67.34	67.34
Dim 2	0.00451	12.55	79.89
Total	0.03596	100	

	First component		Second component	
	Correlation values	Contribution values	Correlation values	Contribution values
<i>Physical effort or tedious, painful positions</i>				
0	0.833	0.090	0.015	0.008
1	0.833	0.168	0.015	0.016
<i>Heavy noise, unpleasant smells, etc</i>				
0	0.757	0.088	0.024	0.015
1	0.757	0.220	0.024	0.037
<i>At work, health exposed to danger</i>				
0	0.755	0.036	0.049	0.013
1	0.755	0.219	0.049	0.076
<i>Work at night</i>				
0	0.721	0.022	0.179	0.029
1	0.721	0.072	0.179	0.097
<i>Work on Sundays</i>				
0	0.301	0.037	0.411	0.272
1	0.301	0.015	0.411	0.113
<i>No of worked hours per week &gt; 70</i>				
0	0.263	0.012	0.480	0.118
1	0.263	0.021	0.480	0.207



Table S.A7: Migration profiles

	All		Women		Men		Diff.
	Mean	Sd	Mean	Sd	Mean	Sd	W-M
<i>Type of migration</i>							
Years since first migration	8.74	6.69	7.93	6.58	8.94	6.71	-1.01*
Cumulative time spent in Russia	5.42	5.13	5.57	5.74	5.38	4.94	0.19
First stay in Russia	0.19	0.40	0.23	0.42	0.18	0.39	0.05
Time spent in Russia in the last 12 months	8.65	3.56	8.85	3.69	8.60	3.53	0.25
<i>Intentions regarding migration</i>							
Travel constantly between Russia and home country	0.34	0.47	0.28	0.45	0.35	0.48	-0.08*
Return to home country in a year or two	0.22	0.42	0.25	0.43	0.22	0.41	0.03
Return to home country in a few months	0.19	0.39	0.18	0.39	0.19	0.40	-0.01
Stay in Russia forever	0.22	0.41	0.26	0.44	0.21	0.41	0.05
Live in Russia for a while and move to another country	0.03	0.16	0.03	0.16	0.03	0.16	0.00
<i>Current work status</i>							
Work	0.93	0.26	0.90	0.31	0.93	0.25	-0.04*
Not working temporarily but looking for work	0.05	0.22	0.04	0.20	0.06	0.23	-0.02
Not working and not looking for work	0.02	0.14	0.06	0.25	0.01	0.10	0.05***
<i>Family arrangements</i>							
Childless & not married	0.26	0.44	0.08	0.27	0.31	0.46	-0.23***
Children and/or married & alone in Russia	0.43	0.50	0.37	0.48	0.45	0.50	-0.08*
Children or husband in Russia	0.18	0.39	0.46	0.50	0.11	0.31	0.35***
No information	0.12	0.33	0.09	0.28	0.13	0.33	-0.04
Observations	1213		249		964		1213

Notes: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

Table S.A8: Descriptive statistics on self-assessed health “dynamics”

	All		Women		Men		Diff.
	Mean	Sd	Mean	Sd	Mean	Sd	W-M
<i>SAH “dynamics” (current vs. before mig.)</i>							
Improvement	0.05	0.22	0.07	0.26	0.05	0.21	0.03
No change	0.68	0.46	0.55	0.50	0.72	0.45	-0.17***
Deterioration	0.26	0.44	0.38	0.49	0.23	0.42	0.15***
<i>Focus on health deterioration</i>							
From very good to good	0.10	0.30	0.10	0.31	0.10	0.30	0.00
From good to average or bad	0.09	0.29	0.18	0.38	0.07	0.25	0.11***
From very good to average or bad	0.07	0.25	0.10	0.30	0.06	0.24	0.03
Observations	1213		249		964		1213

*Notes:* SAH “dynamics” represent the difference between in-migration and pre-migration self-assessed health. Both are observed at the time of the survey when individuals are in migration. The pre-migration health is therefore assessed using a retrospective question. \*\*\*, \*\* and \* in column (8) denote a significance at respectively 1%, 5% and 10% computed after T-tests.

## D. Additional estimation results

Table S.A9: Decomposition of the gender gap from Fairlie estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Self-assessed health:		Depression/insomnia:		Chronic disease		Illness/injury		Chronic disease		Illness/injury	
	Very good/good		Never/rarely		Chronic disease		(last 6mths, Russia)		Chronic disease		(last 6mths, Russia)	
<b>Gender gap</b>												
P(Y=1) for men	0.83	0.83	0.83	0.93	0.93	0.93	0.05	0.05	0.05	0.21	0.21	0.21
P(Y=1) for women	0.59	0.59	0.59	0.76	0.76	0.76	0.19	0.19	0.19	0.30	0.30	0.30
Gender gap (men-women)	0.24	0.24	0.24	0.168	0.168	0.168	-0.135	-0.135	-0.135	-0.083	-0.083	-0.083
Explained part of the gap	0.13	0.16	0.12	0.042	0.077	0.048	-0.038	-0.031	-0.017	-0.026	-0.049	-0.028
% explained	51%	64%	50%	25%	46%	29%	28%	23%	13%	31%	59%	34%
% unexplained	49%	36%	50%	75%	54%	71%	72%	77%	87%	69%	41%	66%
<b>Contribution of charact. to gap</b>												
Socio-demographic characteristics	0.098*** (0.03)	0.138*** (0.04)	0.100*** (0.02)	0.028 (0.03)	0.070** (0.03)	0.039** (0.02)	-0.031 (0.03)	-0.037 (0.03)	-0.017 (0.01)	-0.026 (0.03)	0.005 (0.04)	-0.016 (0.02)
Migration characteristics	0.002 (0.01)	0.007 (0.01)	0.001 (0.01)	0.008 (0.01)	0.012 (0.01)	0.006 (0.00)	-0.001 (0.00)	-0.005 (0.01)	-0.001 (0.00)	-0.008 (0.01)	-0.014 (0.02)	-0.009 (0.01)
Living conditions	0.017 (0.01)	0.013 (0.02)	0.012 (0.01)	0.007 (0.01)	0.008 (0.02)	0.004 (0.01)	-0.004 (0.01)	0.015 (0.02)	0.002 (0.01)	-0.003 (0.01)	-0.019 (0.02)	-0.008 (0.01)
Working conditions	0.008 (0.01)	-0.000 (0.01)	0.007 (0.01)	-0.001 (0.01)	-0.014 (0.02)	-0.002 (0.00)	-0.001 (0.00)	-0.004 (0.01)	-0.001 (0.00)	0.010 (0.01)	-0.021* (0.01)	0.005 (0.01)
Observations	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
No. of men	858	858	858	858	858	858	858	858	858	858	858	858
No. of women	212	212	212	212	212	212	212	212	212	212	212	212
Sample used for logit coefficients	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women	All

Notes: Fairlie's decomposition estimates represent mean values obtained from 1000 replications of the randomized matching procedure. Standard errors in parentheses. \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

Table S.A10: Gender and working conditions

Probit / AME associated with gender Dep. Var.	(1) Self-assessed health: good/very good	(2) Depression/insomnia (never, rarely)	(3) Chronic disease	(4) Illness/injury past 6 mths
AME at working conditions (index):				
-1.5	-0.10* (0.06)	-0.09* (0.05)	0.15*** (0.05)	0.16** (0.07)
-1	-0.10** (0.05)	-0.10** (0.04)	0.13*** (0.04)	0.12** (0.05)
-0.5	-0.11*** (0.04)	-0.10*** (0.03)	0.11*** (0.03)	0.08* (0.04)
0	-0.11*** (0.04)	-0.11*** (0.03)	0.10*** (0.03)	0.04 (0.04)
0.5	-0.11*** (0.04)	-0.11*** (0.03)	0.08*** (0.03)	0.01 (0.04)
1	-0.11** (0.05)	-0.10*** (0.04)	0.07** (0.03)	-0.02 (0.05)

*Notes:* We control for all observable characteristics, such as in baseline model, reported in Table 2. Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

Table S.A11: Heterogeneous effect of gender on health deterioration

Model:	Probit with interactions
Dep. Var.:	Health deterioration (before mig / in migration)
AME associated with gender at cumul. time in Russia:	
<1 y	-0.09 (0.08)
[1-5] y	0.15** (0.07)
>5 y	0.16*** (0.05)
AME associated with gender at legal status:	
Very vulnerable	0.13* (0.07)
Vulnerable	0.15*** (0.05)
More secure	0.01 (0.11)
Very secure	0.02 (0.12)

*Notes:* Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%. Other controls not reported are those included in Table 7.

Table S.A12: Descriptive statistics by time spent in Russia last year

	Descriptive statistics by subsample						Diff. 0-3 months spent in Russia				
	1st mig	Several stays & no. of months spent in Russia in the past year :					in the past year and :				
		0-3	4-6	7-9	10-11	12	1st mig	4-6	7-9	10-11	12
<i>Health outcomes</i>											
SAH: (very) good	0.86	0.82	0.78	0.77	0.75	0.75	-0.04	0.04	0.05	0.07	0.07
SAH bef. 1st mig: (very) good	0.91	0.92	0.92	0.91	0.93	0.95	0.00	0.00	0.01	-0.01	-0.03
Depression: never/sometimes	0.89	0.88	0.93	0.89	0.87	0.9	-0.01	-0.04	-0.01	0.02	-0.01
Chronic disease	0.07	0.05	0.1	0.09	0.07	0.1	-0.01	-0.04	-0.04	-0.01	-0.04
Illness / injury last 6 months	0.19	0.13	0.21	0.23	0.22	0.27	-0.06	-0.09	-0.11*	-0.10*	-0.14**
<i>Socio-demographic characteristics</i>											
Woman	0.25	0.22	0.15	0.13	0.21	0.24	-0.03	0.07	0.09*	0.00	-0.03
Uzbekistani	0.77	0.68	0.62	0.68	0.65	0.67	-0.08	0.06	0.00	0.03	0.02
Age	29.69	36.03	34.69	34.12	35.62	35.29	6.34***	1.34	1.91	0.40	0.74
Educ: primary and incomplete sec.	0.09	0.1	0.16	0.1	0.06	0.09	0.01	-0.06	0.00	0.04	0.01
Educ: complete general sec.	0.54	0.61	0.5	0.58	0.54	0.52	0.08	0.12	0.03	0.07	0.09
Educ: complete professional sec.	0.29	0.18	0.21	0.23	0.26	0.24	-0.10*	-0.03	-0.05	-0.08	-0.06
Educ: tertiary	0.09	0.11	0.14	0.09	0.13	0.15	0.02	-0.03	0.02	-0.02	-0.04
Single	0.46	0.09	0.16	0.23	0.21	0.24	-0.37***	-0.07	-0.14**	-0.12**	-0.15***
Divorced/widow	0.06	0.08	0.07	0.03	0.06	0.1	0.02	0.01	0.05*	0.02	-0.02
Married/couple	0.49	0.83	0.78	0.75	0.72	0.66	0.34***	0.05	0.08	0.10*	0.17***
Spoke Russian at home when child	0.25	0.29	0.29	0.3	0.35	0.35	0.04	0.00	-0.01	-0.07	-0.06
Residence when young: city	0.42	0.41	0.41	0.39	0.4	0.44	-0.01	-0.01	0.01	0.00	-0.04
Residence when young: large village	0.14	0.19	0.16	0.15	0.23	0.19	0.05	0.03	0.04	-0.04	0.00
Residence when young: village	0.45	0.41	0.42	0.45	0.37	0.37	-0.04	-0.02	-0.05	0.04	0.04
<i>Migration characteristics</i>											
Cum. time in Russia: <1 year	0.6	0.13	0.03	0.01	0	0	-0.47***	0.10**	0.12***	0.13***	0.12***
Cum. time in Russia: [1-5] years	0.38	0.24	0.35	0.3	0.25	0.28	-0.13*	-0.10	-0.05	-0.01	-0.04
Cum. time in Russia: ]5-10] years	0.02	0.19	0.22	0.23	0.23	0.22	0.17***	-0.04	-0.05	-0.04	-0.03
Cum. time in Russia: >10 years	0.01	0.44	0.4	0.46	0.52	0.5	0.43***	0.04	-0.02	-0.08	-0.05
Age at first mig: 17 or less	28.28	25.54	24.74	23.75	24.9	24.45	-2.74*	0.80	1.79	0.64	1.10
Relatives in Russia	0.57	0.63	0.69	0.66	0.75	0.74	0.06	-0.06	-0.03	-0.12*	-0.11*
Owens a home in country of origin	0.29	0.45	0.38	0.36	0.46	0.39	0.16**	0.07	0.09	-0.01	0.06
<i>Living conditions</i>											
Moscow center/internal ring	0.55	0.55	0.48	0.57	0.58	0.47	0.00	0.06	-0.02	-0.03	0.08
Private apart/house	0.11	0.16	0.1	0.15	0.22	0.25	0.05	0.06	0.01	-0.05	-0.09*
Private room	0.24	0.23	0.25	0.18	0.22	0.25	-0.02	-0.03	0.04	0.00	-0.02
Shared room	0.63	0.59	0.62	0.66	0.54	0.48	-0.04	-0.03	-0.07	0.05	0.11*
Barracks basement etc	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.00	0.01	0.00	0.00
Legal status: v. vulnerable	0.24	0.32	0.24	0.18	0.18	0.2	0.08	0.08	0.14**	0.14**	0.12**
Legal status: vulnerable	0.62	0.58	0.56	0.67	0.66	0.62	-0.04	0.02	-0.08	-0.07	-0.04
Legal status: more secure	0.12	0.1	0.16	0.11	0.11	0.09	-0.02	-0.06	-0.01	-0.01	0.01
Legal status: v. secure	0.02	0	0.04	0.04	0.06	0.09	-0.02	-0.04*	-0.04*	-0.06**	-0.09***
Medical insurance	0.52	0.46	0.52	0.67	0.67	0.58	-0.06	-0.06	-0.21***	-0.21***	-0.12*
Additional insurance	0.09	0.09	0.07	0.11	0.08	0.09	0.00	0.02	-0.02	0.01	0.00
<i>Work characteristics</i>											
Manages a team at work	0.09	0.11	0.12	0.14	0.17	0.16	0.02	-0.01	-0.03	-0.06	-0.05
Satisfied by working conditions	0.89	0.85	0.87	0.9	0.89	0.9	-0.04	-0.01	-0.04	-0.04	-0.05
Written contract	0.52	0.38	0.46	0.44	0.49	0.47	-0.14*	-0.08	-0.06	-0.11	-0.09
MCA for work conditions	0.02	0.14	-0.01	-0.07	0.01	-0.02	0.11	0.15	0.21	0.13	0.15
Verbally or physically assaulted	0.09	0.11	0.1	0.1	0.12	0.13	0.02	0.01	0.01	-0.01	-0.02
Hourly remuneration (Rubles)	133.64	138.69	125.16	142.01	144.96	142.52	5.05	13.54	-3.31	-6.27	-3.83
Observations	235	111	165	183	189	330	346	276	294	300	441

Notes: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%.

Table S.A13: Controlling for circular and temporary migration

Estimators: Probit / AME Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Self-assessed health: Good or very good			Depression/insomnia: Never or rarely			Chronic disease			Disease / illness in Russia						
Woman	-0.008*** (0.03)	-0.009*** (0.03)	-0.007*** (0.03)	-0.006*** (0.03)	-0.079*** (0.02)	-0.079*** (0.02)	-0.080*** (0.02)	-0.078*** (0.02)	0.081*** (0.02)	0.080*** (0.02)	0.080*** (0.02)	0.081*** (0.02)	0.045 (0.04)	0.048 (0.04)	0.048 (0.04)	0.048 (0.04)
First stay in Russia	0.054 (0.04)				0.001 (0.03)				0.043 (0.03)				0.028 (0.05)			
Time spent in Russia, last 12 months	-0.002 (0.00)				0.001 (0.00)				-0.000 (0.00)				0.010** (0.00)			
No return in country of o (Ref : 1st mig)		-0.045 (0.04)				0.014 (0.03)				-0.034 (0.03)				-0.051 (0.05)		
Return in country of o (Ref : 1st mig)		-0.052 (0.04)				-0.023 (0.03)				-0.052* (0.03)				-0.061 (0.05)		
1st migration (ref: several mig& 0-3 mths in Russia)			-0.020 (0.05)	-0.019 (0.05)			0.024 (0.04)	0.025 (0.04)		0.089** (0.04)	0.089** (0.04)	0.089** (0.04)		0.166** (0.07)	0.167** (0.07)	0.167** (0.07)
Past 12 mths, 4-11 spent in Russia (ref: several mig& 0-3 mths in Russia)			-0.083* (0.04)				0.015 (0.03)			0.050 (0.03)	0.050 (0.03)	0.056 (0.03)		0.110** (0.05)	0.110** (0.05)	0.110** (0.05)
Past 12 mths, 4-6 spent in Russia (ref: several mig& 0-3 mths in Russia)				-0.070 (0.05)				0.050 (0.04)				0.063* (0.03)			0.104* (0.06)	0.104* (0.06)
Past 12 mths, 7-9 spent in Russia (ref: several mig & 0-3 mths in Russia)				-0.090* (0.05)				0.002 (0.04)				0.056 (0.03)			0.138** (0.06)	0.138** (0.06)
Past 12 mths, 10-11 spent in Russia (ref: several mig & 0-3 mths in Russia)				-0.088* (0.05)				-0.003 (0.03)				0.029 (0.04)			0.086 (0.06)	0.086 (0.06)
Past 12 mths, 12 spent in Russia (ref: several mig & 0-3 mths in Russia)			-0.079* (0.05)	-0.080* (0.05)			0.040 (0.03)	0.038 (0.03)		0.055* (0.03)	0.055* (0.03)	0.053* (0.03)		0.146*** (0.05)	0.145*** (0.05)	0.145*** (0.05)
Observations	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070
Average dep. variable	0.780	0.780	0.780	0.780	0.894	0.894	0.894	0.894	0.894	0.894	0.894	0.894	0.894	0.894	0.894	0.894
Pseudo R2	0.161	0.160	0.163	0.164	0.201	0.206	0.204	0.208	0.171	0.173	0.175	0.177	0.0820	0.0773	0.0832	0.0844

Notes: Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%. Other controls not reported are those included in Table 2.

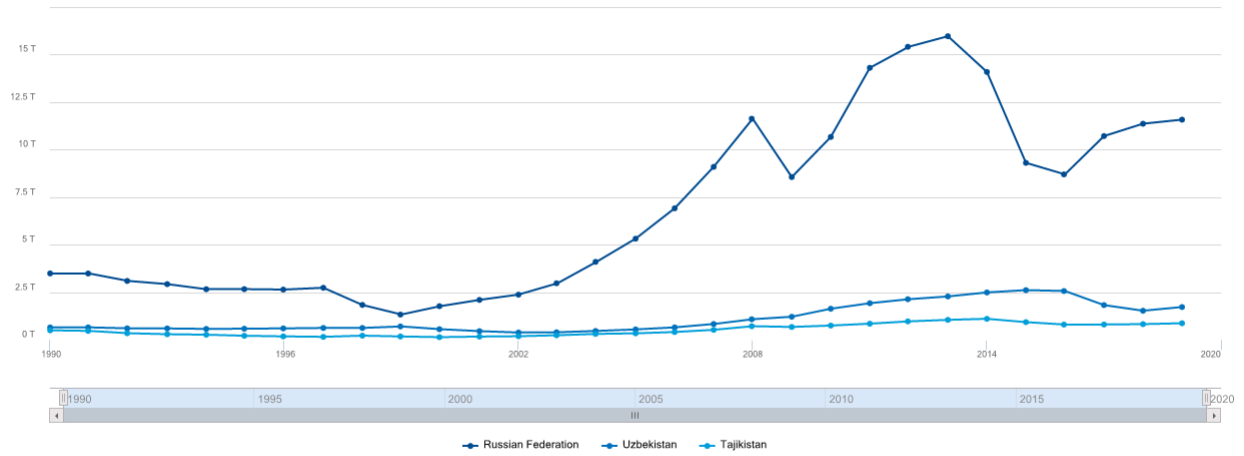


Table S.A14: Mitigating the recall bias

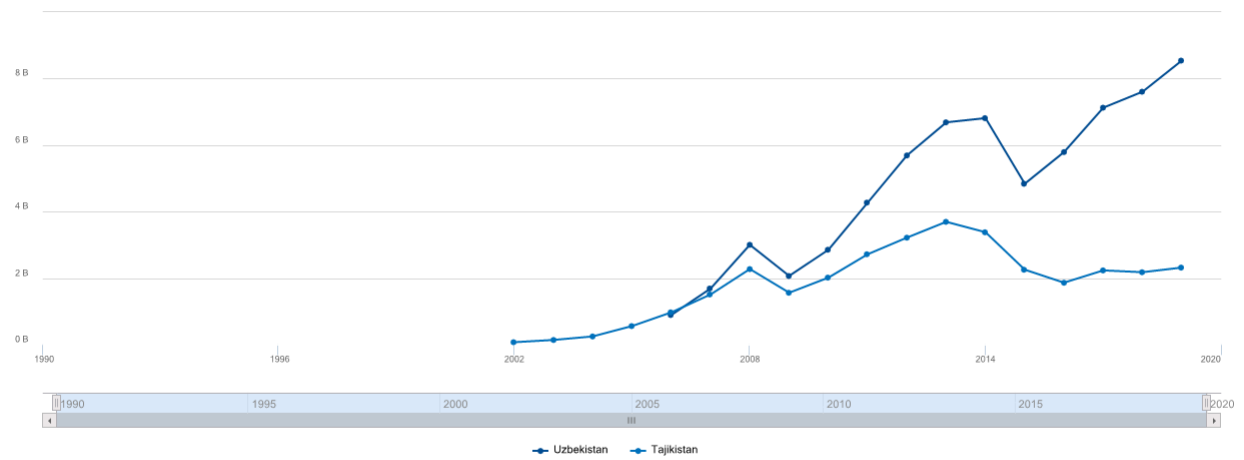
Estimators: Probit / AME	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Health deterioration (before mig / in migration)					
Woman	0.080*** (0.03)	0.091*** (0.03)	0.095*** (0.03)	0.105*** (0.03)	0.113*** (0.04)	0.114*** (0.04)
Observations	114	228	348	636	1,004	1,057
Average dep. variable	0.271	0.271	0.271	0.271	0.271	0.271
Pseudo R2	0.0738	0.0738	0.0738	0.0738	0.0738	0.0738
Sample : time since first migration	1 year	3 years	5 years	10 years	20 years	30 years

*Notes:* Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%. Other controls not reported are those included in Table 2.

Figure S.A2: GDP p.c. and remittances evolution over time in RF, Uzbekistan and Tajikistan



Series : GDP per capita (current US\$)  
 Source: World Development Indicators  
 Created on: 03/05/2021



Series : Personal remittances, received (current US\$)  
 Source: World Development Indicators  
 Created on: 03/05/2021

Table S.A15: Sensitivity test: adding the date of arrival

Estimators: Probit / AME Y	(1) Self-assessed health: Good or very good		(2) Self-assessed health: Good or very good		(3) Good or very good		(4) After 2014		(5) All		(6) Depression/insomnia: Never or rarely		(7) Before 2014		(8) After 2014		(9) All		(10) All		(11) Before 2014		(12) After 2014						
	All	All	Before 2014	After 2014	All	Before 2014	After 2014	All	Before 2014	After 2014	All	Before 2014	After 2014	All	Before 2014	After 2014	All	Before 2014	After 2014	All	Before 2014	After 2014	All	Before 2014	After 2014				
Woman	-0.101*** (0.03)	-0.099*** (0.03)	-0.164*** (0.04)	0.020 (0.05)	-0.084*** (0.02)	-0.080*** (0.02)	-0.067** (0.03)	-0.094*** (0.04)	0.095*** (0.02)	0.083*** (0.02)	0.091*** (0.03)	0.108*** (0.03)																	
Date of 1st arrival (c.)	0.002 (0.00)				0.002 (0.00)																								
Arrived after 2014		0.035 (0.03)				0.015 (0.03)																							
Observations	1,070	1,070	687	379	1,070	1,070	687	379	1,070	1,070	687	379	1,070	1,070	687	379	1,070	1,070	687	379	1,070	1,070	687	379	1,070	1,070	687	379	
Average dependent variable	0.780	0.780	0.748	0.836	0.894	0.894	0.888	0.905	0.880	0.888	0.888	0.905	0.880	0.880	0.888	0.905	0.880	0.880	0.888	0.905	0.880	0.880	0.888	0.905	0.880	0.880	0.888	0.905	
Pseudo R2	0.160	0.160	0.182	0.223	0.202	0.201	0.242	0.259	0.180	0.168	0.182	0.272																	
Y	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)																	
	illness/injury (last 6 months, in Russia)		SAH before departure: Good or very good		SAH before departure: Good or very good		Health deterioration (before mig. / in mig.)																						
Woman	0.046 (0.04)	0.047 (0.04)	0.002 (0.05)	0.121** (0.06)	-0.050*** (0.02)	-0.052*** (0.02)	-0.029 (0.02)	-0.086*** (0.03)	0.097** (0.04)	0.086** (0.04)	0.168*** (0.05)	-0.087 (0.06)																	
Date of 1st arrival (c.)	0.002 (0.00)				-0.001 (0.00)																								
Arrived after 2014		0.063* (0.04)				-0.037* (0.02)																							
Observations	1,070	1,070	687	379	1,070	1,070	687	359	1,069	1,069	686	383																	
Average dependent variable	0.231	0.231	0.236	0.224	0.927	0.927	0.937	0.903	0.271	0.271	0.324	0.178																	
Pseudo R2	0.0762	0.0782	0.109	0.119	0.183	0.187	0.225	0.242	0.0772	0.0778	0.106	0.127																	

Notes: Robust standard errors in parentheses: \*\*\*, \*\* and \* denote a significance at respectively 1%, 5% and 10%