Migration, Remittances, and Labor Supply in Albania [*]

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Abstract

This paper investigates the effect of international migration and remittances on labor supply in Albania. It attempts to deal with the potential endogeneity problems inherent in this type of analysis by instrumenting for the household migration decision and remittance receipts. When an instrumental variable approach is used, the predicted effects of migration and remittances on labor supply appear significant only for the males between the age of 46 and 60. The expected negative impact on unemployment, due to an income effect of remittances, among the female population in Albania, is not confirmed by the data. After instrumenting, for the females and for the older males, I obtain large and positive coefficients for having a migrant and large and negative coefficients for receiving remittances. Despite the insignificant at conventional levels effects for the female subsamples, the magnitudes and the signs of all estimated coefficients suggest that the OLS estimates of the effect of migration are likely biased downwards, while the OLS estimates for the effect of remittances are biased upwards, compared to the true effects of these variables.

JEL Codes: P2, J61, R23
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1 Introduction

The total number of migrants worldwide has doubled over the past several decades and migrant remittances have become the second largest source of external funding for developing countries after foreign direct investment (FDI) (United Nations, 2004). Currently, international migration is primarily driven by economic factors with refugees accounting for only seven percent of all migrants (World Bank, 2008). Unsurprisingly, after the disintegration of the Soviet Union, the number of emigrants from the post-Soviet countries increased immensely. By 2005 the number of natives living abroad as a percentage of the population of Armenia, Azerbaijan, Georgia and Moldova, for example, reached 27, 16, 23, and 17 percent, respectively (World Bank, 2008).

The emigration trends observed among the post-Soviet transitional countries vary substantially, but the Albanian economy is unique among them due to its exceptionally large and persistent emigration and remittance flows. According to recent World Bank estimates, in 2005 Albania was ranked fourth in the world in the share of emigrants on population: 27.5 percent of the Albanian population lived abroad, mostly in Greece and in Italy. By way of comparison, the estimated shares of emigrants of other traditionally studied labor exporting countries, such as El Salvador, Mexico, Nicaragua, and the Philippines, are all much lower than the estimate for Albania: 16.4, 10.7, 12.5, and 4.4 percent, respectively. In 2006, remittances were 13 percent of Albania's GDP, exceeding more than three-fold the FDI as well as the total amount of development aid received by the country. Figure 1 provides a summary of the migrant stock and remittance estimates for Albania and other countries in the region that have experienced large emigration during the recent years[1] and Figure 2 presents work-

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[1] Bosnia and Herzegovina is excluded due to the 1992-1995 period marked by the political con-

ers' remittances in Albania as share of the country's GDP, FDI, and the official development aid for the period 1992-2006.

The extraordinary volume of migration and remittances is likely to have important consequences for the Albanian economy. As stressed in Rapoport and Docquier (2006), besides the possible short-run economic consequences through the effect on domestic prices and exchange rates, remittances may also have long-run implications for the households' labor supply decisions, occupational choice, and investment in household business. Figure 3 is based on employment and remittances data from 2001 for Albania and for other comparable countries in the region. It shows the linear fits between the female employment rate, the male employment rate, and the difference in percentage points between the male and female employment rates and the shares of remittances on GDP. The figure suggests that there might be a relationship between remittances and labor force participation. However, these aggregate relationships are based largely on the comparison of two outliers, Albania and Serbia and Montenegro, with other migrant-sending countries, and they may be obscured by, e.g., the selection of more employable workers into migrant status. It is therefore important to provide a joint understanding of migration decisions and the effect of remittances on migrant-sending households using individual level data.

Although a large body of empirical literature studies the impact of migration on the migrant-sending economies (Borjas, 1999; Lucas, 2005), the effects of remittances remain relatively poorly understood (Yang, 2008). Particularly little is known to-date about the extreme case of Albania, where remittances are an important source of income for an unusually large number of households.

flict with Serbia and Montenegro and the resulting refugee out-flows. A large number of the displaced citizens of Bosnia and Herzegovina have decided to permanently settle in foreign countries not only for economic, but also for security and psychological reasons (Ibreljic et al., 2006).

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The restructuring of the public sector during the economic transition in Albania was not accompanied by a fast enough growth in the private sector to provide jobs for the relatively young Albanian population, which led to soaring unemployment.[2] Although the current official unemployment rates in Albania do not appear strikingly high, the actual unemployment might be several times higher than the official data shows, exceeding 30 percent, the difference largely attributable to the wide-spread near-subsistence farming (Central Intelligence Agency, 2009). The only study on Albania (Konica and Filer, 2009), which explores the effects of migration and remittances on the labor supply of the household members left behind, uses data from 1996. Based on the finding that higher remittance incomes are associated with lower probability of working for the Albanian females, Konica and Filer (2009) conclude that a potential easing of the visa restrictions for Albanians (for example by the European Union countries) may bring considerable benefits to the Albanian economy by reducing unemployment pressures. As Albania is approaching EU candidate status, revisiting the relationship between migration and the Albanian labor market has become particularly relevant.

The current paper uses recent household survey data to study the effects of migration and remittances on the labor supply decisions of the household members who remain in Albania. I estimate the effects of having a household member abroad and of receiving remittances, controlling for a number of individual and household characteristics, on the probability of being involved in either paid or non-paid occupation. Similar to the findings for the mid-1990s by Konica and Filer (2009), when treating all regressors as exogenous, I find no significant effect of having a household member abroad on the probability that a household member

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[2]According to Barjaba (2000) 19.5 percent of the Albanian population in 1989 was between the ages of 15 and 24.

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who still lives in Albania works. However, unlike in the earlier findings, I find no significant effect of remittances on the probability of working for the females, and a negative and significant (although small) effect for the males. It should be noted, however, that the total number of males in the households with migrants is relatively small.[3] When an instrumental variable approach is used to correct for the possible endogeneity of the decision to send a household member abroad and of receiving remittances, the predicted effects of migration and remittances on labor supply appear significant only for the males between the age of 46 and 60. The expected negative impact on unemployment among the female population in Albania, due to an income effect of remittances, is thus not confirmed by recent data. After instrumenting for migration and remittances, the estimated effects of having a migrant are consistently large and positive while the estimated effects of remittances are consistently large and negative for the females and for the older males. Despite the insignificant results for the females, the magnitudes and the signs of the estimated coefficients imply that the OLS estimates of the effect of migration are likely biased downwards while the OLS estimates for the effect of remittances are biased upwards compared to the true effects of these variables. This suggests negative endogeneity bias between migration and labor supply and positive endogeneity bias between remittances and labor supply. Since the gaps in earnings and employment rates between Albania and its EU neighbours continue to be large, the migration trends of the recent years are unlikely to reverse in the near future (Barjaba, 2000). The findings presented in this paper are thus helpful for understanding some of the long-run implications of emigration for the Albanian

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[3]In the sample of male non-migrant household members I work with, the number of working age males who live in households with migrants is less than one third the number of working age males who live in households without migrants.

economy.

2 Related Literature

Unlike other capital flows, such as foreign aid and FDI, remittances accrue directly to the household budgets and are an important source of income in migrant-sending regions (Rapoport and Docquier, 2006). An increasing number of studies explore the economic consequences of migration through the impact of migration and remittances on the households' decisions as regards to labor supply and productive investments. In order to provide a convincing estimate of the impact of migration and remittances, however, one must be able to control for the selection of workers with different employment rates into the migrant status as well as use exogenous variation in the remittance receipts.

In a study on Mexico Amuedo-Dorantes and Pozo (2006) use the number of Western Union (WU) offices per capita in the region to instrument for the amount of remittances the households receive. The number of Western Union offices for the year preceding the survey is used to focus on the effects of the predetermined, and thus exogenous, variation in remittances. The authors examine the effect of remittances on male and female employment patterns and find that Mexican males do not decrease their labor supply in response to received remittances but only reallocate their labor supply across types of employment, taking up more jobs in the informal sector. The results suggest that Mexican males are likely compensating for the loss of a domestic earner in the household, who has emigrated. In rural areas of Mexico, however, the number of hours females work in the informal sector and in non-paid occupations is found to decrease with the amount of the remittances received.

A study on the Philippines by Yang (2008) also suggests that migration and remittances affect the type of employment of the non-migrant household members. Yang (2008) uses the appreciation of the currency of the migrant's host country against the Philippine peso during the 1997 Asian crisis as a source of exogenous variation in the value of the remittance transfers. The results imply that the total number of hours of child labor supplied by the households decrease with more favorable exchange rate shocks while the total number of hours worked in self-employment increase.

The uses and the impact of remittances are closely related to their motivation. Lucas and Stark (1985) is the first empirical study that distinguishes and tests for the relevance of different motives behind the migrants' remitting behavior. The authors find that migrants remit more to those households that are in danger of income loss due to adverse weather conditions, i.e., remittances are motivated at least partially by altruism on the side of the migrants. Wealthier households also receive more remittances, which is consistent with the hypothesis that egoistic motives are also present, as migrants are attempting to defend their rights of inheritance and their position within the household and the community upon return.[4] Recently Rapoport and Docquier (2006) provide a comprehensive survey of the existing literature on the motivations to remit, which has established that migration is an implicit contract among household members who ensure each other against income loss by sending migrants abroad.

The literature on the motivation behind migrants' remittances has led to some recent hypothesis for the effect of migration and remittances on the labor supply of those who stay behind. The large distance between migrants and non-migrants implies that

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[4]This result could also stem from the effect of correlated unobservable "ability" characteristics of migrant and non-migrant members within the same household.

migration as an intra-familial insurance mechanism is associated with high information and enforcement costs and both migrants and non-migrants have an incentive to reduce their work effort. As Chen (2006) points out, the difficulty to monitor the allocation of remittances is largely neglected in the literature on the impact of migration. Chen (2006) develops a model based on the assumption that in the presence of asymmetric information, as it is the case with the migration of a household member, household decision making may not be fully cooperative. He suggests that since it is difficult for the migrant to monitor the work effort of the spouse who stays behind, a non-cooperative spouse, whose utility increases in the amount of leisure she obtains, would reduce the time she works. Chen (2006) supports his theoretical argument with an analysis of the China Health and Nutrition Survey data. Among the empirical findings is that mothers work fewer hours in both income-generating and household activities when the father migrates. Although the reduction in the number of income-generating work hours may be a result of the income effect of remittances, Chen (2006) attributes the total increase in the mothers' leisure to non-cooperative behavior on the part of the spouse who stays behind and remains in charge of the household's expenditures and resource allocation. A stance similar to that of Chen (2006) is taken by Chami et al. (2003) whose findings from the analysis of macroeconomic data are consistent with the hypothesis that remittances are transfers sent by altruistic migrants to compensate the non-migrant household members for adverse economic outcomes. Chami et al. (2003) argue, however, that these transfers might be used by the recipients to reduce job search effort, labor supply, and might discourage labor market participation overall.

Azam and Gubert (2006) examine the possible disincentive ef-

fect of remittances on work effort among agricultural households from the Kayes area in western Mali in Africa. The authors observe that, on average, households with migrants receive higher incomes per capita but their incomes from agricultural and non-agricultural activities are lower compared to households without migrants. Wealthier households also earn lower incomes while receiving more remittances. This outcome might be due to positive selection on migrant status. Nevertheless, Azam and Gubert (2006) conclude that migration in this region of Africa resembles an implicit insurance system with opportunistic behavior on the part of the non-migrant household members whose work effort cannot be perfectly monitored by the migrants. The conclusion is based on the finding that households, for which the probability of receiving remittances is higher, use their productive resources less efficiently compared to households without migrants and households that are less likely to receive remittances.

Unlike Yang (2008), the present analysis focuses on labor supply outcomes on individual rather than household level since male and female household members are likely to respond differently to migration and remittances. This paper also builds on the previous study on Albania by Konica and Filer (2009) who use survey data from 1996 and point to two offsetting effects of remittances on labor force participation. On one hand, the opportunity costs associated with the loss of domestic income earnings when a member of the household emigrates may force those who remain at home to increase their labor supply in order to compensate for that loss. On the other hand, if leisure is a normal good, the household members may respond to the income effect of higher household income from remittances by reducing their labor supply. Konica and Filer (2009) find that neither the existence of emigrants in the household nor the amount of remit-

tances received has an effect on the labor force participation of the Albanian males. Among Albanian females, however, higher remittance incomes are associated with lower probability of labor force participation. The findings of Konica and Filer (2009) also suggest that migrants' higher earnings abroad contribute to the development of household-owned businesses in Albania. In particular, members of households with returned migrants in Albania are more likely to be employed in a household business. While the findings of Konica and Filer (2009) are representative of several studies suggesting that the negative effect of remittances on female labor force participation is a response to higher incomes from abroad, the direction of causality between migration, remittances and labor supply remains to be established. It is unclear whether the migration decision as well as the decision to send remittances is not, in fact, influenced by lack of employment opportunities at home.

There are to-date only two empirical studies on the impact of migration in Albania, which recognize the importance of the exogeneity of the migration regressor and use instrumental variable techniques. In the first study McCarthy et al. (2006) analyze the impact of international migration on the agricultural sector. The authors find that the greater the number of household members abroad, the less agricultural labor those who stay behind supply. Nevertheless, the additional source of capital from remittances relieves financial constraints and allows the migrants' households to invest and receive higher agricultural and total incomes. The proportion of the male population aged 20 to 39 in the region is one of the variables used by McCarthy et al. (2006) to instrument for the number of household members abroad. The variable is computed from the 2001 Population Census and its variation is likely a result of the intensity of the prior migration from the re-

gion. Since the majority of the Albanian emigrants are males in that age group, lower proportion would imply higher migration intensity until 2001 and thus, better access to migrant networks and lower information costs for the potential migrants from the particular region. While the variable is likely correlated with the household migration decision, its correlation with the household decisions regarding agricultural production is unlikely. As additional instruments McCarthy et al. (2006) use the density of cars within the region as a proxy of the costs of accessing migration networks and the regional unemployment rate as a proxy for the local non-agricultural income generating opportunities and opportunity costs of emigrating. At the household level the authors use the household's relative wealth position with respect to the neighbourhood reference population and the length of time at the current residence, both variables potential push factors for migration.[5]

The second study on Albania that uses instrumental variable strategies to estimate the impact of migration is Kilic et al. (2007). The rich survey dataset used for their, as well as this study—the Albania 2005 Living Standards Measurement Survey—provides most of the variables used to instrument for the total length of migration. The instruments used include whether a household member in 1990 spoke either Greek or Italian, whether the head of the household or the head's spouse had any family relative or friend living abroad in 1990, the distance in kilometers between the place of residence of the household and the closest major point of exit from Albania, the annual average number of economic and labor market shocks experienced by the household, and whether

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[5]According to Stark and Taylor (1989) the relatively poor households have stronger incentives to send members abroad as that would improve their relative wealth position within the neighbourhood; Longer-time residents are likely to have stronger relationship with the households from the surrounding area and thus lower information costs with regards to existing migration opportunities.

the household owned a satellite dish in 1990. The authors find a positive effect of the length of the period spent abroad on the probability of the household investing in own non-farm business upon the migrant's return.

In this paper I revisit the labor supply question of those left behind, considering the theoretical arguments and the empirical findings of other studies on the impact of migration and remittances. Given the long-term nature of migration and remittances, I look for recent evidence of their impact in Albania and compare the results with the previous findings by Konica and Filer (2009). In addition, I use instrumental variable approach, similar to Amuedo-Dorantes and Pozo (2006), Kilic et al. (2007), and McCarthy et al. (2006), in order to deal with the potential endogeneity of migration and remittance receipts.

3   Data and Variable Descriptions

The primary dataset used in this study is the Albania 2005 Living Standards Measurement Survey (Albania 2005 LSMS). The survey has been conducted during the period May-July 2005 by the Living Standards unit of the Albania Institute of Statistics (IN-STAT) with the technical assistance of the World Bank.[6] The total sample consists of 3,640 households. The survey collects information on each member of the selected households. After excluding the household members who have not been able to perform employment-related activities due to disability or chronic illness, I work with a final sample of 4,367 male and 4,717 female non-migrant household members of working age (15-55 for females and 15-60 for males).[7]

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[6]The data and all related documentation is available for download from the World Bank LSMS website: http://go.worldbank.org/IPLXWMCNJ0.

[7]According to the survey classification, all persons alive who have lived in Albania and in the respective household for at least one month during the preceding year and all guests whose stay

The survey results appear consistent with the aggregate data from other sources presented in Figures 1 and 3. The respondents report a total of 5,346 male and 1,556 female household members of all ages who live abroad. The male migrants are primarily between the age of 20 and 42 and the female migrants are mostly between the age of 25 and 40. This implies that a considerable part of the Albanian labor force finds employment outside Albania. More than one third of the interviewed households have at least one migrant. Sixty-four percent of the households with migrants receive remittances from abroad. A small percentage of the households without migrants (10%) also receive remittances from relatives who are not members of the household. For those households with migrants (and which do receive remittances) the average amount received per month per adult household member (15 years and above) is 114 Euros (147 US dollars) and for those households which do not have migrants but do receive remittances, the average monthly remittance receipts per adult person are 22 Euros (28 US dollars).[8] According to the survey results most of the remitting individuals are males between 22 and 30 who are either heads of households or sons of the household head and his spouse. Four to five times more males than females are reported to have sent remittances from abroad during the year preceding the date of the survey. Table 2 is a summary of the characteristics of the two types of households—those which have members abroad and those which do not.

In my subsequent analysis I focus on estimating the effect of

with the household exceeds six months are considered present household members. Among those there are 180 individuals who report employment abroad during the week prior to the survey. I consider these household members to be migrants and exclude them from the sample on which I perform my analysis.

[8]Since the majority of the Albanian migrants work in Greece and in Italy, for the most part the respondents report the amount of remittances they have received in Euros, therefore I measure incomes in Euros and not in US dollars. In order to convert the incomes which are not reported in Euros I use the historical exchange rates from May 1, 2005 obtained from `http://www.oanda.com/convert/fxhistory`.

the following two dichotomous variables—whether the household has at least one household member (previous or current) who lives abroad and whether the household has received remittances from abroad during the year preceding the survey date. Although the variation in the actual amount of remittances appears sufficient to account for variation in the dependent variable, a major concern with using the actual amount of remittance income is the very high probability of measurement error. Exact income from remittances for one year prior to the survey date can easily be mismeasured, leading to biased estimates of the coefficients and their standard errors. With a dichotomous variable for remittances, however, the measurement error is likely zero.[9] In Table 1 the households are split into four groups depending on whether they have a household member living abroad and/or received remittances. The table also shows the average number of adult household members (as a percentage of all adult household members) who have reported work of any kind for each household group. It is evident that the households that do not have members abroad and do not receive remittances also have the highest percentage of working adult members.

In order to draw a comparison with the observations made in earlier studies I compare the incomes of the households with and without migrants. The Albanian households that do not have migrants abroad appear relatively poorer despite earning higher incomes domestically, compared to the households with migrants. I estimate the kernel densities of total monthly incomes per adult household member both including remittances and excluding remittances for the two types of households (Figure 4). I also per-

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[9]The more recent literature on migration acknowledges the tendency of underreporting remittances in household survey data. Grigorian et al. (2008) provide a detailed discussion of the issue as well as evidence of systematic underreporting of remittances in survey data from Armenia. Korovilas (1999) attempts to correct for underreporting of remittances in Albania and finds that the total remittance inflows to Albania in the early 1990s exceed the official statistics by approximately 75 percent.

form Kolmogorov-Smirnov (K-S) tests and reject the hypotheses that the monthly incomes per adult member excluding remittances and the monthly incomes per adult member including remittances have equal distributions for the two types of households.[10] In addition, I perform t-tests for equality of the average incomes. When remittances from abroad are included, the average monthly incomes per adult household member in the two types of households are not significantly different. However, when remittances are excluded from the total incomes, the t-test confirms the result that the average monthly incomes per adult person are lower in the households without migrants (see Table 2). To some extent the results of the Albania 2005 LSMS are in line with the observations made for western Mali by Azam and Gubert (2006).

The dependent variable of interest is whether the household member has worked or not during the seven-day period preceding the survey interview. All individuals employed by a non-household member, paid workers in a household business, employers, workers on own account, and unpaid workers in household farms are all considered working. This definition avoids the problem of unregistered employment, a wide-spread phenomenon in Albania, especially in the rural areas. In fact, 31.6 percent of the household members in the sample report unpaid work in household farms, 22.6 percent are employers or work on own account and only 45.8 percent are employed by a non-household member or are employed by and receive payment from a member of the household.[11]

Finally, I include the following variables as exogenous regressors: age, age squared, the highest level of education completed (secondary or university), place of residence (Tirana or other ur-

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[10]The respective combined K-S D statistics are 0.200 and 0.073. Both hypotheses are rejected at $p > 0.99$.

[11]This is a strong indication that the official unemployment rates in Albania are likely misleading, confirming claims by sources other than the Albanian Institute of Statistics.

ban area), presence in the household of one or more children who are younger than six years, the amount of other non-labor income, and the regional (prefecture) unemployment rate in 2005 which I obtained from INSTAT. The non-labor income explanatory variable is the sum of all non-labor income, excluding remittances from abroad, received by the household in the preceding twelve months. It includes gifts from relatives and other persons and institutions in Albania, rental income, revenue from sale of assets, inheritance and lottery or gambling winnings. A person with a secondary education has completed either a general or a vocational secondary school. Individuals with university education are those who have completed a university or a post-graduate degree in Albania or abroad. In order to control for regional factors affecting the probability of a person being employed, I include the unemployment rate in 2005 for the respective administrative region (prefecture) as an explanatory variable. Albania is divided into twelve prefectures with an average number of economically active population of 90,447 according to data from INSTAT. Each prefecture has experienced different levels of unemployment and emigration and remittance flows over time. Finally, Table 2 contains the splits by place of residence for the migrant and non-migrant households. Households with and households without migrants appear almost equally likely to reside in both the rural and the urban areas of the country. However, fewer of the households with migrants (15%) live in the capital Tirana, compared to the households without migrants (19%).[12]

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[12]This may be explained by the fact that since the fall of communism Tirana has also been a substantial recipient of internal migrants from Albania. Among the working age Tirana residents in the sample, 56.6% had previously lived in another municipality. The majority of these individuals (91.6%) have moved to Tirana between 1989 and 2005. Such peak in internal migration towards other urban areas in Albania is not observed in the data. With relatively better employment opportunities compared to the rest of the country, Tirana may be considered an "affordable" alternative to international migration by some Albanian households.

4 Estimation and Results

I investigate the effect of migration and remittances on labor supply in Albania, i.e., I attempt to determine whether having a migrant abroad and/or receiving remittances affects the decision to work of those household members who remain in Albania. A formal analysis that extends beyond a mere comparison of descriptive statistics aims to detect whether migration and/or remittances received imply different labor supply decisions for the migrant families, controlling for a number of household and individual characteristics.

A Linear Probability Model (LPM) is estimated for the probability of a household member to be working on the subsamples of male and female household members separately. Eighty-four percent of the male household members who live abroad are between the age of 20 and 45. This implies that the male migrants fall into the same age group as the male household members who are the most likely to be employed in Albania as well. To avoid the implied sample selection problem, in addition to the pooled subsamples of all working age males and all working age females, the analysis is also performed separately only for the males within the 46-60 age group. I also analyze separately only the married female household members, as their labor supply behavior is likely to differ from the labor supply behavior of the single females.[13]

For each subsample I estimate the following equation:

$$Y_i = a_0 + a_1 M_i + a_2 R_i + a_3 X_i + \varepsilon_i \tag{1}$$

$$Y_i = 1[Y^* > 0] \tag{2}$$

$$\varepsilon_i \sim Normal(0, \sigma^2) \tag{3}$$

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[13]I add the few instances of individuals who cohabit with their partner to the subsample of the married individuals.

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where Y is a binary dependent variable denoting employment, M is a binary variable for the presence of at least one migrant household member, R is a binary variable for remittance income and X is a vector of exogenous individual and household characteristics, which likely affect individual labor supply, such as age, education, place of residence, presence of young children, other non-labor income, and the regional unemployment rate. The results of the OLS estimation for all four groups of individuals are presented in Table 3.[14] The OLS coefficients for having a migrant are small and statistically insignificant for all subsamples. The coefficient for remittance receipts is significant at the 5% level and negative only for the pooled subsample of all working age male household members.[15] Thus, the findings on the effect of remittances differ considerably from the findings of Konica and Filer (2009).[16] The difference in the results I obtain and the results in Konica and Filer (2009) may be attributed to either an overall change in the labor supply behavior among the Albanian population since 1996 or to different preferences of those individuals who remained in Albania until 2005.

The LPM results presented in Table 3 also suggest that a university degree is associated with a large increase in the probability that a household member is working, particularly for the Albanian females, for whom the OLS coefficients for university education are significant at the 1% level and more than twice larger than

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[14]Due to distributional concerns, besides LPM I also estimate a Probit model on the data. The predicted marginal effects I obtain from the non-linear estimation are equivalent to the reported results from the LPM estimation. I also initially divided the subsample of single females into age groups but this did not lead to results substantially different from the ones presented in Table 3.

[15]Instead of regressing separately on migration and remittances, I also performed the analysis with only one interaction term for both variables. This did not alter the results reported in Table 3. I obtained small and statistically insignificant OLS coefficients for all subsamples except for the subsample of all males, for which the estimated OLS coefficient was *-0.044* with a standard error of *0.02* (significant at the 1% level).

[16]As Konica and Filer (2009) do, instead of treating R as a binary variable, I also perform the analysis using the actual value of the remittances received. All estimated coefficients are close to zero.

those for the males. The coefficients for age have the expected signs as well as the coefficients for the presence of young children, which are statistically significant only for the subsamples of the female household members. Higher non-labor incomes, other than remittances, through an income effect, imply lower probability of working for the male household members, while the relatively more abundant opportunities for informal work in the agricultural sector in the rural areas can explain the negative signs of the coefficients for urban and Tirana residence. The variable for the regional unemployment rate is based on official INSTAT data. As stressed above, the official data might not be correctly representing the actual employment conditions in each region and the signs and the statistical significance for the predicted effects of the regional unemployment rate should be interpreted in that light.

One of the assumptions for unbiased and consistent OLS coefficients in the estimation of (1) is that all regressors on the right hand-side of (1) are exogenous. Identifying the causal effects of migration and remittances, however, is problematic due to the possible correlation of these variables with the error term ε (Angrist and Krueger, 2001). Since migrant status and remittances cannot be expected to be randomly allocated across households and decisions on migration, remittances, and labor supply are likely made simultaneously, endogeneity between migration and remittances and the outcome of interest is a major methodological concern that plagues migration research. For each household, the factors which "explain" whether some household members work abroad and whether remittances are received may also be related to the household members' decision to participate in the labor force. Moreover, many of the factors and characteristics, which influence these decisions, are unobservable (e.g., ability, motivation, or risk aversion). In other words, if ability and motivation

influence both the decision to send a migrant abroad, and subsequently whether remittances are received, and the labor supply outcomes for the non-migrant household members, ability and motivation (which are both unobservable) will end up as a part of the error term which will become correlated with both migration and remittance receipts. More able and more motivated households could be more willing to send migrants (and also receive higher incomes in Albania that would in turn allow them to do so). The migrants from those households could also be earning higher incomes abroad and thus would be more likely to send remittances back home. The more able and highly motivated could also be more likely to be employed or receive higher incomes at home and therefore, not need to send migrants abroad. Alternatively, households with members who experience long unemployment spells might be more likely to send members abroad in order to compensate for lower domestic incomes.

The potential reversed causality, in addition to the unobserved heterogeneity and omitted variable bias, would imply that the OLS estimates in (1) are inconsistent. Dealing with this problem calls for an estimation approach that involves instrumental variables. By finding an instrumental variable that is correlated with migration or remittances but is not correlated with ability and motivation, one can use only the variation in the size of remittances that is uncorrelated with the error term. I.e. the instruments should not affect the labor supply decision of the household members other than through their effect on the migration decision and remittance incomes.

For instance, Amuedo-Dorantes and Pozo (2006) analyze the impact of remittances on employment patterns in Mexico by instrumenting for the amount of remittances with the number of WU agents per capita in each state in Mexico. The number of

WU offices during the year preceding their survey data is used in order to avoid possible endogeneity through simultaneous determination of the amount of remittances the households receives and their labor supply decisions. The instrument is also interacted with the percentages of household members with secondary and higher education to allow for household level variation. F-tests are performed to ensure that the instrument and its interactions are jointly significant in explaining monthly remittance incomes per household member. At the same time, the joint exogeneity of the instrument and its interactions with respect to labor supply is tested by including the error term from an equation predicting the amount of remittances into the labor supply equation and testing its significance (with and F-test).

The instrument which Amuedo-Dorantes and Pozo (2006) use in their study on Mexico is likely to be appropriate in the case of Albania as well. Forty percent of the transfers to Albania take place through money transfer companies and only a limited share through banks (World Bank, 2006). According to the World Bank report (2006), the role of commercial banks in remittance payments from Italy to Albania, for instance, is limited not only by the higher costs per transaction, but also by the small number of ATMs. Thanks to relatively lower transaction costs and the large number of agents across the country, in 2005 WU dominated the formal market for money transfers to Albania. In fact, WU conducted almost eighty percent of all money transfer transactions through financial institutions from Italy to Albania (World Bank, 2006).[17] It can be argued that the regions with higher density of WU agents also enjoy larger remittance flows and the households in those regions are more likely to receive remittances from abroad.

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[17]MoneyGram started to provide money transfer services to Albania only in 2004 and the first ATM in Albania was established in 2004 (World Bank, 2006).

Similar to Amuedo-Dorantes and Pozo (2006), I consider the number of WU agents per capita within a prefecture in Albania as one of the instrumental variables that can be used to predict the remittance receipts. I construct the instrument based on the contact information of each WU agent in Albania in 2003-2004. As already emphasized above, the 2003-2004 year is important (as opposed to 2005 when the survey was conducted) as it is likely that the number of WU offices in 2005 affects the labor supply decision of the household members in the sample, while the number of WU offices from the previous year is likely to be correlated only with whether the household receives remittances but not with the labor supply decisions of its members. Brief phone interviews were held with some of the WU agents where it could not be determined from the information in the telephone directory from 2003-2004 whether a particular WU agent has been in existence in 2004. For the purpose of comparison of the results, I also attempted to instrument for the amount of remittances per adult household member, rather than for whether remittances are received. However, finding an instrument that would predict the amount of remittances proved to be an unattainable task.[18]

In addition to a measure of the number of WU agents which Amuedo-Dorantes and Pozo (2006) use to instrument for remittances, I consider the instruments for migration used in the previous studies on Albanian migration by Kilic et al. (2007) and McCarthy et al. (2006), discussed in Section 2, as potential candidates for instruments for my analysis. I end up with a set of five instrumental variables which I use to identify and estimate the effects of migration and remittances in (1): the number of WU

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[18]Mapping the standard deviations of the remittance incomes and the incomes from other sources, conditional on the exogenous variables included in X, reveals relatively high variation in remittances. However, as mentioned in the previous section, by using a dichotomous variable for remittance receipts, instead of the self-reported amount of remittances received, one can avoid the biases associated with measurement error that is highly probable in this setting.

agents per capita in 2003-2004, ownership of a satellite dish in 1990, knowledge of Greek or Italian by a previous or a current household member in 1990 (including the migrant members), a proxy of the proximity to a migration network (a friend or a relative residing abroad) in 1990, and the male-to-female ratio for the population aged between 20 to 39 within a district. All these are likely to fulfil the criteria for a valid instrument, i.e., while they are likely to have influenced the migration strategy and remittance incomes of a household, they are not likely to be correlated with the labor supply outcomes of the household's members in 2005. Greece and Italy are the major destinations for the Albanian migrants and the ownership of a satellite dish is believed to have facilitated the mastering of Greek and Italian by the Albanians during the communist period and the early years of economic transition (Barjaba, 2000; Kilic et al., 2007). Knowledge of the language of the destination country can reduce the costs of migration as well as the migrant's ability to send remittances back home. Having families and friends who have been or are still abroad, as well as residing in a region where larger part of the population has emigrated implies proximity to migrant networks and lower cost of emigration as well. Table 2 provides the means and standard deviations for the five instruments for the households with migrants and the household without migrants. I also report the results of the tests I perform to confirm the relevance of the instruments for the four sub-samples I analyze in Table 4. The F-tests confirm that the instruments are jointly significant in explaining the two potentially endogenous variables. I test for validity of over-identification with a Hansen-Sargan test and also by testing for the significance of the predicted residual from the remittances and migration regressions in the labor supply equation. The results of both tests for the subsamples of all non-migrant females,

the non-migrant married females only, as well as the older non-migrant males, confirm that the instruments I use are correctly excluded from the labor supply equation, therefore I focus on the results for these three subsamples.

The results of the 2SLS estimations for the four subsamples are also presented in Table 3.[19] When an instrumental variable approach is used to correct for the possible endogeneity of migration and remittances, the predicted effects of both remittances and migration on the labor supply outcomes of the Albanian working age male and female household members, as well as for the subsample of married females only, appear to be statistically insignificant. However, the coefficients for migration and remittances for the subsample of working age males above 45 become statistically significant at the 5% level compared to the respective OLS estimates.[20] In addition, after instrumenting, for the females and for the older males, I obtain large and positive coefficients for having a migrant and large and negative coefficients for receiving remittances. Despite the insignificant coefficients for the subsamples of all females and only the married females, the magnitudes and the signs of all estimated coefficients for migration and remittances suggest that the OLS estimates of the effect of migration are likely biased downwards, while the OLS estimates for the effect of remittances are biased upwards, compared to the true effects of these variables, i.e. there is a negative endogeneity bias between migration and labor supply and a positive endogeneity bias between remittances and labor supply when assumed that migration and remittances are exogenous.

The predicted combined effects of migration and remittances

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[19]For the estimations with robust standard errors I use the ivreg2 procedure in Stata (Baum et al., 2002). The procedure also computes the Hansen's J-statistic reported in Table 4.

[20]The 2SLS coefficient (*-0.276* with a standard error of *0.10*) for one interaction term in place of the two endogenous variables in the sample of all females is also statistically significant at the 5% level.

for all four samples are presented in Table 5. For the 46-60 working age males, in particular, the estimated effects imply a combined positive endogeneity bias of migration and remittances and a combined effect of a 26 percent reduction in the probability of working if a household has migrants and receives remittances. In addition to using all five instruments, I perform the above estimations with different combinations of instruments. For the subsample of the 46-60 age group males, for instance, estimations involving different combinations of instruments lead to changes in the magnitude of the coefficients that imply a predicted combined effect of 20 to 50 percent reduction in the probability of working if a household has migrants and receives remittances. Although the effects cannot be estimated more precisely, when the two relatively weaker instruments for remittances are dropped—the number of WU agents and the proxy for migration network in 1990—the F-statistics from the F-tests for joint significance in explaining migration and remittances exceed the critical values provided by Stock and Yogo (2002) for two endogenous regressors and three instruments, confirming that the results are relatively insensitive to the particular combination of instruments employed.

In addition to performing the analysis with different sets of instrumental variables, I use migration and remittances separately as sole endogenous regressors. The estimated effects for both migration and remittances are large, negative, and insignificant for the two female subsamples, small, positive, and insignificant for the subsample of the working age males. For the 46-60 age group males I obtain a positive coefficient for migration and a negative coefficient for remittances (although of much smaller magnitudes compared to the estimates obtained when both regressors are included).

Despite its limitations due to predictions ranging outside the

(0,1) interval, the LPM is used in the literature when it is necessary to estimate effects of binary endogenous regressors on a binary outcome. The issue of using LPM in such cases has been addressed in Heckman and MaCurdy (1985) and in Angrist (2001). Heckman and MaCurdy (1985) show that in case of simultaneous LPMs, the instrumental variable technique results in consistent coefficient estimates and therefore is a valid procedure. According to Angrist (2001), a linear causal model estimated by 2SLS gives similar average effects to a probit or a logit model and is generally safer as the estimates obtained are consistent, whether or not the first stage conditional expectation function is linear. Angrist (2001) argues that, for dichotomous dependent variables, if one aims to estimate the causal effects on the outcome of interest— rather than structural parameters of latent variables model—a linear model is as appropriate as a non-linear one. In those cases the LPM has the advantage over non-linear models of allowing direct comparison of the estimates of the two-stage and the single-stage procedures. Furthermore, in the case of discrete covariates, OLS estimates with robust standard errors are appropriate (Wooldridge, 2001). As a robustness check I also estimate saturated models for all four groups in the sample. The results are sufficiently close to the ones presented in Table 3, which further justifies the choice of a LPM as estimation technique.

5 Conclusion

In this paper I use recent household survey data from Albania to estimate the effects of migration and remittances on the labor supply outcomes of the Albanian non-migrants. Given the long-term nature of the migration phenomenon in Albania, I compare my results with the previous findings on Albania by Konica and Filer

(2009). In addition, I use instrumental variable approach to deal with the potential endogeneity of migration and remittance receipts. Assuming that migration and remittances are exogenous, I find no significant effect of having a household member abroad on the probability that a household member who still lives in Albania works. With respect to remittance receipts, however, unlike in earlier findings, I find no significant effect on the probability of working for the females, and a small, negative, and significant effect for the males. When an instrumental variable approach is used, the predicted effects of migration and remittances on labor supply appear significant only for the males between the age of 46 and 60, with a combined effect of 20 to 50 percent reduction in the probability of working if a household has migrants and receives remittances. The expected negative impact on unemployment, due to an income effect of remittances, among the female population in Albania, is thus not confirmed by the recent data. However, after instrumenting, I obtain large and positive coefficients for having a migrant and large and negative coefficients for receiving remittances for the subsamples of the females and the older males. Despite the insignificant coefficients for migration and remittances for the female subsamples, the magnitudes and the signs of all estimated coefficients suggest that the OLS estimates of the effect of migration are likely biased downwards, while the OLS estimates for the effect of remittances are biased upwards, compared to the true effects of these variables. Since the emigration trends from Albania are unlikely to reverse in the near future, the findings presented in this paper are helpful for understanding some of the long-run implications of emigration for the Albanian economy.

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Figure 1: Migrant Stock as Percentage of the Population and Remittances as
Percentage of GDP
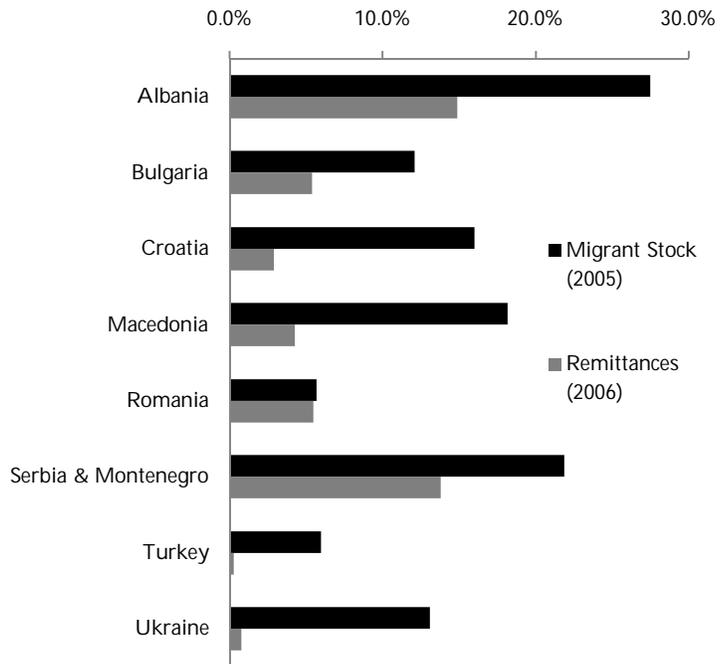
Source: World Bank Migration and Remittances Factbook 2008

Figure 2: Workers' Remittances as Share of GDP, Foreign Direct Investment
(FDI), and Official Development Assistance (ODA) and Official Aid (OA):
Five-year Moving Averages
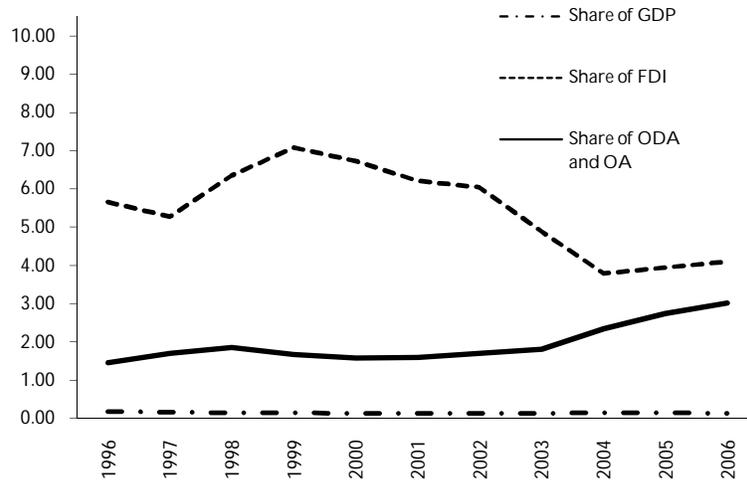
Source: The World Bank World Development Indicators 2008

Figure 3: Employment and Remittances

Employment Rates vs. Remittances

Employment Rates for Females vs. Remittances

Employment Rates for Males vs. Remittances

Male - Female Employment Rate Gaps vs. Remittances
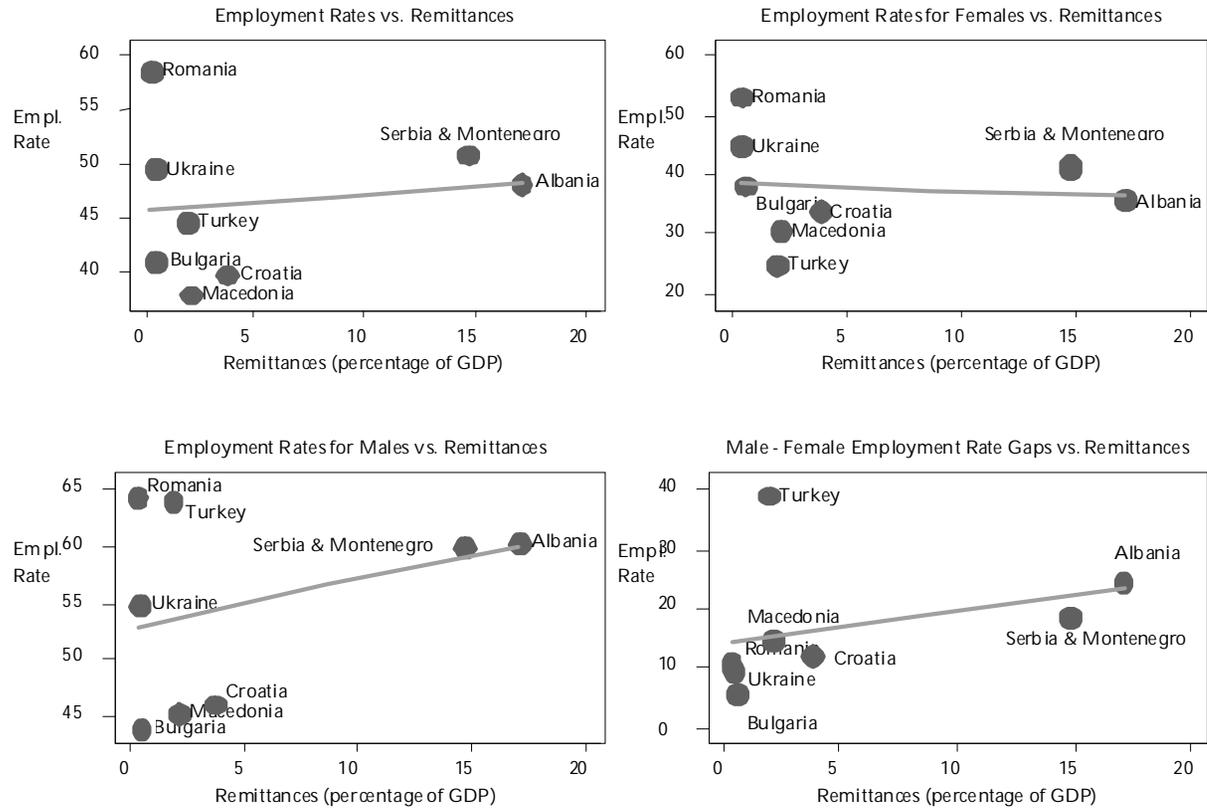
Data Source: ILO, WDI (2001)

Table 1: Number of Households and Percentage of Adult Household
Members Working by Migration and Remittance Income Status

		Household Receives Remittances	
		0	1
Household with Migrants	0	2,175 51.19%	243 49.62%
	1	438 44.46%	784 32.40%

Figure 4: Kernel Density Estimates of Logarithm of Income per Adult Household Member
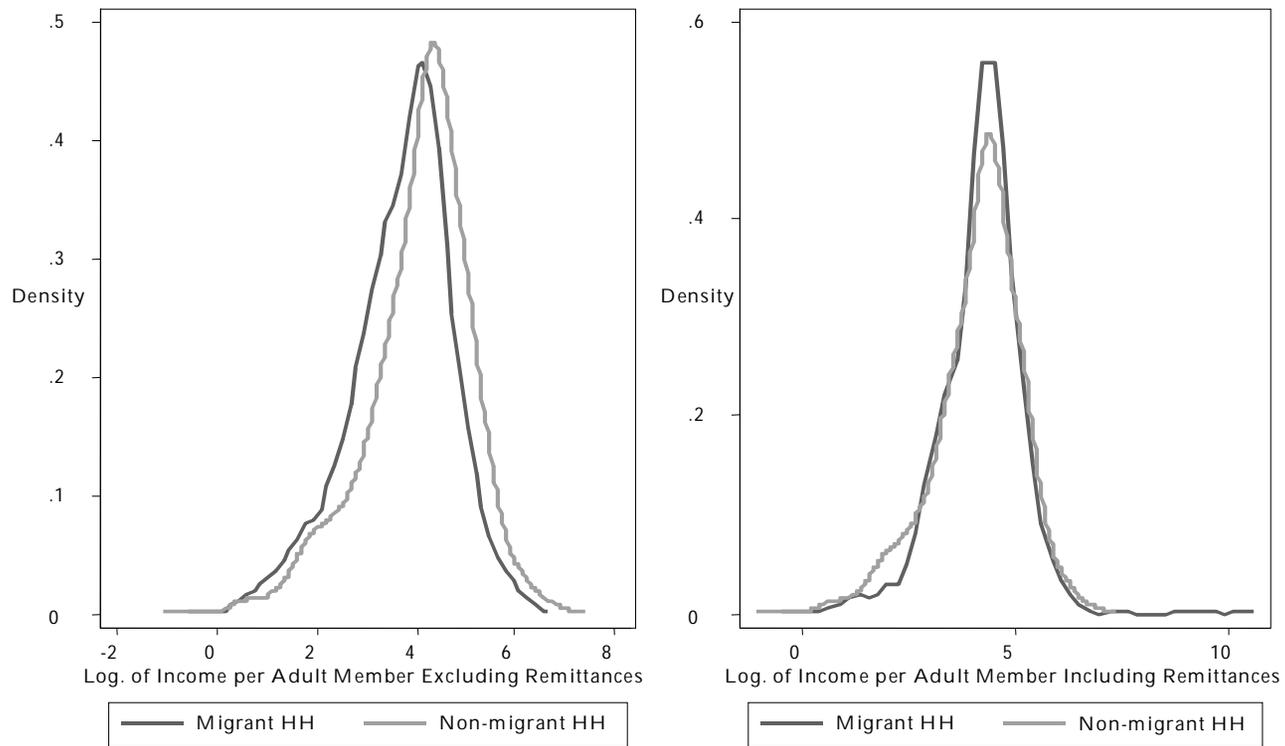
Table 2: Summary Statistics by Household Migration Status

	Household without migrants	Household with migrants	t-statistic (t-test for equality of means)
Percentage of total	66.43	33.57	-
Received remittances	0.10	0.64	-41.532
	(0.01)	(0.01)	**
Monthly remittance income	2.17	73.08	-3.346
per adult HH member (Euro)	(0.44)	(29.83)	**
Monthly income per adult HH	90.53	58.46	9.796
member excluding remittances (Euro)	(2.13)	(1.86)	**
Monthly income per adult HH	92.70	131.57	-1.809
member including remittances (Euro)	(2.20)	(29.94)	
Urban residence	0.37	0.37	-0.104
	(0.01)	(0.01)	
Rural residence	0.44	0.47	-1.794
	(0.01)	(0.01)	
Tirana residence	0.19	0.15	2.478
	(0.01)	(0.01)	*
Satellite dish ownership in 1990	0.01	0.03	-3.947
	(0.00)	(0.01)	**
Migrant network in 1990	0.07	0.08	-0.223
	(0.01)	(0.01)	
Ratio of males to females (20-39)	49.11	48.71	5.67
	(0.04)	(0.06)	**
HH member spoke Greek or Italian	0.09	0.21	-10.695
in 1990	(0.01)	(0.01)	**
Number of WU agents	0.53	0.53	-0.695
	(0.00)	(0.00)	
Number of Households	2,418	1,222	

Note: (i) Standard errors in parentheses; (ii) **,* Denote significance at the 1% and 5% level respectively; (iii) Households with migrants are those households which have at least one member living/working abroad; (iv) The income variables are per present household member above the age of 14; remittances refer only to remittances from abroad received by the household members throughout the year preceding the survey.

Table 3: Labor Supply of Albanian Females (15-55) and Albanian Males (15-60)

	All Females		Married		All Males		Males (46-60)	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
Migrant(s)	-0.009	0.226	-0.020	0.638	-0.009	0.000	0.006	0.552**
	(0.02)	(0.32)	(0.02)	(0.40)	(0.02)	(0.16)	(0.03)	(0.23)
Remittances	0.029	-0.644	0.034	-1.026*	-0.041**	0.101	-0.051*	-0.813**
	(0.02)	(0.47)	(0.02)	(0.60)	(0.02)	(0.29)	(0.03)	(0.36)
Age	0.053***	0.049***	0.050***	0.061***	0.081***	0.084***	0.037	-0.011
	(0.00)	(0.01)	(0.01)	(0.02)	(0.00)	(0.00)	(0.07)	(0.09)
Age squared/100	-0.064***	-0.057***	-0.060***	-0.077**	-0.092***	-0.097***	-0.048	-0.009
	(0.01)	(0.01)	(0.01)	(0.02)	(0.00)	(0.01)	(0.07)	(0.09)
Secondary education	0.065***	0.062***	0.112***	0.119***	0.041**	0.041**	0.058**	0.049
	(0.02)	(0.02)	(0.02)	(0.03)	(0.01)	(0.01)	(0.02)	(0.03)
University education	0.459***	0.441***	0.471***	0.488***	0.181***	0.192***	0.170***	0.092
	(0.02)	(0.03)	(0.03)	(0.04)	(0.02)	(0.03)	(0.03)	(0.06)
Urban residence	-0.290***	-0.307***	-0.292***	-0.308***	-0.175***	-0.170***	-0.145***	-0.159***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.01)	(0.01)	(0.03)	(0.03)
Tirana residence	-0.317***	-0.264***	-0.330***	-0.252***	-0.125***	-0.133***	-0.147***	-0.085
	(0.02)	(0.05)	(0.03)	(0.06)	(0.02)	(0.03)	(0.03)	(0.05)
Child (0-6)	-0.074***	-0.099***	-0.097***	-0.118***	0.024	0.031*	-0.076*	-0.085
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.04)	(0.05)
Non-labor income (Euro)/100	-0.003	0.001	-0.014	-0.005	-0.071***	-0.070***	-0.090***	-0.076**
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
Regional unemployment rate/100	-0.397***	0.091	-0.341**	0.366	-0.161**	-0.263	-0.169	0.261
	(0.09)	(0.33)	(0.11)	(0.42)	(0.08)	(0.20)	(0.15)	(0.27)
Constant	-0.327***	-0.231**	-0.278*	-0.457	-0.793***	-0.848***	0.301	1.668
	(0.06)	(0.11)	(0.14)	(0.31)	(0.05)	(0.07)	(1.85)	(2.39)

Notes: (i) Robust standard errors are in parentheses; (ii) ***, **, *, Denote significance at the 1%, 5%, and 10% level respectively; (iii) The key variables, Migration and Remittances, are dichotomous, where one indicates that the household has at least one current or previous household member residing abroad and that the household has received remittances from abroad during the year prior to the survey date; (iv) The identifying instruments used are whether any of the members of the household, including the current migrants, spoke either Greek or Italian in 1990, whether the household owned a satellite dish in 1990, a proxy for the existence of a migrant network in 1990, the ratio of males to females in the 20-39 age group per prefecture, and the number of WU offices per capita per prefecture; (v) The first stage contains all exogenous variables included in the main equation.

Table 4: First Stage Results for 2SLS and Tests for Validity of the Instruments

|	All Females	Married	All Males	Males (46-60)
	Migrant(s)			
Satellite dish ownership	0.119*	0.143**	0.110*	0.147*
in 1990	(0.07)	(0.07)	(0.06)	(0.08)
HH member spoke Greek	0.257***	0.285***	0.288***	0.297***
or Italian in 1990	(0.03)	(0.03)	(0.03)	(0.40)
Migrant network in 1990	-0.047	-0.042	-0.056*	-0.075
	(0.03)	(0.03)	(0.03)	(0.05)
Ratio of males aged 20-39	-0.025***	-0.019***	-0.016***	-0.028***
	(0.01)	(0.00)	(0.01)	(0.01)
Number of WU agents	-0.078	-0.043	-0.103	-0.067
	(0.12)	(0.11)	(0.11)	(0.16)
	Remittances			
Satellite dish ownership	0.051	0.011	-0.024	0.044
in 1990	(0.07)	(0.07)	(0.05)	(0.09)
HH member spoke Greek	0.190***	0.212***	0.158***	0.218***
or Italian in 1990	(0.03)	(0.03)	(0.03)	(0.04)
Migrant network in 1990	0.031	0.013	0.043	0.058
	(0.03)	(0.32)	(0.03)	(0.05)
Ratio of males aged 20-39	-0.012**	-0.008*	-0.008*	-0.010
	(0.00)	(0.00)	(0.01)	(0.01)
Number of WU agents	-0.029	-0.008	-0.027	-0.088
	(0.12)	(0.11)	(0.12)	(0.17)
F-test for joint significance	F(5,3116)	F(5,2856)	F(5,2931)	F(5,1262)
(Migrant(s))	=28.56	=26.64	=26.89	=19.11
Prob>F	0.000	0.000	0.000	0.000
F-test for joint significance	F(5,3116)	F(5,2856)	F(5,2931)	F(5,1262)
(Remittances)	=12.74	=10.28	=9.00	=6.92
Prob>F	0.000	0.000	0.000	0.000
F-test for correct exclusion	F(1,3117)	F(1,2857)=	F(1,2932)	F(1,1263)
(Migrant(s))	=1.06	0.00	=4.69	=1.55
Prob>F	0.303	0.964	0.031	0.213
F-test for correct exclusion	F(1,3116)	F(1,2856)	F(1,2931)	F(1,1262)
(Remittances)	=3.82	=1.61	=9.67	=3.32
Prob>F	0.051	0.205	0.002	0.069
Hansen-Sargan test	4.421	2.050	16.601	3.370
Chi-sq(3) P-value	0.220	0.562	0.001	0.338
N	4,717	3,032	4,367	1,264

Notes: (i) Robust standard errors are in parentheses; (ii) ***, **, *, Denote significance at the 1%, 5%, and 10% level respectively; (iii) The first stage contains all exogenous variables included in the main equation, only the estimated coefficients of the identifying instruments are reported.

Table 5: Summary of the Effects of Migration and Remittances on whether a Household Member at Home is Working

All Females

OLS				2SLS		
	Remittances				**Remittances**	
Migrant(s)	0	1		**Migrant(s)**	0	1
0		0.029 (0.02)		0		-0.644 (0.47)
1	-0.009 (0.02)	0.02		1	0.226 (0.32)	-0.42

Married Females

OLS				2SLS		
	Remittances				**Remittances**	
Migrant(s)	0	1		**Migrant(s)**	0	1
0		0.034 (0.02)		0		-1.026 (0.60)
1	-0.020 (0.02)	0.01		1	0.638 (0.40)	-0.39

All Males

OLS				2SLS		
	Remittances				**Remittances**	
Migrant(s)	0	1		**Migrant(s)**	0	1
0		-0.041* (0.02)		0		0.101 (0.29)
1	-0.009 (0.02)	-0.05		1	0.000 (0.16)	0.10

Males (46-60)

OLS				2SLS		
	Remittances				**Remittances**	
Migrant(s)	0	1		**Migrant(s)**	0	1
0		-0.051 (0.03)		0		-0.813* (0.36)
1	0.006 (0.03)	-0.05		1	0.552* (0.23)	-0.26