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The economic and social determinants of migrants' well-being during the global financial crisis

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Abstract

This paper investigates the economic and social determinants affecting the well-being of temporary migrants before, during and after the financial crisis. Exploiting unique panel data which cover migration spells from Tajikistan between 2001 and 2011, we find that migrants earn less but stay longer in the destination during the crisis; at the same time, they become more exposed to illegal work relations, harassment and deportation through the Russian authorities. Especially illegal employment has negative second order effects on wages. Despite the similarities in the demographics and jobs of migrant workers, we find substantial heterogeneity in how the financial crisis affects their well-being. Migrants who experience wage losses during the crisis rationally stop migrating.

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1. Introduction

When economic conditions are sour and unemployment is on the rise, immigrants are the first to suffer from deteriorating economic perspectives. Immigrants are at risk of being laid off or pushed into illegal work relations. Populists and nationalists who blame immigrants for taking away jobs from natives pave the way to surging harassment (Davis and Deole 2015). Maybe in response to that, governments tend to restrict the entrance of migrant workers and enforce the return of foreigners during recessions. Mexicans in the US, Poles in the UK or Turks across Europe: the well-being of immigrants is closely related to the government regulations of destination countries (Massey and Gelatt 2010). What sounds like commonplaces is surprisingly under researched: Very little evidence exists on the dynamics and determinants of immigrants' well-being in an economic downturn (IOM 2013a).

In this paper we study how the economic and social determinants of immigrants' well-being have evolved before, during and after the global financial crisis of 2007 and 2008. The focus is on economic factors affecting well-being, such as income generation and duration of stay as well as on social factors, such as illegal work status (illegality)[1], ethnic discrimination (harassment)[2] and governmental return enforcement.[3] The financial crisis was an unforeseen and surprising shock that ultimately affected labor markets around the globe with declining employment and a slowdown of wage growth. In similar previous instances, immigrants have been especially badly affected (Chiswick et al. 1997; Dustmann et al. 2010). We resort to the migration corridor between the Central Asian country Tajikistan and Russia where the majority of immigrants works in the construction and service sectors that were badly hit by the crisis and where the government initiated detention and deportation of immigrant workers. In fact, Central Asia was the developing region experiencing the world-wide greatest decline in remittances in 2009 as a consequence of the global financial crisis (Mohapatra and Ratha 2010). This was partly related to the devaluation of the Russian ruble against the U.S. dollar.

[1] This paper addresses illegal employment. Hence, the contribution of the paper is distinct from research that focuses on illegal border-crossing (Tamura 2010).

[2] In line with the International Labor Office (ILO), International Organization of Migration (IOM) and the Office of the United Nations High Commissioner for Human Rights (OHCHR), harassment includes any attitude or behavior that rejects, excludes, threatens and attacks humans based on the perception that they differ from one's own ethnicity, society or national identity (ILO, IOM and OHCHR 2001).

[3] While economic factors affecting well-being are related to income generation, social factors are linked to social interaction and social inclusion in society.

The contribution of this paper is twofold: First, it is one of the rare empirical accounts to explore the economic and social determinants of immigrants' well-being using a nationally representative panel data set of migrants. Understanding the factors underlying migrants' well-being is essential to assess a society's ability in promoting a fair, just and social life. We rely on data from a large household panel survey carried out in 2007, 2009 and 2011 in Tajikistan, one of the most remittances dependent countries in the world. While some anecdotal evidence exists for the post-Soviet space, this paper is the first attempt to present quantitative evidence. Importantly, we analyze various economic and social factors impacting immigrants' well-being as well as their interdependence. Second, due to the richness of the data and the exogenous economic shock of the financial crisis, we can introduce a comparative perspective and analyze the well-being of migrants at crisis and non-crisis times. Specifically, we shed light on three types of migrants who experienced the financial crisis quite differently (those who stopped, those who continued and those who started migration during the crisis). To summarize, our paper explores how economic and social factors of well-being have evolved during the financial crisis, how social determinants of well-being are associated with economic determinants of well-being and which heterogeneities with respect to factors of well-being can be detected among immigrants during the financial crisis.

Our paper complements the previous literature on increased competition between immigrants and natives. While this literature has analyzed the struggle of ethnic groups for resources as a consequence of immigration (Dustmann et al. 2011) we focus on a situation in which economic resources dwindled rapidly in the financial crisis. We find that the financial crisis was associated with a reduction of immigrants' wages, an increase of illegal work relations and a growth of harassment. In addition, the greater exposure to illegal work relations had a negative second-order effect on economic outcomes, such as monthly wages and migration duration. With view to different types of migrants, substantial heterogeneity of well-being determinants can be detected during the financial crisis.

The remainder of the paper is as follows: Section 2 elaborates the concept of well-being in the migration context. Section 3 is a description of the migration corridor between Tajikistan and Russia. Section 4 presents the data and methodology. Section 5 contains the results, while section 6 concludes.

2. Well-being in the migration context

Although income gains are a key motivation for (short-term) labor migrants, income-based measures alone seem insufficient to assess migrants' well-being in the destination country. This follows from a growing economic literature that evaluates personnel well-being in a broader context, including criteria such as employment status, health, housing and social contacts, among others (Stiglitz et al. 2009; OECD 2013).[4] Some of these criteria, for example employment status and social contacts, play a prominent role for the well-being of migrants. Migrants are particularly exposed to irregular employment and their social interaction can often be characterized by discrimination and harassment.

Many studies on migrants' well-being concentrate on a destination—home country comparison. The bulk of research discovers that migrants materialize income gains through their move and send remarkable amounts of remittances home (Clemens et al. 2008; Nikolova and Graham 2015).[5] Further research evaluates the well-being of migrants in comparison to that of natives, finding considerable lower household incomes for migrants than for locals in European Union and OECD countries (OECD/European Union 2015).

In our paper, we attempt to compare determinants of migrants' well-being before, during and after the global financial crisis. Thus, we compare migrants within one destination country at different points in time. To identify crisis effects, we define influencing factors of migrants' well-being that are sensitive to the economic goals and vulnerabilities of this group. Economic determinants of well-being are assessed by migrants' (net) wages and the duration of stay (jointly determining the overall income gain). Lower wages and earlier returns in times of crisis should signal decreasing economic benefits from moving abroad. Deteriorating labor market conditions may also make it harder for migrants to keep or find work and, hence, might push them into illegal work relationships, often not only implying lower wages but also social

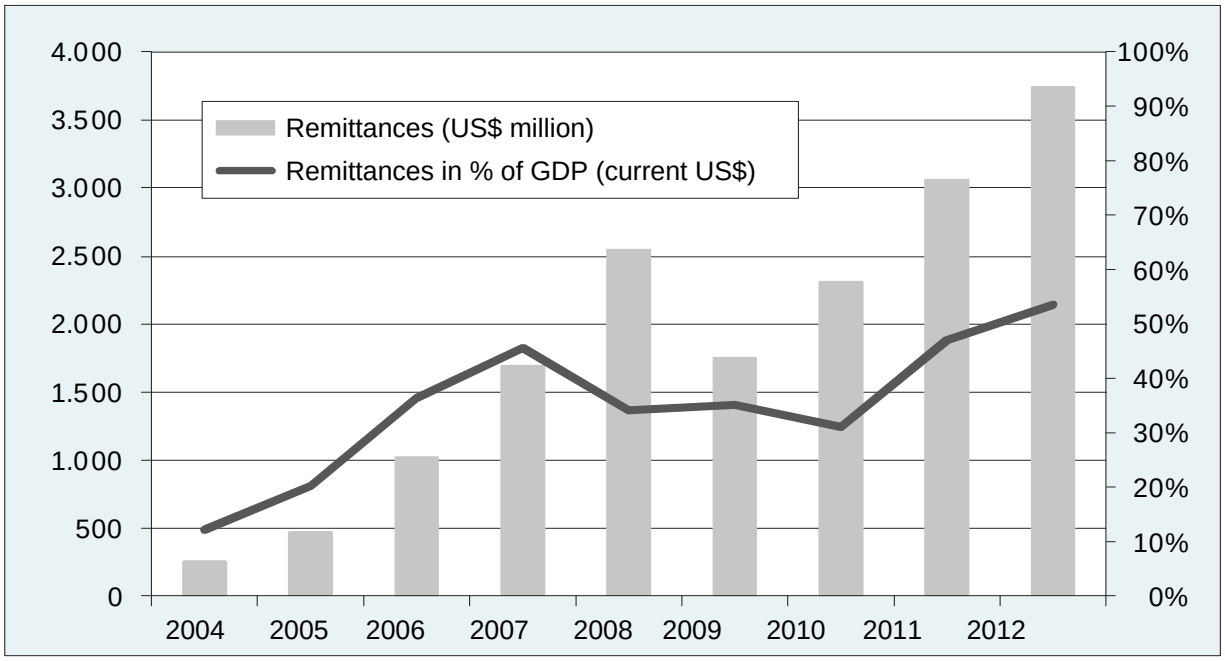
[4] A large strand of research additionally focusses on the evaluation of subjective well-being, typically referring to people's self-reported assessment of living conditions (Diener et al. 1999; Easterlin 2001; Kahnemann and Deaton 2010). Our study partially considers this aspect by taking into account individual experiences of harassment. Since we have no measures of self-reported well-being in the destination country, we cannot expand our analysis to the aggregated assessment of quality-of-life.

[5] The empirical findings are mixed with respect to subjective well-being (Simpson 2014). While internal migration is associated with unhappiness in many countries of the world, migrants from transition and post-transition countries to advanced economies experience an improvement in life satisfaction and higher perceptions of freedom (Nikolova and Graham 2015).

exclusion and deprivation. Explanations for why migrants end up in illegal employment directly follow from segmented labor market theory (Reich, Gordon and Edwards 1973; Piore 1979): Migrants are forced to accept jobs that are typically low paid, precarious and often without written work contracts because they have poor outside options (Massey 2015). In times of crisis, xenophobic tendencies and harassment of immigrants may develop or rise in the native population as labor market competition is getting more severe and pressure on the welfare system rises (Hatton 2016). Even if there are no negative labor market effects, the well-being of migrants certainly declines as attitudes towards migrants become less favorable, as Åslund and Rooth (2005) find for Sweden after 9–11. Hence, besides overall income, the determining factors of well-being in our analysis include whether labor relations are illegal and whether migrants suffer from harassment. Finally, we analyze whether migrants were forced by the authorities to leave the destination country (deportation). Enforced returns not only violate migrants' free choices; they also negatively impact migrants' self-esteem and economic gains through premature departure.

3. The migration corridor between Tajikistan and Russia

To analyze the determinants of migrants' well-being during the financial crisis empirically, we investigate labor migration from Tajikistan to Russia in the period 2000–2011. This migration corridor is one of the busiest in the world, with Tajikistan having been the most migration and remittances dependent country worldwide since 2006 and Russia being its main destination (Danzer and Ivaschenko 2010; IOM 2015).[6] According to official statistics (Figure 1), the inflow of remittances to Tajikistan amounted to 1.69 billion US$ in 2007, or about 46 percent of the country's GDP (World Bank 2017b). Tajikistan is the poorest country in Central Asia with a GDP per capita PPP, of 1.900 USD in 2007, the year before the financial crisis hit Russia (World Bank 2017a). In the same year, Russia was eleven times richer with a GDP per capita PPP of 22.800 USD.



Source: World Bank (2017)

Figure 1: Remittances inflow to Tajikistan 2004 – 2012 (billion US$, percent of GDP)

[6] Less than 5 percent of all migrants from Tajikistan move to destinations other than Russia, primarily to Kazakhstan, China and Uzbekistan (Olimova 2010).

Russia's economy had been growing at 6.8 percent per year between 2001 and 2007. When the financial crisis and a shock to the oil price hit Russia in the years 2008 and 2009, annualized GDP growth plummeted to –7.8 percent in 2009. In December 2008, the Russian government responded to declining growth perspectives by adopting a decree which reduced quotas for foreign workers to save jobs for natives (Awad 2009). In order to prevent an escalating recession, the government also directly intervened in the construction sector which traditionally makes the greatest use of migrant workers from Tajikistan (World Bank 2008). By taking over building projects from private developers—albeit at lower contractual prices—the government kept up employment levels in construction but exerted substantial cost pressure on construction firms (Nezavisimaya gazeta 2008). In 2010 and 2011, GDP growth in Russia resumed with on average 4.4 percent.

The effect of the financial crisis on remittance flows to Tajikistan is modest; While remittances decreased by nearly 18 percent from 2008 to 2009, they still exceeded the pre-crisis period in both years (see Figure 1; Mohapatra and Ratha 2010; World Bank 2017).

Migration from Tajikistan to Russia is almost exclusively seasonal with migrants moving back and forth every year. Entry into Russia is visa free for citizens from post-Soviet Central Asian states for historical reasons. According to the definition of the Russian administration, recorded labor migrants are foreigners who register their stay in Russia and receive a work permit. In the year 2006, the number of registered labor migrants amounted to 1 million and increased to 2.4 million in 2008 (Migration Policy Center 2013). Although the inflow of registered labor migrants declined to 2.2 million in 2009 and then sharply to 1.1 million in 2011 as a response to the global economic crisis, in 2014, the number of issued work permits had again reached 1.2 million (Migration Policy Center 2013; OECD 2015). Beside legal labor migrants, a large number of foreign workers are illegally employed in the Russian economy. Prior to 2007, the percentage of immigrants working without permit was estimated at up to 85 percent of all foreign workers in Russia (Ioffe and Zayonchkoskaya, 2010). This shows that illegal work relations were common practice before the financial crisis. The 2007 amendments to the Russian immigration law of 2002 simplified registration requirements for foreigners and made it easier to obtain work permits. As a result, the fraction of immigrants working illegally in Russia decreased slightly, although up to 70 percent of all foreign workers remained without permit in the period following 2007 (Ioffe and Zayonchkoskaya 2010; Migration Policy Center 2013). While the International Organization

for Migration (IOM 2013b) conjectured that the deterioration of job opportunities during the financial crisis may have induced migrants to return home, little quantitative evidence exists about how many migrants returned – either voluntarily or forced by the Russian government. Survey panel data from Tajikistan suggest that migration rates from Tajikistan to Russia did not decline noticeably during the financial crisis (Danzer and Ivaschenko 2010). This could be related to the fact that migrants stayed longer for fear of a withdrawal of Russia's open-door policy. The phenomenon of immigrants 'hibernating' times of crisis in destination countries is well described in the literature (Beets and Willekens 2009; Dobson et al. 2009)[7]. At the same time, new migrants from Tajikistan might have started to move to Russia, to escape the crisis ridden situation in their home country. While some regulation of the Russian government aimed at impeding migration some other rules facilitated it, so that migration from Tajikistan to Russia remained, on balance, surprisingly robust during the crisis (Hemmings 2010).

As reflected in several public opinion polls, the native Russian population increasingly rejects immigration. According to surveys of the independent and non-governmental Levada Center, approximately half of Russians (52 percent) believed in 2008 that immigration to Russia should be limited, while this share had grown to 60 percent in 2010. The fraction of those who express liberal attitudes towards migrants, including the welcoming of assistance towards legalizing migrants' status and to job search, decreased from 35 percent of Russians in 2008 to only 27 percent in 2010 (Zaionchkovskaya et al. 2014). Verbally expressed xenophobia has even turned into racially motivated violence: by 2013, almost 80 Central Asian immigrants had been murdered in Russia (Economist 2013).

[7] Monetary expenses for the move and comparatively higher wages may discourage migrants from returning, particularly if economic prospects at home are bleak.

4. Data and methodology

Our empirical analysis is based on the Tajikistan Household Panel Survey THPS 2007-09-11 (Danzer, Dietz and Gatskova 2013). The unique feature of this panel study is that it allows constructing the complete migration record for a nationally representative sample of individuals for the period 2001–2011. Respondents are asked to name for each year all employment spells abroad, destination and duration, employment status and whether the work relation was illegal. Our estimation sample includes migrants in working-age (16–65 years old) who migrated to Russia.[8] The units of observation are migration spells, of which we observe 1,420. Migrants are interviewed in Tajikistan with the help of retrospective questions and a migration diary to eliminate fear of responding in the destination country. Hence, while our data may suffer from some recall bias, we are convinced that this bias will be smaller than the response bias that would be present when interviewing marginalized migrants abroad.

Migrants are predominantly male (96 percent), in their twenties and with a secondary educational degree (for variable definitions and summary statistics see Table A-1 in the Appendix). Two thirds of migrants work in the construction sector.

As outcomes of interest we use three labor market indicators that reflect the economic success of migrants as well as three variables that are closely related to social determinants of migrants' well-being. The labor market indicators are the natural log of the real monthly take home pay (since migrants who work illegally pay no taxes, the use of net wages is pivotal), the duration of migration in months and the overall net real income per migration spell.[9] Real monetary values are expressed in USD as of October 2011. Net earnings were only reported for the last migration spell in each wave. The average log pay is 6.14, while the average migration duration is 8.25 months per spell.

The first social well-being indicator is a dummy variable for whether a migrant's work relation during a spell is illegal. Illegality refers to whether a migrant's work is registered.[10] The second indicator refers to individual experiences of harassment based on ethnicity and/or nationality.

[8] We restrict our estimation sample to Russia as only 1 percent of migration spells are directed to other destinations. All results are fully robust to using the slightly larger sample containing all destinations.

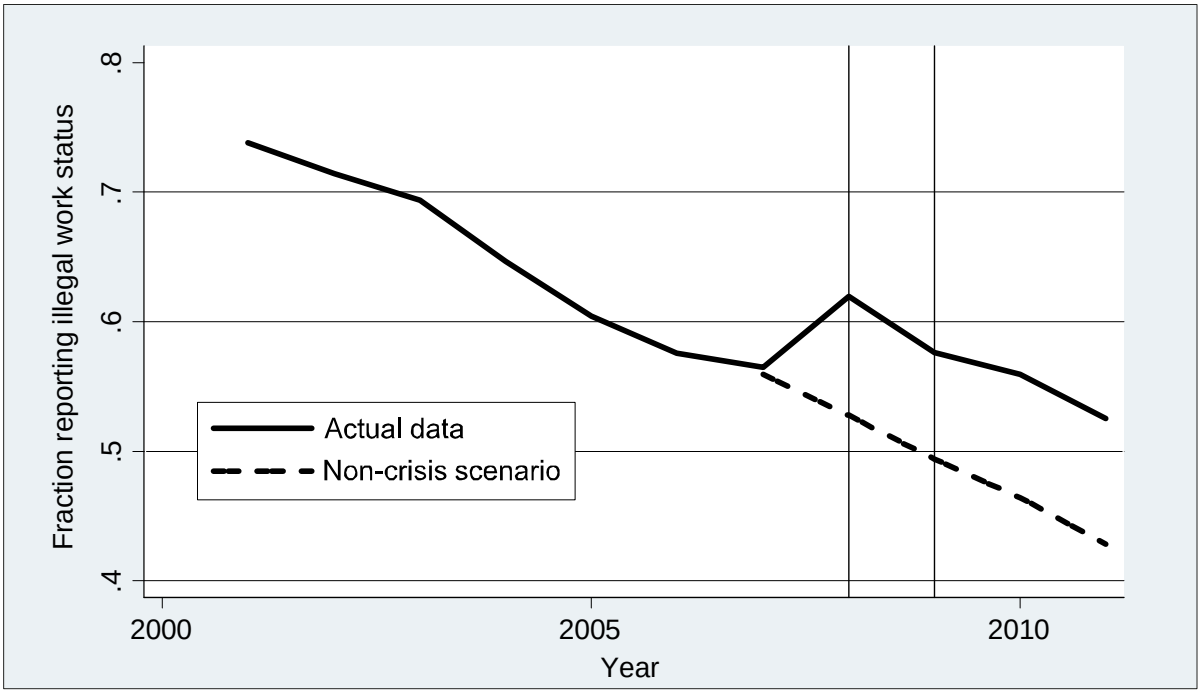
[9] Note that unemployment is not a big issue among migrant workers. The average unemployment rate between 2004 and 2011 was at 1.2 percent and it did not increase during the global financial crisis.

[10] The survey question reads: "Were you working legally during this migration episode?" Since migrants from Tajikistan require a work permit for legal employment, our definition follows the legalistic view of informality (Lehmann 2015). In practice, migrants also lack a work contract, fringe benefits and employment protection.

Perceptions of harassment were only reported in the 2011 wave of the survey for the last migration spell. Respondents also reported the year of their first discrimination experience. No further information was reported on the circumstances of this experience, i.e. we do not differentiate between harassment at the workplace and elsewhere. Inter-personal differences in perceptions imply that individuals will have different propensities to report harassment. While critics of self-reported measures may find the lack of inter-personal comparability problematic, the previous literature has pointed out that what matters from a welfare perspective are individual perceptions of harassment or discrimination (Antecol and Cobb-Clark 2008; Dustmann et al. 2011). Furthermore, objective data on harassment (like cases reported to the police) notoriously under-estimate the problem and reflect not only the extent of true harassment, but also of the quality of the legal system and the police force. The third social well-being indicator is a dummy variable indicating whether a migrant was deported, i.e. forced by the authorities in the destination country to return home. This indicator is generated from a question regarding the most important return reason for the last migration spell reported in the 2011 wave.

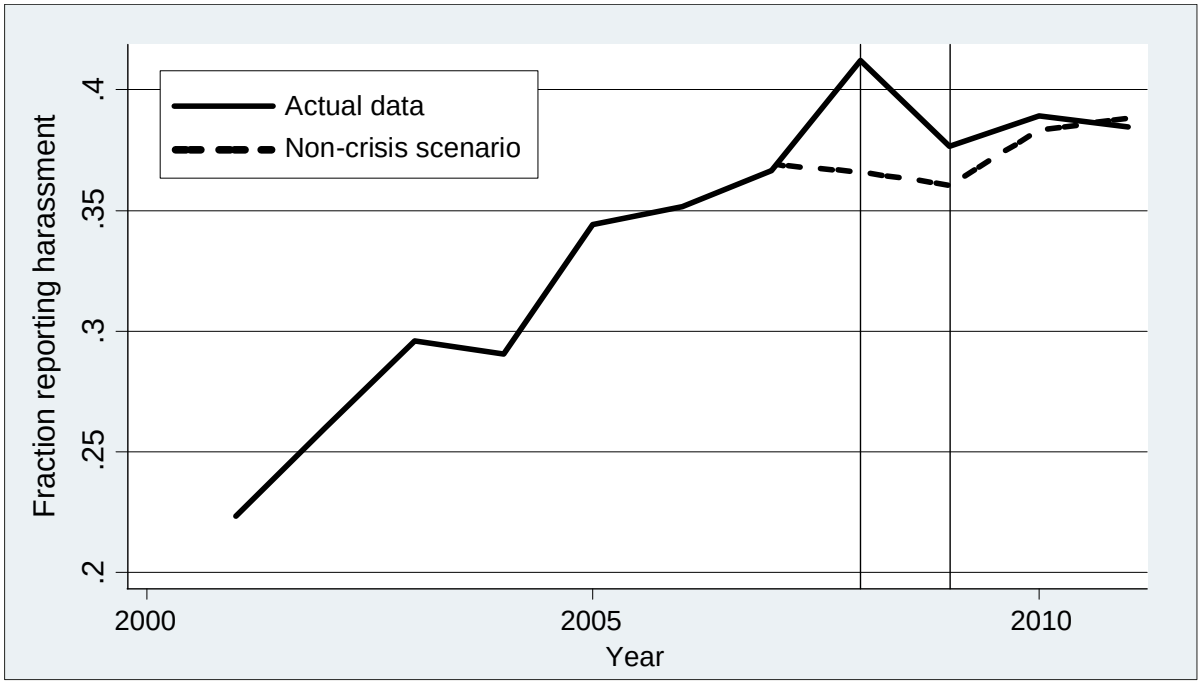
Illegal employment is widespread in our sample: Almost 60 percent of work relations are either unregistered or without contract. This number confirms previous estimates in that up to 70 percent of migrant spells in Russia involve illegal employment (Ioffe and Zayonchkoskaya 2010). Harassment based on ethnicity/nationality is reported by roughly 36 percent of migrants. While illegal work status has declined throughout the 2000s, the experience and/or reporting of harassment have become more common (increasing from 24 percent in 2001 to 38 percent in 2011). A study on ethno-racial harassment of migrants from Central Asia in Russia confirms this result: 34 percent of respondents reported incidences of harassment in 2012–2013 (Agadjanian et al. 2017). Overall, 2.3 percent of migrants were affected by deportations. While the share of deportations might appear small in the context of high numbers of irregular work relations it should be kept in mind that deportation is a government's ultimate policy to regulate migration. This policy is costly to implement (since it requires police force), it may scare off immigrants altogether (on which firms in Russia rely in some sectors) and it generates negative media attention internationally. Nevertheless, a deportation policy may be justified by the authorities in order to respond to fears of the population over the impact of (irregular) migration (Drotbohm and Hasselberg 2016). As Tajik labor migrants are in most cases residing legally in Russia, deportations are based on irregular work relations which are difficult to enforce. With this in mind, a rate of deportations of 2.3 percent is not surprising.

The financial crisis of 2008/09 is clearly associated with both illegal employment and harassment of Tajikistani immigrants in Russia. Fig. 2 and 3 report the evolution of illegal employment and harassment between 2001 and 2011. While the solid line shows the actual data, the dashed line represents a counterfactual scenario that would have prevailed in the absence of the great recession. The counterfactual scenario is produced by extrapolating outcomes based on migrant and migration spell characteristics of the pre-crisis period; therefore we regress the outcome dummies (illegal work relations and harassment) on dummies for migrants' gender, age groups, education groups as well as on the duration of the migration spell and migration spell year dummies using OLS regressions for observations between 2001 and 2007. Then we make a linear prediction for the years 2008 to 2011 and take the annual means of the predicted outcome values. These predicted values—which represent the expected development of outcomes in case the crisis had not taken place—are then plotted in the figures alongside the true outcomes during and after the crisis. Any deviation between the counterfactual scenario and actual data are attributed to the crisis. With the onset of the financial crisis (marked by the two vertical lines), illegality soared by roughly ten percentage points. The increase in illegality was quite persistent in the years following the crisis. The harassment of immigrants increased by roughly five percentage points in 2008 and remained above the level expected in the non-crisis scenario in 2009; however, the excess harassment experienced during the financial crisis has apparently vanished in the years thereafter. While both indicators of migrants' well-being deteriorated by similar magnitudes during the crisis (roughly 15 percent), the change in illegality was much more persistent than the one in harassment. Possibly, illegality has a long-term component because it reflects the contractual arrangements between, for instance, construction firms and purchasers. If this was true, any price concessions negotiated by government authorities in Russia during the crisis were burdened on immigrant workers.



Note: The non-crisis scenario is produced by extrapolating outcomes based on migrant and migration spell characteristics of the pre-crisis period. Source: THPS 2007-09-11.

Figure 2: Illegal employment among Tajik immigrants in Russia, 2001–2011



Note: The non-crisis scenario is produced by extrapolating outcomes based on migrant and migration spell characteristics of the pre-crisis period. Source: THPS 2007-09-11.

Figure 3: Harassment reported by Tajik immigrants in Russia, 2001–2011

To deepen our understanding of the evolution of the determinants of well-being during the financial crisis we use OLS and FE panel regressions of the following form: The dependent variables w^k either represent economic well-being indicators (the superscript *k* represents the economic indicators *e*: real net monthly log wage, migration duration in months or real net log income per migration spell) or social well-being indicators *s* (dummies for whether the work relations was illegal, whether a respondent experienced harassment in the destination country, or whether a migrant was deported).[11] The crisis dummy equals one if migration took place in the years 2008 or 2009, the years when the Russian economy was hit by the financial crisis.[12]

$$w_{ijt}^{k} = \beta_0 + \beta_1 Crisis_t + X_{it}{}'\gamma + \tau_t + \theta + \mu_i + \varepsilon \qquad (1)$$

Individual migrants are indexed with *i*, migration spells with *j* and the year of migration with *t*. The vector of covariates comprises gender, education, age, marital status, ethnicity, household size and region (oblast) of origin.[13] Fixed effects τ_t, θ and μ_i represent year fixed effects (omitting the dummies for the years 2001 and 2008), destination sector fixed effects, as well as individual fixed effects (the latter one can only be estimated in the FE panel estimation). Individual fixed effects enable us to account for individuals' unobservable characteristics that remain constant across migration spells. We cluster standard errors at the level of destination city and migration year.

To investigate the economic effects of illegal employment and harassment we regress the economic indicators *e* (real net wages and migration durations) on the crisis dummy and a dummy for illegality (equation 2) in a fixed effects panel set-up. In equation 3 we also add a dummy for experienced harassment; due to data limitations this equation can, however, only be estimated in a cross-sectional OLS set-up:

$$w_{ijt}^{e} = \beta_0 + \beta_1 Crisis_t + \beta_2 Illegal_{ijt} + X_{it}{}'\gamma + \tau_t + \theta + \mu_i + \varepsilon \qquad (2)$$

[11] We also run seemingly unrelated regressions with different return modes as dependent variables with very similar results. Note that we abstain from using multinomial regression models since some response categories (deportation) reflect no voluntary choices. Return reasons given in the THPS Survey are no residence or work permit granted, deported, family reasons, homesick, no intention to stay, accumulated enough money, seasonal work or business/legalization of house or land at home.

[12] In a robustness check we use sector specific negative deviations from the long-term wage trends as explanatory variables. The results are qualitatively similar (Tab A-4).

[13] In a robustness check we control for a vector of occupation dummies, yielding the same results (Table A-2).

$$w_{ijt}^{e} = \beta_0 + \beta_1 Crisis + \beta_2 Illegal_{ij} + \beta_3 Harassment_{ij} + X_i{}'\gamma + \tau_t + \theta + \varepsilon \qquad (3)$$

We also run these regressions for non-crisis years only in order to rule out that the association between illegality/harassment and economic determinants of well-being are crisis specific.[14] A caveat of our analysis is that migrants who experience illegality and/or harassment might be less likely to stay in or return to Russia and, hence, are dropping out of the sample. Since no entirely satisfactory econometric solution exists for this problem, we resort to a descriptive strategy: While much of the previous literature has claimed that migrants tend to 'hibernate' the crisis in the destination country, we want to test whether this is actually true. To this end, we separate Tajik migrants who were abroad during the financial crisis in three groups: The first group is defined as migrants who had migration experience before the crisis but stopped migrating during the crisis (type I). The second group is defined as migrants with prior migration experience who continued migrating after the crisis (type II). The third group is defined as those who had no migration experience before 2008, but started migrating during the financial crisis (type III).

[14] We also test the differential effect of illegality and harassment during the crisis by using interaction terms. Yet, these are always insignificant.

5. Results

5.1 The effects of the crisis on the determinants of well-being

The determinants of migrants' well-being comprise economic returns from migration, working conditions (and, hence, illegality of the job) as well as their general standing in the host society, i.e. whether they are exposed to harassment or eventual deportation.

Table 1: Determinants of well-being during the financial crisis

	(1)	(2)	(3)	(4)	(5)	(6)
	Determinants of economic well-being			Determinants of social well-being		
Dependent variable	Duration (months)	Log net monthly wage	Log net income per mig. spell	Illegal work relation	Harassment	Deported
Estimation	FE	FE	FE	FE	OLS	OLS
Fin. crisis	1.526***	–0.098**	0.150**	0.101**	0.122**	0.020***
	(0.274)	(0.041)	(0.070)	(0.040)	(0.049)	(0.007)
Male	0.041	0.057	0.085	0.308***	–0.125	0.024***
	(0.575)	(0.104)	(0.158)	(0.085)	(0.097)	(0.008)
Second. education	–0.388	–0.092*	–0.115	0.055	–0.146**	0.004
	(0.401)	(0.053)	(0.085)	(0.056)	(0.064)	(0.013)
Tert. education	–0.624	–0.036	–0.088	0.188*	–0.161*	–0.013
	(0.430)	(0.086)	(0.126)	(0.100)	(0.086)	(0.010)
Age 23–30	–0.025	0.047	0.035	–0.017	–0.023	–0.005
	(0.263)	(0.037)	(0.049)	(0.043)	(0.049)	(0.011)
Age 31–40	–0.329	–0.046	–0.105	–0.109*	–0.037	0.012
	(0.285)	(0.052)	(0.075)	(0.057)	(0.057)	(0.014)
Age 41–50	–0.561	–0.078	–0.169**	–0.081	–0.037	0.001
	(0.398)	(0.052)	(0.084)	(0.066)	(0.064)	(0.016)
Age 51–65	–0.008	–0.118	–0.127	–0.023	0.026	–0.031*
	(0.451)	(0.087)	(0.089)	(0.132)	(0.118)	(0.017)
Construction	–0.328	0.165***	0.136	–0.028	0.005	–0.011
	(0.369)	(0.053)	(0.082)	(0.072)	(0.090)	(0.012)
Sales	–0.278	0.275	0.261	–0.190*	–0.073	–0.028**
	(0.591)	(0.166)	(0.216)	(0.101)	(0.089)	(0.011)
Transportation	–0.530	0.065	–0.009	–0.221	–0.011	–0.010
	(0.550)	(0.111)	(0.131)	(0.138)	(0.102)	(0.026)
Health and Care services	0.707	0.242***	0.378***	–0.130	0.173**	0.046
	(0.627)	(0.063)	(0.106)	(0.105)	(0.083)	(0.068)
Observations	1,420	1,420	1,420	1,420	596	596
R-squared	0.080	0.097	0.087	0.097	0.066	0.027

Note: FE (col. 1–4) and OLS (col. 5 and 6) regressions. Monetary values are in real USD as of October 2011. Regressions also control for marital status and household size. Standard errors in parentheses clustered at level of destination city & year. Source: THPS 2007-09-11.

*** p<.1, ** p<.05, * p<.01

Table 1 shows that all well-being indicators (economic and social) are affected during the crisis. Migrants tend to stay substantially longer during the crisis, by 1.5 months or 20 percent. While this findings suggests support for the 'hibernating hypothesis' we show below that this is an artifact from the changing composition of migrants. During the crisis, migrants earn monthly wages that are about 10 percent lower than at non-crisis times.[15] Similar effects of the global crisis on immigrants' wages were found for the United States (Papademetriou and Terrazas 2009) and other OECD countries (Taran 2009). However, the longer migration spells during the crisis seem to offset lower monthly wages, so that overall incomes increase during the crisis. This result is in line with an increase of annual remittances during the financial crisis compared to the year 2007 (see Fig. 1). Looking at net monthly wages it is striking that secondary education is negatively associated with earnings and that there is no significant earnings difference between primary and tertiary education. Empirical evidence suggests that limited opportunities of Tajik labor migrants to transfer their home country human capital as well as their absorption in the low-skilled sectors of the Russian economy are most likely responsible for this (Olimova 2010; Vinokurov and Pereboyev 2013).

All three social well-being indicators deteriorated during the crisis:[16] Illegal work relations increased by more than 10 percentage points; this reflects the magnitude expected from the unconditional graphical analysis of Fig. 2. The demographic correlates of illegality confirm existing evidence on informal employment in transition countries (Lehmann 2015) and suggest that males are substantially more exposed to illegal work relationships, while middle-aged workers (between 31 and 40 years old) are less likely to work illegally. The latter result is in accordance with standard economic considerations on the age profile of illegally employed workers (Hazans 2011). As younger and older workers are usually less productive and more engaged in instable work relations than middle-aged workers, the age profile of illegally employed workers is U-shaped. We find that Tajik migrants with tertiary education are more likely to work illegally. This result is in line with a recent study by Hazans (2011)

[15] While we cannot rule out that the working hours of migrants may have declined during the crisis, this decline will certainly be undesired by migrant workers. As such, it represents an unwanted deterioration of the economic prospects of migration.

[16] In a falsification exercise we show that the actual crisis years were the only ones yielding significant results. Table A-3 in the Appendix runs regressions akin to (1) in which 'fake' crisis dummies are constructed for the years 2004, 2005, 2006, 2007 or 2010. None of these regressions shows the expected result, so that we can rule out that our results are driven by mean reversion.

which finds that in Russia (and other countries such as Ukraine, Slovenia, Denmark, Norway, Spain and Switzerland) workers without contract are more likely to be over-qualified than their legally employed colleagues. This can either be related to a lack of demand for skilled workers or to a skills mismatch in the labor market. As expected, illegality is lower in economic sectors that are more visible to the public, such as sales.

The exposure to harassment went up by 12 percentage points during the financial crisis.[17] Harassment is less pronounced against Tajik migrant workers with at least a secondary degree, while employment in health and care services is associated with more harassment experiences. As Tajik labor migrants are a visible minority group which is met with prejudice in Russia, a stronger exposure in public is most likely responsible for the greater experience of harassment (Agadjanian et al. 2017). Thus, harassment can be expected to be higher if migrants have more direct contacts to natives in sectors such as health care and services.[18]

Finally, during economic downturns and when xenophobia is on the rise, governments tend to enforce deportations in order to reduce the number of immigrants (deportations of Tajik workers are in most cases based on illegal work relations since Tajikistan and Russia enjoy a visa-free entry regime). In the case of labor migrants from Tajikistan to Russia, the risk of deportation almost doubled during the financial crisis.[19] This is most likely related to an increase of illegal work relations and stricter law enforcement strategies. For data limitations, we cannot be entirely certain whether harassment and deportations increased during the crisis or whether those who migrated in this time were different from those who migrated at non-crisis times (these two variables can be assessed only in a cross-sectional regression). However, the fixed effects estimates for wages and illegality seem to confirm that the financial crisis actually deteriorated the situation of migrant workers from Tajikistan.

[17] The growing hostility towards foreigners in Russia during the global crisis is confirmed by Awad (2009). Furthermore, there is evidence that in many industrialized countries in the world, harassment against migrant workers increased during the global financial crisis (ILO 2011).

[18] The dislike for certain migrant groups can be explained by social identity theory which argues that natives gain self-esteem by attributing a higher value to their own social group than to others, for example migrants (Tajfel 1981).

[19] We assess the potential bias stemming from the fact that forced deportations are rare events in our set-up (2.3 percent of migration spells). According to rare event logit models the bias is negative but negligible in size, so that Table 1 reports conservative estimates.

Could our results be spurious in the sense that they might be attributed to changes in the selection of migrants during the crisis? A comparison of profiles of migrants and non-migrants before the crisis and during the crisis suggests otherwise (Table 2). Migrants before the crisis are almost exclusively male and tend to be more often married than non-migrants. Compared to the non-migrant population, they are of comparatively better education and fully literate. The two groups, however, do not differ with respect to age, ethnicity, household size and whether they originate from rural areas. During the financial crisis, the selection of migrants has partly changed (changes in significance are printed in bold in Table 2): The share of women among migrants has increased, and migrants are now significantly younger than non-migrants. Both findings reflect earlier results by Danzer and Ivaschenko (2010) and Ivaschenko and Danzer (2010). The positive selection with respect to education has become less pronounced during the crisis. However, we now observe that ethnicity matters, with ethnic Tajiks having become less and Uzbeks more likely to migrate. At the same time, the rural population is disproportionately represented among migrants during the crisis.

The younger age among migrants during the crisis could potentially explain why migrants might be more risk taking and, hence, more willing to accept illegal employment (cp. Lehmann 2015). A similar conclusion could be reached with respect to the less positive selection of migrants in terms of education: Lower educated migrants might be forced to accept illegal employment in the absence of better outside options. However, the respective estimates in Table 1 are fixed effects panel estimates which account for changes in the migrant composition, leading us to conclude that migrants have indeed been exposed to greater illegality in their working life during the financial crisis. Also the remaining changes in the migrant selection patterns, like the greater emigration from rural areas and from areas with large Uzbek minorities,[20] suggest that emigration patterns have changed considerably during the crisis. Yet, these changes cannot explain how the factors affecting the well-being of migrants shifted during the crisis.

[20] In fact, fewer migrants originated from the capital Dushanbe during the crisis and more from areas close to the Uzbek border with large Uzbek minorities.

Table 2: Profiles of migrants and non-migrants before and during the crisis

	Non-migrants pre-crisis (2007)	Migrants pre-crisis (2007)	Mean differences p-value	Non-migrants during crisis (2009	Migrants during crisis (2009)	Mean differences p-value
Male	0.4617	0.9638	0.0000	0.4504	0.9331	0.0000
Age	33.32	33.34	**0.4918**	33.5	30.8	**0.0004**
No education	0.0172	0.0000	0.0876	0.0226	0.0058	0.0380
Education low	0.2608	0.0963	0.0000	0.2497	0.1374	0.0000
Education secondary	0.6351	0.7469	0.0029	0.6474	0.7368	0.0007
Education tertiary	0.1039	0.1566	**0.0274**	0.1029	0.1257	**0.1798**
Can read	0.9614	1.0000	0.0099	0.9723	0.9971	0.0052
Can write	0.9610	1.0000	0.0094	0.9716	0.9942	0.0122
Married	0.6308	0.7530	0.0012	0.6359	0.6860	0.0599
Widowed	0.0094	0.0000	0.2085	0.0038	0.0029	0.7946
Tajik	0.8044	0.7711	**0.2822**	0.7752	0.7064	**0.0031**
Uzbek	0.1771	0.2169	**0.1826**	0.2148	0.2878	**0.0015**
Household size	7.31	7.48	0.4680	7.91	7.95	0.8103
Rural	0.6976	0.6385	**0.1010**	0.6924	0.7791	**0.0007**
Sample size	5,826	166		5,675	342	

Note: Population aged 16–65. Pre-crisis period refers to 2007, crisis period refers to 2009. Bold values indicate significant changes in the selection of migrants over time. Source: TLSS 2007-09.

5.2 Economic consequences of the financial crisis, illegality and harassment

In the economics literature it is well documented that illegally employed workers earn lower wages than their legal counterparts (Borjas 2017). While evidence on the impact of harassment on wages is scarce, a recent study finds that the harassment of ethnic minority nurses in the United Kingdom reduces their job attachment (Shields and Wheatley Price 2002). As a consequence, harassment might translate into lower productivity and thus lower wages. Since illegality and harassment of Tajik migrant workers in Russia soared during the financial crisis, is it that the economic consequences of the crisis – declining wages and prolonged duration of stay – simply reflect the deterioration in social determinants of well-being. In other words, is the estimated crisis effect for the economic outcomes of Table 1 spurious? In order to test this, and to shed more light on the economic consequences of illegality and harassment, we estimate regressions according to equations (2) and (3).

Table 3: Effects of crisis, illegality and harassment on migration duration and wages

Sample A: Last trip, OLS Dependent variable	(1) Duration	(2) Log wage
Fin. crisis	1.643***	–0.223**
	(0.360)	(0.111)
Illegal work relation	–0.673***	–0.263***
	(0.225)	(0.061)
Harassment	0.002	–0.045
	(0.236)	(0.084)
Observations	596	596
R-squared	0.102	0.127
Sample B: FE Panel Dependent variable	(1) Duration	(2) Log wage
Crisis	1.602***	–0.075**
	(0.261)	(0.036)
Illegal work relation	–0.620***	–0.191***
	(0.205)	(0.053)
Observations	1,420	1,420
R-squared	0.088	0.119

Note: OLS (sample A) and FE (sample B) regressions. All control variables from Table 1 are used in the regressions. Monetary values are in real USD as of October 2011. Standard errors in parentheses clustered at level of destination city & year. Source: THPS 2007-09-11.

*** p<.1, ** p<.05, * p<.01

The crisis effect on migration duration and log wage remains quite stable after controlling for illegal work relations and harassment, as Table 3 shows. The top panel (sample A) presents OLS results for the last migration trip, while the bottom panel (sample B) shows fixed effects results for the entire panel (which is more comparable to Table 1 but lacks information on harassment, which is only reported once per migrant).

While the financial crisis is associated with longer migration spells, illegal employment is associated with shorter duration (controlling for economic sectors). The latter finding confirms Awad (2009) according to whom illegally employed migrant workers in Russia return faster to their home countries. The results are also in line with evidence on U.S. immigrants from Mexico by Massey (1987), who finds that undocumented migrants stay shorter abroad. The crisis effect on wages in sample B, column (2) is about 23 percent smaller than the original estimate from Table 1, column (2). This suggests that some of the negative crisis effects on wages seem to be

explained through illegal work relations which are also associated with significantly lower pay: Illegally employed workers earn on average 21 percent less than their legal counterparts (equivalent to –0.191 log points). The lower wages for illegal work lend support to the segmented labor market hypothesis which suggests that migrant workers take jobs that natives would be reluctant to work in. We summarize that Tajik labor migrants in illegal employment relations earn substantially less and stay significantly shorter than their legal counterparts, yielding a double-burden of illegality. Quite differently, harassment of migrants seems to be independent of migration duration and wages.

A simple back-of-the-envelope calculation allows assessing the monetary cost of illegality accruing to immigrants in the crisis year 2008–09:

$$C = \Delta illegality \times (\Delta w \times 12w + w \times \Delta d)$$

Where w is the real monthly net wage and d is the migration duration. Deltas indicate changes induced by the financial crisis or by illegality, respectively. The first term in the round brackets accounts for the reduction in annual net earnings due to the wage decline, the second term accounts for the reduction stemming from shorter migration durations (in months). With a monthly net wage of 320 USD as of 2010 (Danzer and Ivaschenko 2010), the annual loss in income amounts to 410 USD, or more than 10 percent. The economic damage to Tajikistan becomes better understandable if expressed in the local per capita income: Illegality induces an annual income loss equivalent to 2.6 monthly per capita incomes.

To test whether the correlations between illegal work relations/harassment and economic determinants of well-being, such as wage and duration of stay, are independent of the financial crisis we repeat the previous analysis without crisis years in Table 4. We still find that illegality is associated with shorter migration spells and lower monthly wages. All in all, illegality seems to affect economic determinants of well-being while harassment exhibits no relationship to economic outcomes.

Table 4: Non-crisis effects of illegality and harassment (excluding 2008/2009)

Sample A: Last trip, OLS Dependent variable	(1) Duration	(2) Log wage
Illegal work relation	–0.879***	–0.247***
	(0.255)	(0.050)
Harassment	0.201	–0.029
	(0.230)	(0.066)
Observations	517	517
R-squared	0.120	0.148
Sample B: FE Panel Dependent variable	(1) Duration	(2) Log wage
Illegal work relation	–0.712***	–0.215**
	(0.219)	(0.099)
Observations	1,232	1,232
R-squared	0.093	0.129

Note: OLS (sample A) and FE (sample B) regressions. All control variables from Table 1 are used in the regressions. Monetary values are in real USD as of October 2011. Standard errors in parentheses clustered at level of destination city & year. Sample omits observations from the years 2008 and 2009. Source: THPS 2007-09-11.
*** p<.1, ** p<.05, * p<.01

5.3 The determinants of the well-being of returning, continuing and new migrants during the crisis

While our overall results suggest that migrants stayed longer in the destination during the crisis, a closer look reveals substantial heterogeneity among migrants. The migration diaries available from THPS allow us to assess individual migration patterns throughout more than a decade.

We define three types of migrants who were all active during the financial crisis: The first group stopped migrating during the financial crisis and did not return in the years thereafter, the second group continued migrating during and after the crisis, and the third group started migrating during the crisis and continued thereafter (Table 5). The three types of migrants have vastly different migration experience in our sample period (between 2.9 spells for type III and 7.8 spells for type II). It seems surprising that migrants who stopped during the crisis were those with the comparatively highest wages and longest migration durations; they also were less likely to be employed illegally. At the same time, they had the highest exposure to harassment of all groups. Newcomer migrants (type III) had the lowest wages and the lowest experience with harassment, but were most likely to work illegally.

Table 5: Comparison of three migration types

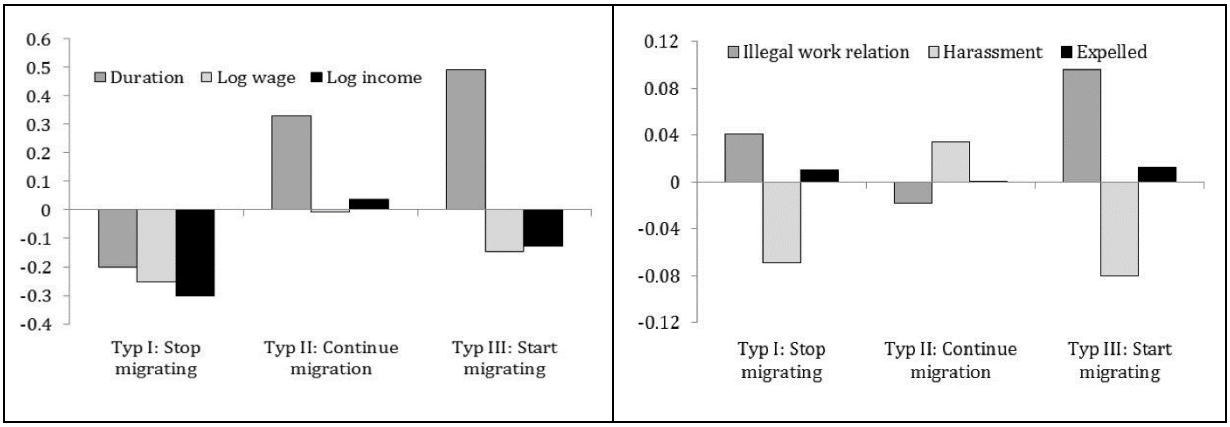
	Type I Stop migrating	Type II Continue migration	Type III Start migrating
Number of migration spells	5.01	7.75	2.89
Log wage	6.17	6.16	6.14
Duration	8.64	8.30	8.56
Illegal	0.50	0.61	0.65
Harassment	0.41	0.39	0.33
Deported	0.02	0.03	0.01

Note: Monetary values are in real USD as of October 2011. Source: THPS 2007-09-11.

More insightful than aggregate statistics are the changes experienced by the three groups of migrants during the crisis: Those who stopped migrating experienced a significant decline of wages during the financial crisis and stayed abroad much shorter than during non-crisis years (Fig. 4). The total income of this group declined by more than 30 percent during the crisis suggesting that these workers terminated migration due to the deterioration of their economic prospects. Workers of type II, to the opposite, saw almost no changes in their monthly wages. Since they extended their migration duration during the crisis substantially, they even experienced greater total incomes from migration during the crisis. Migrants of type III show typical patterns of unexperienced migrants. They earn much less initially, but stay longer to break even with their migration project. Taking the three groups of migrants together the claim that migrants tend to 'hibernate' the crisis seems somewhat exaggerated in the case of Tajik labor migrants in Russia: While migration duration for type II migrants indeed increases, some migrants do in fact stay much shorter. Some of the effect on migration duration simply stems from the compositional change between type I and type III migrants. Overall, the decision to stop migrating during the crisis seems rationally explainable by economic migration motivations: those who lose economically, stop migrating while those who experience only minor changes continue to move abroad.

Figure 5 lends further evidence to the finding that those who continue migration after the crisis fare relatively well: Type II migrants are less likely to be illegally employed which has a strong negative second order effect on wages. They also do not face any changes to the likelihood of being deported during the crisis; they nevertheless are exposed to more harassment. Overall, their experiences during the crisis do not differ much from non-crisis

times. Quite differently, type I migrants become four percentage points more likely to end up in illegal employment during the crisis. They also face greater deportation risk. Since their exposure to harassment is actually lower during crisis years, harassment does not seem to be the driving force behind their ultimate return home. In some sense, newcomers and those who stop migrating perform similar with respect to social well-being measures: they are more likely to be illegally employed and deported during the crisis. At the same time, they are less likely to be harassed. For newcomers, this is expected because many migrants start in illegal employment (with illegality declining over time), while their exposure to harassment increases over time. Taking together the results from Fig. 4 and Fig. 5, it seems clear that those who stop migrating perform worse on all outcomes, except for harassment. Because they are replaced by persons who perform similar (yet stay longer), the literature has assumed that the majority of migrants 'hibernates' which is only true for a subset of Tajik migrants in Russia. Those who leave and those who arrive anew are the ones experiencing the greatest deterioration of economic and social factors affecting well-being during the crisis. Those who continue migrating have only minor changes in well-being determinants (positive in economic terms and ambiguous in social terms). Our result, hence, suggest substantial heterogeneity within the group of apparently similar migrants.



Note: The figure displays $(\bar{y}_{crisis} - \bar{y}_{non-crisis})/\bar{y}_{non-crisis}$. Source: THPS 2007-09-11.

Figure 4: Differences in economic factors of well-being between crisis and non-crisis years

Figure 5: Differences in social dimensions of well-being between crisis and non-crisis years

Table 6: Correlates of stopping migration during the financial crisis

	(1)	(2)
Dependent variable	Stopped migration during crisis	
Male	–0.243**	–0.148
	(0.120)	(0.132)
Second. education	–0.065	–0.069
	(0.085)	(0.079)
Tert. education	–0.115	–0.104
	(0.098)	(0.094)
Age 23–30	0.147***	0.157***
	(0.052)	(0.050)
Age 31–40	0.235***	0.230***
	(0.061)	(0.058)
Age 41–50	0.153**	0.135**
	(0.068)	(0.065)
Age 51–65	0.231**	0.233*
	(0.113)	(0.124)
Construction	0.106*	0.112*
	(0.056)	(0.058)
Sales	0.106	0.114
	(0.103)	(0.101)
Health and care services	–0.128*	–0.096
	(0.070)	(0.074)
Transportation	0.058	0.060
	(0.098)	(0.101)
Deported		0.062
		(0.153)
Illegal work relations		–0.011
		(0.043)
Harassment		–0.050
		(0.045)
Log wage migration		–0.099**
		(0.049)
Observations	422	422
R-squared	0.078	0.088

Note: Linear probability model. Dependent variable is a dummy indicating whether a migrant with prior migration experience stopped migrating during the crisis. Standard errors in parentheses clustered at level of destination city & year. Sample contains migrants with migration experience before the crisis (type I and type II). Source: THPS 2007-09-11.

*** p<.1, ** p<.05, * p<.01

To better understand the profiles of those migrants who stop migrating during the crisis, we focus on the sample of those who had migration experience before the crisis. In a cross-section of the crisis period, we regress a dummy indicating that a migrant stopped during the crisis on a set of demographic and job characteristics (Table 6, col. 1). In a slightly extended model we include the log wage as well as dummies for illegality, harassment and deportation as additional regressors (column 2). Regarding age, it turns out that older migrants are more likely to stop during the crisis. While higher education is associated with a lower probability to stop migrating, the correlations are estimated imprecisely. Among the economic sectors of employment, construction stands out in making it more likely for migrants to leave the destination ultimately. None of the social well-being indicators shows a significant relationship with stopping migration; yet, the log wage is negatively associated with the propensity to leave the destination. This again points to the fact that migration decisions are predominantly economically determined.

6. Conclusions

This paper is the first empirical account of economic and social factors determining the well-being of immigrants during the global financial crisis. Using the example of Tajik workers in Russia we find that migration duration increased while wages declined during the financial crisis, leading to overall higher economic returns to migration. At the same time, illegal employment, harassment and deportations became more widespread. These changes not only inhibit migrants' self-determination and safety, but also imply monetary costs, as illegally employed migrants return home prematurely and earn lower wages. The income loss from illegal employment accrues to more than ten percent of annual earnings per migrant.

Our paper highlights the heterogeneity among presumably similar migrants. While a subset of migrants experienced a sharp decline in economic and social well-being indicators during the financial crisis, another subset of highly comparable migrants felt the crisis very little. Consistent with economic migration motives we find that those who lose economically, stop migrating while those who experience only minor changes continue to move abroad. Our analysis of who continues during the crisis suggests that age, economic sector of employment and the wage in the destination play a decisive role.

Whether tightening immigration during an economic downturn is politically wise is yet unclear. While deportations of immigrants are symbolically strong and display political activism when nationalism and xenophobia are on the rise, firms that rely on cheap (and often unregistered) immigrant workers may face cost increases; this can lead to a decline in overall employment (Chassambouli and Peri 2015). Illegality can be a strategy for firms to survive an economic crisis; however, illegality and harassment put stress on immigrants and hurt them economically. In that sense, especially vulnerable migrants have to bear the economic and political pressure exerted by firms and the government.

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Appendix

Table A-1: Definition and statistics of variables

Dependent variables	Definition	Observation period	Number of observations	Sample mean
Log wage	Natural logarithm of the monthly net wage	2001–2011, reported for the last migration spell preceding the surveys in 2007, 2009 and 2011	1,420	6.14
Duration	Duration of migration spell in months	2001–2011	1,420	8.25
Log income	Natural logarithm of total take-home income from migration spell	2001–2011, reported for the last migration spell preceding the surveys in 2007, 2009 and 2011	1,420	8.25
Illegal work relation	Dummy = 1, if work relation was illegal	2001–2011, reported for the last migration spell preceding the surveys in 2007, 2009 and 2011	1,420	0.597
Harassment	Dummy = 1, if migrant was harassed during migration spell	2001–2011, reported for the last migration spell preceding the survey in 2011	596	0.361
Deported	Dummy = 1, if migrant was deported from destination country	2001–2011, reported for the last migration spell preceding the survey in 2011	596	0.023
Crisis	Dummy = 1, if observation is during the financial crisis (year 2008/9)	2001–2011	1,420	0.135
Male	Dummy = 1, if gender is male	2001–2011	1,420	0.957
Education	Categorical variable Primary education (omitted category) Secondary education Tertiary education	2001–2011	1,420	 0.096 0.760 0.145
Age	Categorical variable 16–22 (omitted category) 23–30 31–40 41–50 51–65	2001–2011	1,4320	 0.188 0.365 0.253 0.155 0.039
Sector of employment	Categorical variable Construction Sales Transportation Health and care services Manufacturing (omitted category)	2001–2011, reported for the last migration spell preceding the surveys in 2007, 2009 and 2011	1,420	 0.664 0.082 0.045 0.058 0.152
Ethnicity	Categorical variable Tajik (omitted category) Uzbek Others	2001–2011	1,420	 0.702 0.291 0.007

Source: THPS 2007-09-11.

Table A-2: Determinants of well-being during the financial crisis, occupation controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Determinants of economic well-being			Determinants of social well-being		
Dependent variable	Duration (months)	Log net monthly wage	Log net income per mig. spell	Illegal work relation	Harassment	Deported
Estimation	FE	FE	FE	FE	OLS	OLS
Fin. crisis	1.501***	–0.090**	0.150**	0.091**	0.111**	0.014*
	(0.277)	(0.041)	(0.071)	(0.040)	(0.050)	(0.008)
Male	0.297	0.066	0.134	0.329***	–0.128	0.026***
	(0.491)	(0.103)	(0.144)	(0.085)	(0.102)	(0.009)
Second. education	–0.327	–0.091*	–0.106	0.043	–0.124*	0.003
	(0.366)	(0.054)	(0.081)	(0.054)	(0.072)	(0.013)
Tert. education	–0.603	–0.045	–0.094	0.211**	–0.153	–0.002
	(0.420)	(0.086)	(0.127)	(0.096)	(0.094)	(0.005)
Age 23–30	–0.038	0.052	0.040	–0.016	–0.018	–0.005
	(0.261)	(0.039)	(0.049)	(0.044)	(0.046)	(0.010)
Age 31–40	–0.337	–0.043	–0.101	–0.113*	–0.019	0.011
	(0.285)	(0.050)	(0.070)	(0.061)	(0.059)	(0.011)
Age 41–50	–0.579	–0.057	–0.140*	–0.055	–0.042	–0.004
	(0.390)	(0.052)	(0.083)	(0.069)	(0.062)	(0.014)
Age 51–65	–0.218	–0.071	–0.111	–0.012	–0.044	–0.030*
	(0.432)	(0.103)	(0.102)	(0.125)	(0.120)	(0.016)
Construction	–0.049	0.035	0.037	–0.012	0.079*	0.001
	(0.238)	(0.052)	(0.061)	(0.059)	(0.047)	(0.019)
Sales	–0.049	0.011**	0.006	0.015**	–0.009	–0.002
	(0.033)	(0.005)	(0.008)	(0.006)	(0.007)	(0.002)
Transportation	–3.966***	–0.416***	–1.575***	0.822***	0.144	0.147
	(0.460)	(0.139)	(0.154)	(0.091)	(0.093)	(0.162)
Health and Care services	0.065	0.364**	–0.274	0.606***	0.306*	–0.014
	(0.391)	(0.166)	(0.171)	(0.173)	(0.178)	(0.016)
Occupation controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,420	1,420	1,420	1,420	596	596
R-squared	0.124	0.114	0.124	0.157	0.110	0.132

Note: FE (col. 1–4) and OLS (col. 5 and 6) regressions. Monetary values are in real USD as of October 2011. Regressions also control for marital status, household size and occupations. Standard errors in parentheses clustered at level of destination city & year. Source: THPS 2007-09-11.

*** p<.1, ** p<.05, * p<.01

Table A-3: Falsification exercise

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Illegal work status (0/1)				
Fake crisis 2004	–0.022				
	(0.024)				
Fake crisis 2005		–0.046			
		(0.036)			
Fake crisis 2006			–0.078		
			(0.064)		
Fake crisis 2007				–0.081	
				(0.067)	
Fake crisis 2010					–0.101*
					(0.054)
R-squared	0.096	0.096	0.096	0.096	0.096
Observations	1,420	1,420	1,420	1,420	1,420
Dependent variable	Harassment (0/1)				
Fake crisis 2004 1	0.029				
	(0.023)				
Fake crisis 2005		–0.039			
		(0.032)			
Fake crisis 2006			–0.028		
			(0.059)		
Fake crisis 2007				–0.036	
				(0.065)	
Fake crisis 2010					–0.059
					(0.053)
R-squared	0.066	0.066	0.066	0.066	0.066
Observations	596	596	596	596	596

Note: FE (top panel) and OLS (bottom panel) regressions. All control variables from Table 1 are used in the regressions. Standard errors in parentheses clustered at level of destination city & year. Source: THPS 2007-09-11.
*** p<.1, ** p<.05, * p<.01

Table A-4: Comparison of crisis effects using a crisis dummy and negative deviations from the long-term wage trend

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variable	Duration (normal.)	Duratio (normal.)	Log wage (normal.)	Log wage (normal.)	Log income (normal.)	Log income (normal.)	Illegal work relation (Dummy)	Illegal work relation (Dummy)	Haras-sment (Dummy)	Haras-sment (Dummy)	Deportation (Dummy)	Deportation (Dummy)
Crisis	0.225***		–0.080**		0.089**		0.042**		0.061**		0.008***	
	(0.040)		(0.033)		(0.042)		(0.017)		(0.024)		(0.003)	
Negative deviation from the long-term wage trend		0.412***		–0.112**		0.171**		0.079*		0.039		0.003
		(0.101)		(0.056)		(0.084)		(0.045)		(0.035)		(0.015)
Observations	1,420	959	1,420	959	1,420	959	1,420	959	596	403	596	403
R-squared	0.080	0.080	0.097	0.097	0.087	0.087	0.097	0.096	0.066	0.064	0.027	0.024

Note: For better comparability, we use standardized and normailzed explanatory variables, as well as standardized and normalized dependent variables (in columns 1–6). FE (col. 1–8) and OLS (col. 9–12) regressions. Sample sizes are smaller than in Table 1 because some individuals cannot be matched to the available sector wage data in some years. Monetary values are in real USD as of October 2011. Regressions control for all control variables as in Table 1 of the paper. Standard errors in parentheses clustered at level of destination city & year. Source: THPS 2007-09-11, wage data are from Goskomstat.

*** p<.1, ** p<.05, * p<.01