

# Migrant Remittances and Household Labor Supply in the Post-Conflict Tajikistan<sup>±</sup>

Patricia Justino<sup>±±</sup> and Olga N. Shemyakina<sup>±±\*</sup>

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## Abstract:

This paper studies the impact of remittances on household labor allocations in the post-conflict context. We use the 2003 Tajik Living Standards Survey. We find that the amount of remittances received by a household has a negative impact on the number of labor hours supplied by men. Our results show no significant impact on labor supplied by women aged 16-65. Women in the conflict affected areas supply more labor per fortnight as compared to women in lesser affected areas. This effect may indicate the substitution of female labor for the labor of men who died in the 1992-1998 armed conflict or left the country during the 1992-1998 conflict. The death toll and migration were predominantly male effects. For men and women an increase in average wage in the community decreases number of hours supplied. This effect is greater for women, a result consistent with other studies on migration and remittances.

*JEL codes:* J22 - Time Allocation and Labor Supply, F22 - International Migration, F24 – Remittances, O12 Microeconomics Analyses of Household Behavior

*Keywords:* International Migration, Remittances, Labor Markets, Tajikistan

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<sup>±±</sup> Patricia Justino, Visiting Fellow, WCFIA, Harvard University, Fellow, Institute of Development Studies, Sussex, U.K., co-director, Households in Conflict Network; director, MICROCON. [p.justino@ids.ac.uk](mailto:p.justino@ids.ac.uk)

<sup>±±\*</sup> Corresponding author: Olga Shemyakina, School of Economics, Georgia Institute of Technology, Atlanta, GA, 30332-0615, USA, [olga.shemyakina@econ.gatech.edu](mailto:olga.shemyakina@econ.gatech.edu), (323) 229 3180.

## **1. Introduction and Motivation: labor market effects and remittances**

Labor migration has become an important component of labor market dynamics in countries affected by armed conflict. This is reflected in the large increase in remittances originated from economic and political crises in migrant- and refugee-exporting countries (Goldring, 2003). Recent research has shown that economic incentives may be a dominant factor causing households to migrate, either as an ex-ante reaction to the threat of conflict, or an ex-post response to unstable economic and political conditions (Engel and Ibáñez, 2007; Czaika and Kis-Katos, forthcoming). These population movements are likely to have a considerable impact on the economic recovery of households in conflict areas. Households often make use of private transfers of incomes, assets and labor inputs from household members, relatives and social networks to smooth consumption and secure incomes in times of distress (see Rosenzweig, 1988). One important form of private transfers is remittances (Lucas and Stark, 1985; Rosenzweig, 1988, 1996; Rosenzweig and Stark, 1989; Yang and Choi, 2007). Little is however known about the impact of these on the economic welfare of households in conflict-affected countries.

Migration from conflict areas to safer countries can play a key role in mitigating some of the negative effects of armed conflict on livelihoods and the economic status of households (Justino, 2008). Remittances have the potential to be important mechanisms of household economic security both during and after conflict (Lindley, 2007). Justino and Shemyakina (2008) show that the receipt of remittances and residence in the conflict affected area are associated with higher total household expenditure while controlling for other household characteristics. Remittances can also greatly affect labor force participation decisions of household members, in particular the labor market participation of women and children, decisions that can impact significantly on the ability of vulnerable households to avoid the traps of poverty and destitution following the direct and indirect impacts of armed conflict on their welfare. In addition, remittances may have considerable impacts on the welfare of female-headed households where the main wage earner was lost to conflict (see Donovan et al., 2003). This potential impact has not yet been taken into account in the development economics literature.

In this paper, we use the 2003 data from Tajik Living Standards Measurement Survey to examine these questions. Remittances from household members constitute 15-17 percent of total household expenditure and are the second largest source of income after wages. Households residing in conflict affected areas receive higher amount of transfers than households who live in lesser affected areas. These are associated to larger total household expenditure, but migrant households do not differ from non-migrant sending households in the allocation of household expenditure towards food, education and medical expenses (Justino and Shemyakina, 2008). In this paper, we show a significant differentiation between migrant and non-migrant households in conflict areas in terms of labor allocation decisions. Similarly to previous literature, we find that the amount of remittances received by a household has an overall negative impact on the number of labor hours supplied by men. Our results show no significant overall impact on labor supplied by women aged 16-65. This is explained by differences in household labor allocation decisions between conflict-affected and lesser affected areas. We find that women in conflict affected areas supply more labor per fortnight as compared to women in lesser affected areas. This effect may well indicate the substitution of female labor for the labor of men who died in the 1992-1998 armed conflict or left the country during the war period.

The rest of the paper is organized as follows. Part 2 reviews the relevant literature on the effects of remittances on the labor market participation of women and men. Part 3 briefly introduces the reader to the armed conflict in Tajikistan and trends in labor migration from and remittances to Tajikistan. Part 4 discusses data and descriptive statistics. Part 5 presents the regression specification and empirical results. Part 6 concludes the paper.

## **2. Prior research on remittances and labor market participation**

Prior studies of remittances and migration have found significant changes in labor force participation, labor hours and their allocation across various sectors, in response to increases in remittances, and as compared to non-migrant-sending households (Amuedo-Dorantes and Pozo, 2006; Damon, 2007; Funkhouser, 1992; Rodriguez and Tiongson, 2001). These studies find a decrease in labor hours supplied

and labor force participation for working age men and women. While men are found to reallocate their labor hours from formal employment towards potentially riskier activities, such as self-employment, women tend to withdraw their labor from informal labor market activities. The decrease in labor hours supplied and labor force participation is typically found to be larger for women. The authors attribute these impacts to an increase in non-labor income, decreased opportunity cost of leisure and relaxation of credit constraints that allow a greater tolerance of risk and increase participation in self-employment.

Funkhouser (1992) was one of the first to examine the relationship between migration, remittances, labor force and self-employment participation using cross-sectional data from Nicaragua. He finds that an increase in remittances has a positive impact on self-employment and negative on labor force participation. Funkhouser attributes the first result to the relaxation of credit constraints and the second to an increase in non-wage income. He finds that for \$100 increase in remittance income (from 0) the probability of labor force participation decreases by 2.1 percentage points for males and 5.0 percentage points for females. Funkhouser also looks at the characteristics of migrants and finds that age, education and household size are positively associated with probability of migration and that males are 1.4 times more likely to migrate than females.

Rodriguez and Tiongson (2001) study the effect of having a migrant in a household on an individual probability of labor force participation by household members in urban Philippines. The authors find that having a migrant member in a household decreases probability of labor force participation of men by 9.4 percentage points. For women this effect is almost twice as large at 18.1 percentage points.

Amuedo-Dorantes and Pozo (2006) examine differences in hours worked in different types of employment by men and women in Mexico. Once endogeneity of remittances is corrected for, they find that remittances are associated with the variation of male labor supply across various categories of employment, with men supplying fewer hours to the formal sector and increasing their participation in informal sector. In contrast to men, women in rural areas work fewer labor hours in response to increase in remittances, which leads them to withdraw their labor from the informal sector and unpaid work.

Damon (2007) uses panel data from El-Salvador to study the effect of migration on allocation of labor hours within households. She finds that the decision to migrate affects family's labor allocation decisions for agricultural households, while the amount of remittances received does not have a significant impact. As household engages in migration, it increases labor hours committed to on-farm work and decreases number of hours committed to off-farm employment. The effect is the same for adult men and women and children.

Overall, the above mentioned studies show that women reduce their labor supply as a response to migration and remittances at a higher rate than men, who often reallocate their labor hours from formal into self- or informal sector employment. This body of research has been undertaken in peaceful settings where the labor effects of migration decisions amongst household members are analyzed in isolation from other household shocks. But what happens to households in conflict affected countries and regions that experience severe losses in working age male population due to war? In such regions, labor migration decreases the stock of available working age men even further. This additional effect may well lead to a positive relationship between migration of household members abroad and female labor force participation. Women may have to substitute for men in the labor force and aim to replace income previously brought by men. Such strategy may help households to smooth their consumption, especially, if remittances are received in an erratic fashion and thus, cannot be deemed a reliable source of income.

In these circumstances, migration and labor allocation at the household level are jointly determined. Some of the studies surveyed above have used an instrumental variables approach to tackle similar sources of endogeneity between migration decisions and labor household allocations. Amuedo-Dorantes and Pozo (2006) used per capita count of Western Union offices in the Mexican states interacted with household level education characteristics to increase variability of the instrument at the household level, while Damon (2006) used community level migration and variables correlated with remittances to address this problem. In this paper, we use the size of Tajik migrant networks in reception countries to account for potential endogeneity of household labor market allocation decisions. Before presenting these results, we describe briefly trends in remittances in Tajikistan before and after the 1992-1998 civil war.

### **3. Background: Overview of Remittances and Other Transfers in Tajikistan**

The 1992-1998 Tajik armed conflict claimed at least 100,000 of lives. About 18 percent of the country's population was displaced in the first few years of the war. Many of the refugees had returned to their homes by 1995. But while for some individuals migration was temporary, for others migration presented an unprecedented opportunity by creating social and economic networks of Tajiks outside Tajikistan. Access to such networks in the recipient countries was in turn associated with higher incomes for migrants and access to better jobs (Beaman 2008; Munshi 2003). Conflict and the devastation of the country during and after the war led to an increase in labor migration of Tajiks to other parts of the former Soviet Union (FSU). Migration to this region was facilitated by the shared Soviet culture, education system and fluency in Russian language.

During the past decade, labor migration and the influx of migrant remittances in Tajikistan have become widespread phenomena. By 2005 almost every family in Tajikistan had sent at least one family member abroad as a migrant worker (IMF 2005). Based on official statistical data (Table 1), 492.2 thousand people left the country between 1991 and 2005, which constitutes about 8 percent of the population. About 83.8% of the migrants left between 1991 and 1998. In the period between 2002 and 2005, the estimated number of Tajik migrants in neighboring countries varied within large margins: from 64,000 of registered Tajik migrants and 26,000 visitors to 600,000 to 800,000, respectively (Kireyev 2006). In the recent years, the demographic composition of migrants started to change. In the first few years of the migratory movement, migrants were predominantly middle-aged married males. In the last few years, the proportion of young unmarried men, married older women who leave children behind, and younger women with higher education, has increased (Olimova and Bosc, 2003).

Table 2 provides details on the size of remittances in relation to various items in the balance of payments of Tajikistan. Tajik migrant workers send home amounts that are considerably higher than remittances send by workers in traditionally high remittance countries. For example, private remittances to Bangladesh, Egypt and Morocco do not exceed 10 percent, while the remittances to Tajikistan are

estimated to fall within the range of US\$400 million to US\$1 billion a year, or 20 to almost 50 percent of the GDP (Kireyev 2006). More than 620,000 seasonal migrant workers (about 18% of adult population) annually travel from Tajikistan to Russia, Uzbekistan, Kazakhstan and Kyrgyzstan (Kireyev 2006). Remittances from temporary and permanent migrants significantly contributed to reducing poverty rate in Tajikistan between 1999 and 2003 (World Bank 2004). Further, in 2003, remittances and other transfers to households ranked as a second largest income source after wages, and constituted about 10 percent of average household income (World Bank 2004).

Despite the large extent of labor migration from Tajikistan since the 1990s, the significance of remittances for the local economy was not noticed until recently due to a sudden surge in registered remittances from 2002 (Table 2). In 2003-2004, when migrants started to send funds to their families through the banking system, remittance figures became more prominent in Tajikistan's balance of payments (Kireyev 2006). Official figures are nonetheless likely to misrepresent the true level of remittances in Tajikistan as it is difficult to separate migrant remittances from private transfers (between households) and no system exist that measures remittances from informal flows of money. Only one-quarter of all remittances go through formal channels. These exclude foreign goods (Olimova and Bosc, 2003). Estimates from household surveys are more likely to record remittances received by households through all channels (Kireyev 2006). We rely on household data to analyze the impact of remittances on household labor allocation decisions in the next section.

#### **4. Data**

To study remittances and their impact on household labor supply, we use household data from the 2003 Tajik Living Standards Measurement Survey (TLSS 2003). This survey was conducted by the State Statistical Agency of Tajikistan in cooperation with the World Bank and several Tajik and international agencies. The TLSS 2003 contains detailed information on household composition, employment, consumption and expenditure, migration, private and public transfers for a sample of 4,160 households. The survey provides information on individual migration within Tajikistan and on the periods of time

individuals aged 14 and above live outside Tajikistan. 6.4 percent of a total of 16,847 individuals reported that they lived abroad for 3 months or more between 1998 and 2003. On average, they spent 11.7 months abroad. 89% of individual migrants report having gone abroad to look for a better paid job, 5.8% to start a business and 1.8% to study. 9.6 percent of 4,160 households interviewed in 2003 indicate that they received either a monetary or in-kind remittances from a family member located abroad in the last 12 months. 93 percent of these migrant household members live in Russia, while the rest resides in Kazakhstan, Uzbekistan, and other countries.

The survey also has detailed information on monetary and in-kind transfers received by household from family members and institutions, such as NGOs. Transfers from government, such as various pensions and allowances, are accounted for in a separate section of the survey.

In this paper we focus on the analysis of “external transfers” or remittances that are monetary and in-kind transfers sent by family members living abroad. The data does not contain socio-demographic information on migrant workers who are currently abroad and who send remittances.<sup>1</sup>

In order to capture the effects of the war on household labor behavior, throughout the analysis below, we divide migrant and non-migrant households into two groups. The first group lives in areas severely affected by the armed conflict of 1992-1998. The second group lives in areas that were affected to a lesser extent. The conflict affected areas are districts (raions) of Tajikistan that were severely affected by the 1992-1998 Tajik civil war. This variable indicates that a *raion* (district) experienced high levels of conflict and insurgent activities, violence and atrocities against the civilian population between 1991 and 1998. The information on conflict events is based on the news reports in local Tajik newspapers in particular, Narodnaya Gazeta and Vechernii Dushanbe, reports of the UN agencies, the U.S. Department of State, human rights organizations and other literature on the Tajik civil war. A possible limitation of this variable is that it may not include all communities that were affected during the war because the published accounts of conflict activity may have overlooked smaller incidents or lesser known

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<sup>1</sup> The only information available on individual migrants is the relationship of each to the household head. The majority of migrants fall into three categories: the household head himself or herself, spouses and children of household heads.



communities. Shemyakina (2008) provides a more detailed description of the variable “Reports of Conflict Activity” that is used to separate the regions into two groups. This distinction allows us to compare behavior of recipients in the lesser affected areas to more severely conflict affected areas.

#### **4.2 Descriptive statistics**

The summary statistics for migrant and non-migrant households from the 2003 TLSS are presented in Table 3. Overall, the characteristics of migrant-sending and non-migrant sending households are rather similar with small exceptions. Migrant sending households spend 2 somoni per month less per household member. The value of land owned by migrant-sending households is higher by 307 somoni (significant at 1%). Non-migrant sending households have a significantly higher dependency ratio. Such households also receive higher transfers from family members living in Tajikistan as compared to migrant-sending households.

Table 4 provides means and standard deviations of labor hours worked per household member in the relevant age group by migrant-sending status. This information is based on a 14-day recall period. In that time, men age 16-65 spent 16.28 and 27.46 hours working in migrant and non-migrant sending household respectively. This difference is significant at 1% level. Women from migrant sending households spent 3.04 hours fewer working as compared to women from non-migrant sending households (significant at 5% level). The difference is reversed for men ages 66 and above. Men ages 66 and above from migrant-sending households reported to have spend 11.15 hours working as compared to 6.61 hours worked by men from non-migrant sending households (the difference is significant only at 10% level). There are no significant differences in hours spent in paid employment for adolescents ages 14-15 and women ages 66 and above by migrant-sending status. In the following section, we focus on the 16-65 age category for both men and women.

## 5. Empirical Approach and Results

### 5.1 Empirical approach

Our empirical strategy is based on Amuedo-Dorantes and Pozo (2006) who use a IV-Tobit model to estimate the relationship between the amount of remittances received by a household and supply of labor hours. The IV-Tobit model allows us to account for the zero-values of labor hours and for the endogeneity of remittance income. We instrument the amount of remittances with the proportion of community members who have lived abroad in the last five years. A similar variable was used by Damon (2007) to proxy for the size of migrant network. The larger the size of the migrant network, the lower will be an individual migrant' adjustment cost at the destination and the monetary and psychic costs of migration. As in Amuedo-Dorantes and Pozo (2006), we estimate the following equation using IV-Tobit model:

$$(1) \quad Y_i = \alpha_0 + \alpha_1 R_i + \alpha_2 Z_i + \varepsilon_i$$

with  $\varepsilon_i \sim Normal(0, \delta^2)$  and

$$Y_i = \max(0, Y_i^*),$$

where  $Y_i$  is the number of labor hours worked in the last 14 days by household members aged 16-65.  $R_i$  is the monthly remittance level received by the household in Tajikistan.  $Z_i$  is a vector of exogenous household characteristics, such as age, gender of and years of education completed by household head, dependency ratio (number of dependents to number of adults ages 16-65), and household size. The estimation results are presented in the next section.

### 5.2 Results: Labor Market Effects of Remittances

We focus on the analysis of the effect of the amount of remittances on number of labor hours supplied in the last 14 days for all 16-65 year olds. In line to previous findings in the literature, we expect increases in non-wage income to the household to lower labor force participation of both men and

women. We find a strong effect of an increase in remittance income on the number of working hours supplied by households and per household member in Tajikistan.

We estimate two sets of equations. In Table 5, the dependent variable is number of hours worked by all household members ages 16-65. In Table 6, the dependent variable is number of hours worked per household member ages 16-65. The regressions are estimated separately for men and women.

In Table 5, we estimate Tobit models with and without IV for the number of labor hours supplied by household members ages 16-65, for females (Columns 1-2) and males (Columns 3-4). We find that overall household male labor supply varies significantly due to changes in remitted income. A one standard deviation increase in monthly remittance income (25.64 somoni) is associated with 5.6 hours decrease in monthly labor hours supplied by household males aged 16-65. This is equivalent to 4.14 somoni per month, or 7.8 percent of mean household expenditure per capita (using the 2003 mean hourly wages for Tajikistan of 0.74 somoni per hour as estimated from the 2003 TLSS data). This effect is possibly due to remaining males in migrant-sending households having to contribute to household informal sector work or to agriculture work, and thus reduce their formal sector participation. Since the survey was conducted in June-July 2003, it is highly unlikely that men who remain in the migrant households are migrants themselves as labor migrants usually travel through summer and return home in winter.

We do not find any statistically significant impact of remittances on the overall female labor supply in formal sector employment. This effect is robust across rural and urban areas. This result may be due to significant differences in labor supply of men and women in Tajikistan. On average, working age women supply 41.20 hours per month as compared to 67.16 hours supplied by men in the same age group.

Men in female-headed households supply 10.09 fewer labor hours (significant at 5% level), while women in such households put in 23.73 hours more every 14 days (significant at 1% level). An increase in hourly wage (community level variable) decreases the number of labor hours worked for both, men and women. The effect is stronger for women.

The most compelling results we observe relate to the additional household impact of indirect war effects. Residence in conflict affected areas still decreases the amount of labor hours supplied by men, but increases significantly the number of labor hours supplied by women. Increased labor force participation by women in conflict affected areas is most likely due to the necessity of such participation. Human losses during the war and the predominantly male labor migration mean that men became “rarer” and thus more valuable. These phenomena should increase their bargaining power at home and in the labor market.

Table 6 repeats the estimation in Table 5 using a different dependent variable, namely the number of labor hours supplied per household member aged 16-65. Similar to results in Table 5, overall household male labor supply is responsive to changes in remittance income, while female labor supply does not get significantly affected by changes in remittances. A 100 somoni increase in monthly remittances (about 30% of the average total household expenditure) is associated with 10 hours biweekly decrease in male labor hours. This represents a decrease of about 30% in the number of labor hours supplied per male household members aged 16-65 (Table 6, Col. 4). Females from households headed by women supply 10 hours more bi-weekly as compared to women in households headed by men. The result is opposite for males.

The compounded impact of the war and remittances is similar to that obtained in table 5. Women in conflict affected areas supply 3.35 hours more per fortnight as compared to women in lesser affected areas. Labor supply of both, men and women is positively related to dependency ratio, years of education completed by household head and residence in the rural areas. Women from rural areas supply 20 hours more bi-weekly as compared to only 5 extra hours supplied by men. For both, men and women an increase in average wage in the community decreases number of hours supplied. This effect is greater for women.

## **6. Discussion**

We trace the impact of international remittances on the labor supply of working age men and women in post-conflict Tajikistan. We account for endogeneity of remittance income and examine differences in the hours worked in the primary job by men and women aged 16-65 in areas that were

significantly affected by conflict and in areas that were less affected, owing to differences in their household remittance income.

The results indicate that higher remittance incomes appear to be associated with a reduced male labor supply in paid employment. Remittances may increase the household budget and lessen household dependency on income from the local labor market. This effect is particularly dominant for males. Women's labor supply in paid employment is not responsive to increases in remittance income. It is possible that remittance income from migrants is uncertain, both its level and the timing of arrival, and this uncertainty is reflected in no significant effects of amount of remittances received on the number of labor hours supplied by women. However, this result changes when we take in consideration the combined impact of the war and migration on household labor allocation decisions. We find that women residing in areas more severely affected by the 1992-1998 civil war supply more labor hours per woman aged 16-65 as compared to women from lesser affected regions. This effect may indicate substitution of female labor for the labor of males who may have died in the 1992-1998 armed conflict or migrated. The results show further that human losses in the war and predominantly male labor migration lead to higher reservation wages for men in these areas. This is an empirical question that we plan to explore it further. Also our future research will consider other aspects of labor market that may be affected by migration, such as labor force participation by individual household members, distribution of the labor hours across formal and informal sectors and self-employment.

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Table 1 - Migration Flows, Tajikistan 1991-2005 (thousand persons)

Year	Arrived	Departed	Migration inflows (+)/ outflows (-)	Including: arrived from abroad	Including: left for abroad	International migration inflows (+)/ outflows (-)
1991	74.9	101.3	-26.4	20.0	48.6	-28.6
1992	51.3	146.0	-94.7	11.3	104.7	-93.4
1993	71.4	146.1	-74.7	12.0	86.3	-74.3
1994	43.3	88.8	-45.5	6.6	55.1	-48.5
1995	37.1	74.9	-37.8	5.5	45.3	-39.8
1996	26.1	53.7	-27.6	3.7	34.1	-30.4
1997	20.2	37.0	-16.8	3.3	21.1	-17.8
1998	16.9	32.3	-15.4	2.7	17.6	-14.9
1999	14.7	28.8	-14.1	1.8	14.7	-12.9
2000	14.5	28.2	-13.7	1.7	14.6	-12.9
2001	16.7	29.1	-12.4	1.7	12.9	-11.2
2002	17.7	30.2	-12.5	1.4	12.0	-10.6
2003	16.9	27.9	-11.0	1.4	10.2	-8.8
2004	15.2	24.6	-9.4	1.1	7.9	-6.8
2005	18.0	27.3	-9.3	1.1	7.3	-6.2

Source: State Statistical Committee (2006).

Table 2 - Migrant Remittances and Their Relative Size in Tajikistan Balance of Payments

	2000	2001	2002	2003	2004	2005
<i>Net Migrant Remittances</i>	0	-1	65	82	133	321
Inflows	1	4	78	146	252	465
Outflows	-1	-5	-13	-64	-119	-144
Gross remittances/ Exports (%)	0	1	11	18	23	42
Gross remittances/ Trade Deficit (%)	3	3	63	72	167	146
Gross remittances/ FDI (%)	3	47	356	456	93	852
Gross remittances/ Net Borrowing (%)	2	70	560	456	-149	932
Gross remittances/ Gross Reserves (%)	1	4	82	108	133	207

Source: IMF and National Bank of Tajikistan (as quoted in World Bank, 2006).



Table 3 - Summary statistics by migrant-sending status

Variable	Migrant-sending hhds			Non-migrant-sending hhds		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
HH members ages 0-7	399	1.39	(1.46)	3761	1.23	(1.35)
HH members ages 14-15	399	0.30	(0.49)	3761	0.32	(0.52)
HH members ages 16-65	399	4.03	(2.21)	3761	3.43	(2.03)
HH members ages 66 plus	399	0.23	(0.52)	3761	0.24	(0.52)
Age hh head	399	49.79	(14.09)	3761	48.88	(14.92)
Class compl hh head	313	10.35	(3.52)	3681	10.54	(3.93)
Female hh head	399	0.21	(0.41)	3761	0.20	(0.40)
Househ.size	399	6.89	(3.30)	3761	6.22	(3.08)
Dependency ratio (dep-nts/adults 16-65)	399	0.83	(0.70)	3761	0.95	(0.83)
Household members engaged in agriculture	399	0.57	(0.44)	3761	0.53	(0.45)
Total expenditure, somoni	399	334.25	(279.75)	3761	293.29	(211.60)
Total expenditure per capita, somoni	399	52.16	(39.56)	3761	54.16	(43.46)
Household is poor (exp pc<=absolute poverty line of 47.06 som/month)	399	0.56	(0.50)	3761	0.57	(0.50)
Number of donors abroad	399	1.09	(0.34)	3761	0.00	(0.00)
Amount of remittances, last 12 months	399	754.00	(688.49)	3761	0.00	(0.00)
Number of hhd donors in Tajikistan	399	0.07	(0.28)	3761	0.14	(0.45)
Transfers from donors in Tajikistan, last 12 months (somoni)	399	18.74	(112.62)	3761	48.81	(236.46)
HH has donors internally	399	0.06	(0.23)	3761	0.12	(0.32)
Value of land, somoni	399	1532.4	(2475.04)	3756	1225.2	(2251.49)
Value of livestock, somoni	399	1214.1	(2527.03)	3761	1319.4	(7504.66)
Value of assets, somoni	270	19.2	(114.80)	2368	318.6	(4497.69)
Rural residence	399	0.63	(0.48)	3761	0.63	(0.48)
Residence in the conflict affected area	399	0.70	(0.46)	3761	0.69	(0.46)
Prop-n of working age pop-n in psu migrated internally since 1990	399	0.08	(0.14)	3761	0.08	(0.15)
Prop-n of working age pop-n in psu migrated externally since 1998	399	0.12	(0.08)	3761	0.07	(0.07)

Table 4 - Labor hours worked per household member in the relevant age group by household migrant status and age.

Variable	Migrant-sending hhds			Non-migrant-sending hhds			Diff	P-value
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.		
Ages 16-65								
all	391	16.58	(16.07)	3670	27.46	(19.26)	-10.89	(0.00)
women	385	17.86	(20.85)	3596	20.90	(23.56)	-3.04	(0.02)
men	377	16.28	(21.63)	3364	35.53	(24.87)	-19.25	(0.00)
Ages 14-15								
all	111	6.90	(15.52)	1103	5.84	(15.73)	1.05	(0.50)
women	63	6.87	(16.08)	555	5.57	(14.44)	1.30	(0.50)
men	50	6.65	(14.69)	585	6.26	(17.19)	0.39	(0.88)
Ages 66 and above								
all	74	8.07	(17.72)	754	4.73	(13.85)	3.34	(0.05)
women	40	3.33	(12.43)	474	2.36	(8.82)	0.96	(0.52)
men	52	11.15	(21.09)	439	6.61	(17.35)	4.54	(0.08)
Ages 14 and above								
all	399	15.40	(15.50)	3761	24.08	(17.73)	-8.68	(0.00)
women	393	16.46	(19.76)	3699	18.42	(21.51)	-1.96	(0.08)
men	385	15.59	(20.31)	3489	31.64	(24.01)	-16.05	(0.00)

Table 5 - Comparative Tobit Estimates: No IV vs. IV 2 stage values (Marginal Effects)

	ages 16-65: women		ages 16-65: men	
	No IV	2stage IV	No IV	2stage IV
	1	2	3	4
total, external donor transfer	-0.003 [0.004]	-0.033 [0.023]	-0.026*** [0.003]	-0.200*** [0.026]
Reports of conflict activity	9.632*** [2.439]	9.914*** [2.468]	-7.321*** [2.039]	-5.042* [2.849]
Rural	36.945*** [2.702]	36.599*** [2.735]	12.666*** [2.199]	11.497*** [3.038]
Age of household head	0.356*** [0.091]	0.349*** [0.092]	-0.075 [0.077]	-0.085 [0.107]
Years of educ completed by hh head	1.734*** [0.339]	1.734*** [0.342]	0.610** [0.285]	0.716* [0.396]
Indicator for missing info on educ of hhhead	-5.011 [5.898]	6.128 [10.282]	-88.655*** [6.387]	-22.973* [12.312]
Dependency ratio	-11.195*** [1.408]	-11.784*** [1.488]	-19.790*** [1.313]	-23.242*** [1.884]
Household size	5.098*** [0.404]	5.485*** [0.501]	8.038*** [0.343]	10.088*** [0.565]
Female, head household	22.519*** [3.001]	23.734*** [3.164]	-19.871*** [2.961]	-10.960** [4.279]
hourly wage, psu, no outliers	-13.686*** [1.994]	-13.578*** [2.012]	-10.911*** [1.672]	-9.908*** [2.295]
Constant	-64.992*** [7.935]	-65.024*** [8.000]	26.175*** [6.453]	22.863** [8.967]
Observations	3981	3981	3741	3741
Wald test of exogeneity:				
chi2(1)		1.790		88.560
P-value		0.180		0.000
Log-likelihood	-14388.54		-17215.254	

Table 6 - Labor hours per household member, ages 16-65, Tobit vs IV 2-stage Tobit results

	ages 16-65: women		ages 16-65: men	
	No IV	2stage IV	No IV	2stage IV
	1	2	3	4
total, external	-0.001	-0.012	-0.013***	-0.103***
donor transfer	[0.002]	[0.012]	[0.002]	[0.013]
Reports of conflict activity	3.234**	3.335***	-2.700***	-1.523
	[1.274]	[1.284]	[1.007]	[1.440]
Rural	20.200***	20.077***	5.359***	4.764***
	[1.413]	[1.424]	[1.085]	[1.534]
Age of household head	0.144***	0.141***	-0.173***	-0.179***
	[0.047]	[0.048]	[0.038]	[0.054]
Years of educ completed by hh head	0.909***	0.909***	0.077	0.133
	[0.178]	[0.178]	[0.141]	[0.200]
Indicator for missing info on educ of hhhead	-1.622	2.394	-53.638***	-19.705***
	[3.064]	[5.341]	[3.061]	[6.144]
	2.678***	2.465***	5.185***	3.410***
Dependency ratio	[0.729]	[0.767]	[0.644]	[0.949]
	-0.334	-0.195	-0.237	0.822***
Household size	[0.214]	[0.263]	[0.170]	[0.285]
Female, head household	9.760***	10.199***	-8.822***	-4.172*
	[1.571]	[1.648]	[1.458]	[2.159]
hourly wage, psu, no outliers	-7.830***	-7.792***	-5.133***	-4.613***
	[1.042]	[1.047]	[0.824]	[1.157]
Constant	-17.749***	-17.766***	41.166***	39.504***
	[4.138]	[4.154]	[3.186]	[4.531]
Observations	3981	3981	3741	3741