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German Institute for Economic Research
Mohrenstr. 58
10117 Berlin

Tel. +49 (30) 897 89-0
Fax +49 (30) 897 89-200
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Labor markets and the Financial Crisis
Evidence from Tajikistan

Antje Kroeger, Kristina Meier[y]

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Abstract: The financial crisis in 2008/2009 substantially influenced the everyday social and economic life of many Tajik people, including their behavior in the labor market. However, not much is known about the dynamics of the labor markets of the transition economies, especially in the context of the current financial crisis. Arguably, this is mainly due to paucity

Two core questions are highlighted in this paper. First, does the world economic crisis impact the Tajik labor market? If so, how does the crisis affect individual labor market and migration decisions? In order to answer these key questions, a detailed analysis of the labor market outcomes before and during the crisis is conducted. Specifically, this paper examines the flows from wage employment, self-employment and unpaid work in the Tajik labor market during the crisis, analyzing a nationally representative panel dataset. The analysis focuses on labor market and migration transitions between the end of 2007 and 2009 by estimating Markov chain-style transition probability matrices for different subgroups. To our knowledge, this paper is the first to attempt such an analysis of a Commonwealth of Independent States (CIS) nation. This paper contributes to the academic literature on the consequences of financial crises on the labor market in general and the recent crisis in particular, focusing on the often-neglected Central Asian region.

Our results show that the financial crisis in 2008/2009 had a very strong impact on the Tajik labor market, particularly for women: over 40 percent of women moved out of wage employment during the crisis, while only 30 percent of men left wage employment. Further, 60 percent of women who were self-employment in 2007 had no paid work in 2009. However, in our paper, we only focus on the possible influence and not on the transmission channels of the financial crisis on labor market outcomes in Tajikistan. We can only measure the "impact" of the crisis by observing the differences between the years. Hence, the observed changes in the labor market are more likely to overestimate the actual impact of the crisis as there might have been other macroeconomic events, such as increases in food prices and high inflation, impacting labor market outcomes.

The remainder of this paper is organized as follows. The next section introduces some background on Tajikistan's economy, labor market and migration. In the third section, we give an overview of the current literature on the impact of the financial crisis in transition countries. In the fourth section, we describe the dataset. Our methodology is explained in section five. Results are presented and discussed in the sixth section, while section seven concludes.

2 Background on Tajikistan

2.1 Economy of Tajikistan and Crisis

Although Tajikistan enjoyed economic growth between 2005 and 2008, it remained the poorest state in Central Asia. More than half of its population lives below the national poverty line. Compared to its wealthier neighbors, Tajikistan has limited natural resources, principally aluminum [CIA, 2010], on which the economy relies heavily. There is also substantial cotton grown in the country.

After the collapse of the Soviet Union and its planned economy in 1991, Tajikistan experienced a long period of economic contraction [ILO, 2008]. The Tajik commodity specialization on aluminum and cotton has not changed significantly, even with the change in governance. Currently, the major consumer and importer is Russia [CIA, 2010]. Hence, during the 1998/1999 global financial crisis, Tajikistan heavily felt the Russian economic downturn [Robson, 2006]. The financial crisis in 2008/2009 mostly hit through falling labor demand in Russia and weak external demand for its export commodities, aluminum and cotton [ADB, 2010].

A sharp reduction in workers' remittances, mainly due to economic difficulties in Russia, along with weak demand for Tajikistan's main export commodities of aluminum and cotton were the major factors slowing Tajik GDP growth by more than half in 2009 (see Figure 1). Industrial production, making up about 30 percent of GDP, contracted by 6.3 percent [ADB, 2010]. Together with falling remittance inflows, this wracked private consumption, import demand, and house construction, especially in rural areas, where many households depend on remittances and cotton production. The International Monetary Fund (IMF) estimated that the poverty rate rose by 5 percentage points during 2009 [Kiyoshi and Kakhorjon, 2010].

2.2 Labor Market, Gender Issues and Migration Trends

The country's labor market changed dramatically during Tajikistan's transition from a planned to a market economy [ILO, 2008]. Since independence in 1991, decreasing production by, and closure of, state-owned companies led to massive job losses. Unemployment and under-employment are the major push factors encouraging emigration from Tajikistan. Within the Commonwealth of Independent States (CIS), Tajikistan is the country with the lowest average

monthly income [Olimova and Bosc, 2003]. Olimova and Bosc [2003] find that 14.5 percent of all interviewed migrants have never worked before leaving the country, thus indicating that poor labor prospects in the country spur migration. Without large emigration flows mainly toward Russia and Kazakhstan, in 2006, uno□cially, unemployment in Tajikistan was estimated to be as high as 40 percent, and in rural areas, it was estimated to exceed 60 percent [FRD, 2007].

Related both to the condition of labor migration and social attitudes, there is severe gender-segmentation in the labor force, with women working in the lower-paid sectors of agriculture, education, and health care [JICA, 2008]. There is also an overall decreasing level of involvement of women in the formal labor force. Under Soviet rule, 70% of all adult women and 78% of all adult men were employed. In 2003, 70 percent of men and 45 percent of women were in the workforce [ADB, 2010]; in 2008, the figures had shifted to 58 percent of men and 31 percent of women. There is also a substantial wage gap between men and women (TLSS 2009).

According to the Statistical Agency under the President of the Republic of Tajikistan (TAJSTAT), the majority of women work in agriculture, jobs that lack both secure employment and social protection. Further, agricultural jobs earn low salaries. , with women earning just under half of what men earn [JICA, 2008]. Womens' involvement in agriculture is extensive, however women largely participate as workers rather and not as managers. Despite reforming land laws and rules about the formation of individual or family farms that were a product of the breakup of the Soviet collective farms, women are only a small minority of family farm owners and managers. Often women are not aware of their rights, which were granted when the laws were reformed [USAID, 2010]. Further, stable income in the agricultural sector is strongly linked with the right to own land. However, most land is owned by men, leaving women disadvantaged. The low educational attainment of women also influences their economic activities. Due to existing gender discrimination, employers are reluctant to employ women and prefer employing men as they fear additional costs related to hiring women; for example maternal leave [ILO, 2008]. Men are almost twice as likely as women to be employed by more profitable private companies [Falkingham, 2000] As employment in this sector is traditionally better paid than public sector jobs in, for instance, government educational and health care institutions, women often find themselves economically dependent on their husband's income, thus

resulting in increased vulnerability [ILO, 2008]. This behavior forces women into informal employment or family work with its limited access to social protection schemes [ILO, 2008].

3 Related Literature

There is little empirical evidence on the impact of an economic crisis on the labor market in poor countries.

[Dimova et al., 2005] address the labor dynamics of the pre- and post- 1996 crisis in Bulgaria, using a panel constructed from the 1995 and 1997 Bulgarian Integrated Household Surveys and a Markov chain model of job mobility. Their results support the hypothesis of a substantial shrinkage of the public sector

Studying the impact of the crisis in the Kyrgyz Republic, a study by the OECD concludes that the Russian Federation toughened its migration legislation, which a□ected migrants in several ways: first, Russia introduced quotas for foreign labor force; second, the Russian legislative complicated the procedures for legal employment; and, third, Russia introduced a 30 percent income tax for non-Russian citizens (compared to 13% income tax for Russian citizens) [Lukashova and Makenbaeva, 2009].

4 Data

For our empirical analysis we use two waves from the Tajikistan Living Standard Survey (TLSS), which uses a two-stage sample design and is representative at the national, as well as the rural and urban levels. The sampling frame is based on the 2000 Census of Tajikistan. The questionnaires for 2007 and 2009 surveys are comparable and were designed as individual panel survey. The surveys were prepared by the World Bank in collaboration with UNICEF and carried out by the Statistical Agency under the President of the Republic of Tajikistan (TAJSTAT). The surveys include data on the socio-demographic composition of the household, labor market activities, the health and education of individuals, transfers to the household from various sources and a very detailed module on migrants in the household.

Well before the financial crisis, the first wave was collected between September and November 2007, and comprised of a total of 4,500 households and 32,000 individuals. In late 2009 (October and November), a randomly drawn subsample of these households (totaling to 1,503 households and 7,000 individuals) were reinterviewed. The subsample again was chosen to be representative at the national, as well as rural and urban levels. The TLSS only tracks individuals who stayed in their families over the two years in Tajikistan. The TLSS does not track migrants, regardless of their status in 2007 and 2009.

We restrict our sample to all working-age men and women between 14 and 65 years of age. After strictly balancing IN1311(Stat42nuri.%An)-402(in)-403(ri.%Ana)-48,ys62(The)uquin(TLnD

5 Methodology

The main goal of this paper is to shed light on the influence of the financial crisis on labor market outcomes in Tajikistan. An impact evaluation in the true sense of the word is not possible, since the counterfactual situation with an absence of the crisis obviously can neither be observed, nor proxied by a control group, since the crisis hit worldwide. That said, we nevertheless think that interesting findings can emerge from describing and comparing the states before and after the crisis in terms of labor market outcomes by estimating transition probabilities and (multinomial) probit regressions.

As previously mentioned, labor migration plays an important role in Tajikistan. In our analysis we assume the decision to migrate abroad for work is different from the other labor market decisions investigated here, which is why we examine them separately. First, we investigate the labor market decisions of individuals in the domestic labor market. Then, we analyze the household decision to send a migrant abroad.

5.1 Analysis of labor market outcomes

The analysis of labor market outcomes other than migration abroad is conducted at the individual level, assuming that this is where labor decisions at home are made. The subsample used includes only individuals from non-migration households, since sending a migrant abroad most likely has a significant influence also on the labor outcomes of the remaining household members. Not only must the costs of sending someone abroad be compensated, but family members also have to replace the missing person's labor. Due to its endogenous nature, a dummy indicating a migrant household cannot be included in the analysis. Since we did not find a suitable instrument, we resort to a separate analysis.

In our analysis of the domestic labor market, we look at four labor market outcomes: the dummy "no paid work" is one if an individual is either unemployed, inactive or a unpaid family worker [2]. The dummy "wage-employed" includes regular and piece-based employees and equals one if the individual is

[2] We tried to construct unemployment and inactiveness dummies, respectively, but sample sizes are too small for a meaningful distinction. Further, we have reason to believe that the reported unemployment is largely underestimated, as in many other poor countries (see Literature Review) [Karnite, 2010].

engaged in wage employment. The dummy "self-employed" equals one if the individual is engaged in any self-employment activity.

In a first step, transition probabilities[3] between the labor market outcomes "no paid work", "wage-employed" and "self-employed" between 2007 and 2009 are calculated using a straightforward and simple count method. Where cell population permits, we further divide the category "wage employed" into "regular wage employed" and "piece-wise wage". With k states in both years, the transition probability matrix has the dimension k x k where the element p_{lm}, denoting the probability to move from state l to state m is given by:

$$p_{lm} = \frac{n_{lm}}{\sum_m n_{lm}}$$

with n_{lm} denoting the number of individuals who were in state l in 2007 and moved to state m in 2009. The denominator therefore is the sum over all individuals who were in state l in 2007.

To refine the analysis, these transition probabilities are calculated for different subgroups, according to age, gender and income quantile, and then compared.

In a second step, the transition probability matrices are calculated using a multinomial probit model. The advantage here lies in the fact that covariates can be included in the estimation of the transition probabilities.

In the multinomial probit model it is assumed that the utility an individual i derives from choosing alternative or category k is a latent variable y_{ik} described by

$$y_{ik} = x_i^0 \beta_k + \varepsilon_{ik}$$

Other than with the multinomial logit model, the error terms ε_{ik} are assumed to be multivariate normally distributed and are allowed to be correlated across categories, thus avoiding the assumption of independence of irrelevant alternatives (IIA), which can cause problems when using a multinomial logit[4]. The multinomial probit regression is run on the 2009 labor outcomes, divided

[3] The concept of transition probability matrices is taken from the analysis of Markov chains. In our context, however, we only observe two time-periods, with an external shock (i.e. the financial crisis) between them. Therefore our interest is not to estimate the parameters of a

into different subsamples determined by the labor outcome of the individual in 2007. In other words, this means that the first subsample consists of the 2009 outcomes of those who were without paid work in 2007 (with "no paid work" being the base category against which the other outcomes are evaluated). The second subsample consists of the 2009 outcomes of those who were wage employed in 2007 (with "wage employed" being the base category against which the other outcomes are evaluated) and the third subsample consists of those who were self-employed in 2007 (with "self-employed" being the base category against which the other outcomes are evaluated). The transition probabilities p_{lm} are then estimated as the predicted probability of choosing state k over the base category.

5.2 Analysis of labor migration

As already mentioned above, the decision to migrate abroad is assumed to take place at the household level, therefore transition probabilities into and out of labor migration are estimated on the household level. The methods used are the same as for the domestic labor market, only the number of possible states reduces to two (namely "household has at least 1 labor migrant" and "household has no labor migrant"). Unfortunately, additional descriptive analyses of labor migration on the individual level are not possible, since the data do not allow for tracking of migrants between the two years. Only individuals who stayed in Tajikistan for both years can be tracked, thus limiting the possibilities of analysis.

6 Results

6.1 Labor market transitions

6.1.1 Descriptive

Table 3 shows the percentages of different labor market outcomes for both 2007 and 2009. The first panel combines the figures for both men and women, and shows a significant increase in the percentage of individuals without paid work

while self-employment decreased, however, both differences over the year are not significant according to the two-sample t-test applied.

When looking at panel 2 and 3, which display the percentages for men and women respectively, it becomes clear that the decrease in regular wage employment, as well as the slight increase in employment on a piece-wise basis is mainly driven by female labor market force. Since the percentage of women without paid work is traditionally high in Tajikistan [JICA, 2008], no significant change in female unpaid work is observed between 2007 and 2009. Hence, the increase in individuals engaged in unpaid work is mostly driven by men.

Some of these changes in the employment structure might be explained by the

tion is that during the crisis, entrepreneurship became more risky, hence, those involved in self-employment rather chose to look for wage work because of risk aversion.

If only men, as well as both genders together are investigated, the data permits repetition of the above estimations differentiating between regular wage employment and employment on a piece-wise basis. (For females alone, cell populations are too small to yield meaningful results). These results are shown in Table 5. Here it can be seen that the increased transition probability from self-employment into wage employment is mostly due to an increase in piece-wise, rather than regular wage employment. This is also in line with our descriptive statistics.

To investigate the influence of age and wealth (measured as per capita expenditure quintiles in 2007) on the transition probabilities, outcome categories had to be reduced to "no paid work" or "paid work", due to insufficient cell populations. The results can be seen in Figures 2 and 3. The characteristic, u-shaped relation between age and employment presents itself clearly. Very young people, as well as those close to retirement, have a noticeably higher probability of moving from paid work into unemployment, inactiveness or unpaid work in 2009. This is not a surprising result, considering the fact it is harder to find a job when reaching old age in most places.

Further, we also calculate transition probabilities for the different expenditure quintiles in 2007. As seen in Figure 3, the results suggest no noticeable differences, suggesting that the effects of the economic turmoil was not just limited to poor families.

In a second step, we run a multinomial probit regression estimating the transition probabilities, including explanatory variables on the individual, household and community levels in 2007 (Tables 1 and 2).The following model was fitted:

$$\text{labor status in 2009} = + {}_1\,\text{age} + {}_2\,\text{age}^2 + {}_3\,\text{gender} +$$

$$+ {}_4\,\text{knowrussian} + {}_5\,\text{secondaryeducation} + {}_6\,\text{dependencyratio} +$$
$$+ {}_7\,\text{location} + {}_8\,\text{altitude} + {}_9\,\text{materialsector 07} +$$

$_{10}$ percentagewageemployed + $_{11}$ hhhead +

The resulting transition probabilities are quite similar to those obtained using the simple count method. Tables 8 to 10 show the transition probabilities, as well as the marginal effects of the covariates. As already expected after the preceding analysis, age (even after accounting for its nonlinear relationship with the outcome) seems to have a positive effect on being engaged in paid work (i.e. wage-employed or self-employed), however the effect of age is only significant when the initial labor status (in 2007) is "no paid work". An exception is observed for the initial state of self-employment. Here, age seems to be negatively associated with the probability of staying in paid labor. However, due to the small sample size (only 265 individuals were self-employed in 2007), results need to be interpreted with caution.

Being male has a clear positive effect on the probability of moving into or staying in paid labor. There is also a significant effect of language skills: The effect of knowing Russian seems to positively affect the chances of wage employment (however, coefficients are sometimes insignificant).

Coming from high-altitude areas negatively influences the probability of having a paid job, which makes sense, considering poorer infrastructure and overall worse living conditions in the highlands. However, the effect is usually quite small and often not significant. Living in an urban area has a negative effect on being in paid employment, which is not intuitive and needs further investigation. One possible explanation might be that finding a job in agriculture, which is not an option in an urban setting, might be comparatively easier.

The sector of individual's employment prior to the crisis seems to have a strong influence on 2009 labor status outcomes. Previous work in the material (i.e. the producing) sector has a significant negative effect on remaining in wage employment. This reflects the fact that the producing sector of Tajikistan was hit especially hard by the crisis, since it relies on exports. While the effects of the dependency ratio within the household, as well as whether an individual has at least secondary education are somewhat ambiguous, there seems to be a clear pull-effect of the intra-household percentage of wage-employed[6]. Apparently

a company or with the government is easier if some family member already has his or her foot in the door. This effect is especially pronounced for the subsample of those self-employed in 2007. However, the magnitude of the coefficient should be interpreted with caution, since the sample size is quite small.
Finally, being the household head also seems to have a positive influence on staying in or moving into paid work. Maybe this can be explained with the increased pressure to provide for the family. It could also be that the family identified the main bread winner as the head in the questionnaire.

6.2 Analysis of labor migration

6.2.1 Descriptive

Table 7 compares percentages of households without, with one, or with more than one labor migrants both before and after the crisis. We define a migrant household as a family which at some point during the last 12 months had at least one household member who went abroad to work. This definition includes

give tentative evidence for this, showing a significant, yet rather small increase in pre-arranged jobs (to better cope with tightened labor market regulations), as well as in expulsions from the host country due to legal issues (involving work permits, etc.).

The most likely reason for this is the reduced wage received by migrant workers abroad, which makes increased migration necessary. The descriptives in Table 7 also hint in this direction. Another possible explanation is that during the financial crisis finding work at home in Tajikistan was even more difficult than working abroad.

6.2.2 Probability

Again, transition probabilities are estimated using the simple count method, as well as the predicted probabilities, in this case from a probit model (since the outcome ("HH has at least one migrant, yes/no") is binary). Here, a similar model as in the previous section is fitted. However, since we estimate the decision to send a household member abroad at the household level, we adjust our covariates. We control for the sex and education ratio in the household, characteristics of the household head (age and education) and for farmland, received transfers, dependency ratio and working-age individuals in the household.

Table 11 shows the results (those derived from the simple count method are again quite similar and are therefore omitted). As expected after looking at the descriptive results, having a migrant is a relatively persistent state, the transition probability of having at least one migrant in 2009 if the household was already a migrant household in 2007 is around 60%. Also, having at least one migrant in 2009 when there were none in 2007 has a relatively high transition probability of approximately 26%.

Table 12 gives the marginal effects of the probit analysis. While the ratio of working-age household members, as well as the gender ratio have the expected positive sign, the working-age ratio is not significant for the subsample of migrant households in 2007. This can be due to the fact that the cell population is very small with only 366 observations. The percentage of family members knowing Russian is significant with the expected positive sign only for the subsample of migrant households in 2007, indicating that families with a better knowledge of the Russian language are more likely to send a household member abroad. The amount of arable land per capita, in theory, has a negative effect

on sending a household member abroad, since the more land, the more family members are needed to farm it [McKenzie and Rapoport, 2007]. This is also true for our empirical findings, when the variable land per capita is significant.

7 Conclusion

Do macroeconomic shocks impact employment patterns in poor countries? Our aim is to make a first attempt at resolving this question by analyzing the effects of the financial crisis in 2008/2009 on the Tajik labor market, using TLSS panel data from 2007 and 2009. Keeping in mind that our analysis does not have the methodological rigor of an impact analysis that is able to identify causality, our results nevertheless give some interesting clues about possible effects of the crisis on labor market outcomes.

Our results suggest a strong persistence of unemployment, inactivity and unpaid labor (all three combined in the category "no paid work") during the crisis, making the transition to paid work very hard. Here, gender also matters: women are more likely to stay in unpaid jobs or lose their paid employment. Further, transition from paid work into unemployment, inactivity or unpaid labor is more likely for the very young and those already close to leaving the workforce. The data, however, do not show an impact of per capita expenditure quintile in 2007 on this transition probability, which is somewhat surprising. Both wage employment and self employment reduce, where the self-employed seem to be most affected by the crisis, either leaving to unemployment or piece-wise wage employment. A general explanation for our results is that in times of economic crisis, companies are more reluctant to employ people on a regular contract basis. They often dismiss employees due to falling demand and sales. As a consequence, some individuals cease regular wage employment and start looking for other employment opportunities, resume studying or just stay at home. Secondly, having one's own small business becomes more risky, driving entrepreneurs either into (mostly) piece-wise employment or out of paid work entirely. This pattern is not only true in developed countries, but also seems to be true in the case of one of the world's poorest countries.

The multinomial probit analyses suggest that being male, household head and/or having a high percentage of family members in wage employment all have a positive impact on staying in or moving into paid labor, whereas living

in mountainous regions or an urban setting reduces this probability. Previously having been employed in the producing sector also has a significant negative effect on the probability of staying in wage employment.

Labor migration, which plays a big role in Tajikistan, is investigated separately and at the household level, since it is assumed that the decision to migrate abroad is made by the household rather than the individual level. Data show an increase in households with at least one labor migrant between 2007 and 2009, suggesting that labor migration may be a mitigation strategy for coping with the effects of the crisis at home in Tajikistan. However, the analysis of labor migration at this point is quite superficial and leaves room for further research.

Concluding, it can be said that although an impact evaluation in the true sense is impossible for the situation at hand, investigation of transition probabilities into different labor market statuses before and after the crisis hint at a worsening of labor market outcomes in Tajikistan during the time of the crisis. Labor migration to Russia, although on average more risky and less lucrative than before the crisis, looks like a possible mitigation strategy.

In our paper, we only focus on the possible influence and not on the transmission channels of the financial crisis on labor market outcomes in Tajikistan. Further research needs to be done on the transmission channels through which workers are affected, as well as the impact of increased migration on welfare and poverty on remaining household members.

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Table 1: Definition of Variables

Name of Variable	
Individual Level	
age	Age of the person
sex	One if male, zero if female
know_russian	Dummy indicating whether person knows Russian
edu_sec	Dummy indicating whether person has at least secondary education
material_07	Total amount of educational expenditures Dummy indicating whether person worked in the material (productive) sector in 2007
no paid work	One if person is either unemployed, has no paid work or is inactive
wage regular	One if person has regular wage employment
wage piece	One if person has piece-based wage employment
self-employed	One if person is self-employed
HH Level	
dep_ratio	Dependency ratio within the hh
location	One if household lives in urban area, zero if rural
tajik	One if household lives is tajik, zero if otherwise
altitude	Indicating altitude in which household resides
trans_cash	Dummy indicating whether hh has access to additional financing (through friends/relatives)
plot_pc	Per capita acreage of farmable land for each hh member
r_workage	Ratio of working-age people within hh
r_sex	Gender ratio within hh
r_edu_sec	Ratio of people with at least secondary education within hh
migrant	One if household has a migrant within the last 12 months

Table 2: Summary Satistics for Regressors

	mean	sd	min	max
Individual level				
age	34.9232	13.67659	14	65
sex	.4850673	.499818	0	1
know_russian	.5782737	.4938757	0	1
edu_sec	.7302265	.4438785	0	1
dep_ratio	.5686921	.5660815	0	5
urban	.3672465	.482094	0	1
altitude	853.4992	485.1448	308	3861
material	.3009518	.4587094	0	1
N	6094			
Household level				
r_workage	.6685156	.2328606	0	1
r_sex	.4914648	.1766429	0	1
r_edu_sec	.4898618	.2576771	0	1
trans_cash	.083612	.2768514	0	1
farmland_pc	3.257649	10.42101	0	175.75
r_know_russian	.4274777	.3228594	0	1
tajik	.7541806	.430644	0	1
altitude	917.2836	579.3367	308	3861
N	2990			

Table 3: Individual Labor Market characteristics

	2007	N	2009	N	09-07 Sign.
All					
no paid work	0.580	1789	0.608	1862	0.029 **
wage regular	0.214	631	0.180	545	-0.034 ***
wage piece	0.117	357	0.135	401	0.017
self-employed	0.089	265	0.077	234	-0.012
Men					
no paid work	0.423	637	0.461	681	0.038 **
wage regular	0.262	380	0.239	345	-0.024
wage piece	0.187	271	0.194	287	0.008
self-employed	0.127	186	0.106	161	-0.022
Women					
no paid work	0.726	1152	0.746	1181	0.020
wage regular	0.168	251	0.124	200	-0.044 ***
wage piece	0.052	86	0.079	114	0.026 **
self-employed	0.053	79	0.051	73	-0.002

* p < 0:10, ** p < 0:05, *** p < 0:01

Table 4: Transition Probabilities 1

	no paid work	N	wage	N	self empl	N
All						
no paid work	0.797	1445	0.141	249	0.061	95
wage	0.332	311	0.593	597	0.075	80
self-employed	0.417	106	0.371	100	0.212	59
Men						
no paid work	0.679	440	0.236	149	0.085	48
wage	0.295	181	0.607	400	0.098	70
self-employed	0.339	60	0.444	83	0.216	43
Women						
no paid work	0.862	1005	0.090	100	0.048	47
wage	0.403	130	0.566	197	0.030	10
self-employed	0.593	46	0.204	17	0.203	16

* p < 0:10, ** p < 0:05, *** p < 0:01

Table 5: Transition Probabilities 2

	no paid work	N	wage reg	N	wage piece	N	self-empl	N
All								
no paid work	0.797	1445	0.072	122	0.070	127	0.061	95
wage regular	0.307	182	0.478	322	0.167	94	0.048	33
wage piece	0.378	129	0.190	61	0.308	120	0.124	47
self-employed	0.417	106	0.168	40	0.202	60	0.212	59
Men								
no paid work	0.679	440	0.113	66	0.123	83	0.085	48
wage regular	0.246	90	0.503	200	0.191	64	0.060	26
wage piece	0.363	91	0.189	46	0.296	90	0.152	44
self-employed	0.339	60	0.201	33	0.243	50	0.216	43

* $p < 0:10$, ** $p < 0:05$, *** $p < 0:01$

Table 6: Individual migration characteristics

	2007	2009	09-07 Sign.
Job offer			
Yes	0.155	0.236	0.080 ***
No	0.845	0.764	
Know			
Yes	0.027	0.098	0.071 ***
No	0.973	0.902	

* p < 0:10, ** p < 0:05, ***

Table 8: Multinomial Probit Model: Labor outcomes in 2009 if no paid work in 2007

	(1)	(2)	(3)
migrant	no paid work	wage employed	self-employed
age	-.005***	.003***	.001***
sex	-.160***	.127***	.032**
knowing Russian	-.023	.044**	-.021
secondary edu	.018	-.036*	.018
dependency ratio	.039*	.-013	-.026**
location	.070***	-.071***	.011
altitude	.0001**	-.0001**	-.00002
per of wage empl	-.054	.171***	.117***
hh head	-.100	.081***	.019
Predicted probabilities	.800	.141	.059
N	1789	1789	1789

Marginal e□ects

* p < 0:10, ** p < 0:05, *** p < 0:01

Table 9: Multinomial Probit Model: Labor outcomes in 2009 if sef-employed in2007

	(1)	(2)	(3)
migrant	no paid work	wage employed	self-employed
age	.008**	-.010***	.002
sex	-.191**	.256***	.-066
knowing Russian	.096	.018	-.114**
secondary edu	.055	-.117*	.062
dependency ratio	-.050	.081	-.017
location	.031	-.144**	.113**
altitude	.0001*	-.0002***	.00003
material sector	.014	-.049	-.063
per of wage empl	-.235	.754***	-.520***
hh head	-.288***	.278***	-.010
Predicted probabilities	.413	.378	.209
N	265	265	265

Marginal e□ects

* p < 0:10, ** p < 0:05, *** p < 0:01

Table 11: Transition Probabilities for migration outcomes

	no migrant	migrant (1 ore more)
no migrant	0.739	0.261
migrant (1 or more)	0.406	0.594

Table 12: Probit Model: Household Decision to send migrant abroad

	(1)	(2)
migrant	HH with migrant in 07	HH without migrant in 07
r_workage	.186	.821***
	(0.38)	(3.94)
r_sex	1.32***	.978***
	(2.73)	(4.00)
r_edu_sec	.393	-.0761
	(1.16)	(-0.38)
trans_cash	-.432*	.0458
	(-1.87)	(0.32)
plot	.00238	-.0205***
	(0.20)	(-4.38)
r_know_russian	.758***	-.207
	(2.68)	(-1.37)
tajik	-.283*	-.0346
	(-1.72)	(-0.30)
gbao	-.182	.232
	(-0.86)	(1.33)
N	366	1129

Marginal e□ects; t statistics in parentheses

* p < 0:10, ** p < 0:05, *** p < 0:01

Figure 1: Gross Domestic Product, Percentage Changes

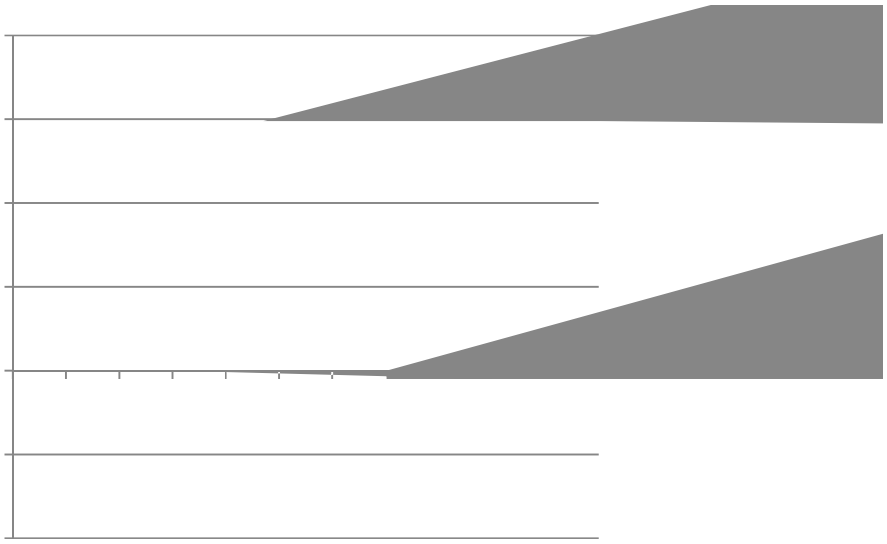

Figure 3: E□ect of wealth on transition probabilities