Poppe, Robert

Conference Paper

Expenditure Patterns of Migrant Households: Evidence from Moldova

Proceedings of the German Development Economics Conference, Hannover 2010, No. 51

Provided in cooperation with:
Verein für Socialpolitik

Expenditure Patterns of Migrant Households: Evidence from Moldova

Robert Poppe*

May 31, 2010

Abstract

This paper examines the effect of temporary and permanent migration on household expenditures and on asset/durables ownership. Using household survey data from Moldova, this paper relies on the matching approach for identification. It is shown that temporary migrant and permanent migrant households have additional expenditures for food compared to nonmigrant households. Concerning the ownership of goods or assets compared to the regional crisis in 1998, temporary and permanent migrant households are more likely to own more goods or assets than nonmigrant households. Migration has stronger effects on ownership in rural areas. Overall, the findings indicate that temporary migration has a stronger effect on household expenditures than permanent migration.

Keywords: Expenditures, Remittances, Migration, Propensity Score Matching

*University of Mannheim – Center for Doctoral Studies in Economics.

1 Introduction

How remittances are spent has received considerable attention in the literature. Most studies conclude that they are consumed instead of invested, but some studies find the opposite.[1] Adams (2005) and Taylor and Mora (2006) address the failure of remittance-use studies to capture indirect effects of remittances via their contribution to household budgets. Both papers use a regression-based approach to explain household expenditure shares for different categories of goods. Adams (2005) enters household characteristics and a variable indicating receipt of remittances along with interaction terms. Taylor and Mora (2006) use the migration status as an explanatory variable. In order to account for the endogeneity of migration they use the predicted probability of migration obtained from a probit model using migration instruments. Adams (2005), using data from Guatemala, found that, at the margin, households receiving remittances spend less on consumption and more on education. Taylor and Mora (2006), using data from Mexico, found that households with international migrants have larger marginal budget shares for investment than those without.

In this paper, the empirical analysis is based on the matching approach. This identification strategy enjoys two related advantages over regression-based approaches (Black & Smith, 2004; Ichino, Mealli, & Nannicini, 2007). First, matching requires that there is sufficient overlap in the distributions of migrant and non-migrant households' covariates. In principle, we would like to compare households that have the same values of all covariates, while differing with respect to the migration status. The regression-based approach can hide the failure of the *common support* condition. Matching allows to check how much the distributions overlap and exclude observations without *common support*. Second, the linear functional form assumption of the regression-based approach may not be justified. Matching does not need the linear functional form assumption for identification, allowing for non-linearities in covariates on household expenditures.

The present paper not only compares expenditure patterns of non-migrant and migrant households, but also distinguishes between temporary and permanent migrant households. The remittance behavior of temporary and permanent migrants is expected to be different. Permanent migrants are expected to remit less as community and family ties become weaker, their remittance behavior being dominated by

[1] For a review of remittance-use studies see Taylor et al. (1996).

altruistic motives. Merkle and Zimmermann (1992) found a significantly negative relationship between the amount of remittances and the planned future duration of residence of migrants in Germany. Using the same dataset on Moldova as the present paper, Pinger (2007) found that remittances from permanent migrants are less likely to occur than from temporary migrants. Stark and Galor (1990) argue that migrants that have a positive return probability save more and transfer some of their savings as remittances to household members who stay behind in the source country. They might expect a future income lower than their current income and save more to smooth their consumption path over the life-cycle.[2] Glytsos (1997) argues that temporary migrants set a target of savings that they want to accumulate and consume as little as possible while abroad, effectively postponing consumption to a later time at home.

In the Republic of Moldova, labor migration and workers' remittances started off in the wake of the 1998 regional crisis. More than 80% of migrants departed for the first time since then (Cuc, Lundbäck, & Ruggiero, 2005). As of mid-2006, approximately one quarter of the economically active population was employed abroad (Lücke, Omar Mahmoud, & Pinger, 2007). According to the Labour Force Survey, the number of migrants grew from less than 100,000 in 1999 to more than 400,000 at the end of 2005, compared to an active population of 1,474,000 people in 2003. The Department of Migration estimated the number of migrants at around 600,000 as of August 2004 (Ruggiero, 2005). Total remittances reported in the balance of payments increased from around US$ 100 million annually in the late 1990s to just under US$ 1 billion in 2005 which is equivalent to about one third of GDP (Lücke et al., 2007).

Two broad regions are chosen by Moldovan labor migrants as destinations: the Commonwealth of Independent States (CIS), such as Russia and Ukraine, and Western Europe. According to the 2006 CBS-AXA survey, most migrants were occupied in Russia (around 60%), followed by Italy (17%). Other important destinations include Ukraine, Portugal, France, Spain and Turkey. Male and female migrants choose different destinations depending on job characteristics. Destinations preferred by male migrants are CIS member countries (notably Russia and Ukraine) reflecting demand for labor in the construction sector. Destinations with migrant jobs predominately in the service sector, such as household help (notably Italy and Turkey), are preferred by female migrants (Ruggiero, 2005).

[2]Lucas and Stark (1985) and Rapoport and Docquier (2005) provide overview of motives to remit.

Job characteristics and travel costs also have an impact on the seasonality of migration. Migration to Western Europe tends to be on a permanent basis, while Ukraine and Russia attract mostly seasonal migrants (due to the climate, there is not much construction in the winter). Travel costs to Western Europe are considerable, amounting to US$ 3,600 one way in 2006 (Lücke et al., 2007). Crossing borders illegally makes traveling to Western Europe so costly. In contrast, the average cost of travel to CIS member countries was around US$ 100.

2 Data

2.1 Data and Sample Description

The empirical analysis of this paper is based on a cross-sectional household survey that has been conducted by CBS-AXA in 2006. The total number of households interviewed was close to 4,000. The survey was designed to be representative of Moldovan households at the national level (excluding Transnistria), since one goal of the CBS-AXA survey is to compare households with migrants to those without (Lücke et al., 2007). The dataset does not only contain information on current household members but also on permanent migrants that are no longer considered household members by the interviewed household.

The present paper groups households into three categories:

(a) Non-migrant households (NONM)

(b) Temporary migrant households (TEMP)

(c) Permanent migrant households (PERM)

The sample used for the empirical analysis contains information on all characteristics (see Table 1) of households that have either a permanent migrant (PERM), a temporary migrant (TEMP) or no migrant at all (NONM). Those households that have both a permanent and a temporary migrant were excluded.

Contrary to other studies, temporary and permanent migrants are not distinguished by length of stay abroad (see also Pinger, 2007). Instead, a household

is considered a permanent migrant household if the interviewee indicated that the migrant has the intention to settle abroad.[3]

2.2 Descriptive Statistics

Table 1: Number of observations and characteristics of different groups

	NONM	TEMP	PERM
Panel (a)			
Sex of household head (male=1)	0.71	0.83	0.70
Household size	2,9	3,9	2,8
Number of children (< 15 years old)	0.41	0.73	0.36
Number of adults in university attending age (18–25)	0.40	0.70	0.44
Adults with higher education (yes=1)	0.62	0.75	0.83
Age of household head	54.3	46.7	54.2
Residence area (urban=1)	0.43	0.32	0.60
Living standard directly after the crisis in 1998 very good (yes=1)	0.01	0.01	0.03
Living standard directly after the crisis in 1998 good (yes=1)	0.17	0.19	0.18
Living standard directly after the crisis in 1998 satisfactory (yes=1)	0.44	0.44	0.38
Living standard directly after the crisis in 1998 bad (yes=1)	0.31	0.31	0.34
Living standard directly after the crisis in 1998 very bad (yes=1)	0.08	0.04	0.08
Number of observations	1129	658	274
Panel (b)			
Household expenditure sum (leu)	1384	2458	1867
Expenditure per adult equivalent (leu)	856	1312	1134

Panel (a) of Table 1 shows the means of all variables that are used in the estimation. The variable *adults with higher education* contains the number of adults with tertiary education (college or university). The variable *living standard directly after the crisis in 1998* contains the perceived living standard of the household. The living standard is perceived to be bad if the household indicated that there was just enough for the bare necessities or very bad if there was not enough for the bare necessities.

[3]Conversely, a household is considered a temporary migrant household if the interviewee selected one of the two other alternatives, namely that the migrant intends to accumulate more money abroad and then return to Moldova for good or that she intends to stay in Moldova and not to go abroad again.

Table 1 shows that temporary migrant households (TEMP) differ from non-migrant (NONM) and permanent migrant households (PERM) in most of the variables. Among temporary migrant households, the percentage of the household head being male, the household size, the number of children, the number of adults in university attending age, the expenditure sum per adult equivalent, and the sum of household expenditures are higher and the age of the household head is lower compared to non-migrant and permanent migrant households. Permanent migrant households are similar to non-migrant households except for the number of adults with higher education, the percentage living in urban areas, the expenditure sum per adult equivalent, and the sum of household expenditures.

3 The Evaluation Framework and Matching

To evaluate the effect of migration on household expenditure patterns, we would ideally compare counterfactual outcomes. However, the counterfactual outcome cannot be observed and, thus, needs to be estimated.

The mean outcome of non-participating households is not a suitable substitute for the counterfactual outcome due to selection bias. Usually, the outcomes of participants and non-participants would differ even in the absence of treatment. Selection bias will typically result when some of the determinants of participation also influence the outcome (Bryson, Dorsett, & Purdon, 2002).

The general idea of matching is to estimate the counterfactual outcome by constructing a comparison group. We construct a comparison group which is similar to the treated group in all relevant pre-treatment characteristics. Then, the difference in outcomes between treated and untreated households can be attributed to the treatment.

To make this idea more precise, we introduce the evaluation framework. Let the potential outcomes be denoted by $\{Y(0), Y(1), \ldots, Y(M)\}$. For each household, only one element of $\{Y(0), Y(1), \ldots, Y(M)\}$ is observable. The remaining M outcomes are counterfactuals. Identification of the impact of a programme is obtained by the conditional independence assumption (CIA) which states that given a set of observable covariates X all potential outcomes are independent of treatment

assignment:

$$\{Y(0), Y(1), \ldots, Y(M)\} \perp D|X. \tag{1}$$

Under the CIA, exposure to treatment is random conditional on all relevant pre-treatment household characteristics X, thereby removing any selection bias. The CIA requires to condition on all variables that influence both treatment assignment and potential outcomes. The CIA is an untestable assumption; its plausibility relies on the possibility to match treated and untreated units on the basis of a large and informative set of pre-treatment variables.

The treatment effect, i.e. the average treatment effect on the treated (ATT), is defined as

$$\tau_{m,l} = E[Y(m)|D = m] - E[Y(l)|D = m], \tag{2}$$

where treatment is indicated by $D \in \{0, 1, \ldots, M\}$. The key result is that, given the CIA holds, we can replace equation (2) by

$$\tau_{m,l} = E[Y(m)|D = m, X] - E[Y(l)|D = l, X], \tag{3}$$

where the second term is now observable.

Conditioning can be difficult if X is a high dimensional vector. To deal with this dimensionality problem, Rosenbaum and Rubin (1983) proposed an alternative based on the propensity score defined as $P(X) = \text{prob}(D = m|X)$. The propensity score is the probability of obtaining treatment m given a set of observed covariates X. Now, the CIA based on the propensity score is defined as

$$\{Y(0), Y(1), \ldots, Y(M)\} \perp D|P(X), \tag{4}$$

and the ATT, given the CIA holds, can be written as

$$\tau_{m,l} = E[Y(m)|D = m, P(X)] - E[Y(l)|D = l, P(X)]. \tag{5}$$

However, no procedure for adjusting for pre-treatment differences is likely to work well if there is insufficient overlap in the distribution of pre-treatment variables by treatment status (Imbens, 1999). The common support requirement ensures that for households with the same X values there is a positive probability of every treatment

to occur:

$$0 < \text{prob}(D = m|X) < 1, \tag{6}$$

which is also referred to as the overlap condition.

In sum, given that the CIA and the overlap condition hold, we can estimate the average treatment effect where the observed outcome of the comparison group is used as the counterfactual outcome for the treatment group.

We obtain the propensity scores using a series of binary choice models, estimating propensity scores pairwise. That is, the probability of being in a given state is estimated for those units that are in either of the states. The alternative is a multinomial logit or probit model. It has the disadvantage that the common support condition is more restrictive because only those units that have a positive probability to participate in all treatments may be considered as potential candidates for the control group. In comparison, the pairwise estimation of the propensity score leads generally to a smaller proportion of cases dropped because units only need to have a positive probability to participate in either treatments (Bryson et al., 2002).

We need to condition on all covariates that influence both participation and the outcome. If a variable influences only participation, there is no need to control for differences between the treatment and the comparison group because the outcome is unaffected (Bryson et al., 2002). For example, networks are likely to play a role in shaping the decision to migrate (Görlich & Trebesch, 2006). However, such a variable is not included in the estimation of the propensity score since it is unlikely that it affects the outcome variable.

As our matching algorithm we use matching with replacement, which is useful if the number of participants in treatment m is different from the number of participants in treatment l. Since the role of m and l can be reversed, this procedure avoids the problem that there are not enough participants in one treatment to be matched with participants in the other treatment. The disadvantage of matching with replacement is the potential problem that a few observations may be heavily used although other similar observations are available. Although this increases the average quality of matching, the number of distinct control units is reduced, which increases the variance.

McKenzie, Gibson, and Stillman (2006) estimated the gains from migration using data from a natural experiment in which migrant applicants to New Zealand

from Tonga are selected by a lottery. They compared this estimate with estimates from non-experimental methods to examine how successful several non-experimental methods are. All non-experimental methods, including propensity score matching described below, were overstating the gains from migration.[4] With means of propensity score matching, the authors were unable to remove the selection bias on the basis of the observed covariates that they used, suggesting that the conditional independence assumption was not satisfied.

4 Empirical Analysis

Table 2 shows the average treatment effects on the respective households in urban areas. The entries on the main diagonal display (unadjusted) average expenditures for different expenditure items, e.g. the average household expenditure for food is 729.8 lei, 1205.1 lei, and 1091.4 lei for households participating in non-migration, temporary migration, and permanent migration, respectively. The treatment effects are off the main diagonals (non-migration is also called a treatment). For households participating in the treatment given in the row, the average treatment effect is displayed compared to participating in treatments given in the respective columns. For example, the mean effect of TEMP compared to NONM is 273.9 lei of additional expenditure.

Apart from food expenditures and expenditures for clothes and shoes of households participating in temporary migration compared to non-migration, other significant average treatment effects are expenditures for repayment of savings of households participating in non-migration and temporary migration, respectively, compared to households participating in permanent migration. In addition, permanent migrant households have higher expenditures for food and health compared to nonmigrant households.

Table 3 shows the average treatment effects on the respective households in rural areas. Temporary migrant households have higher food expenditures than nonmigrant households. In addition, permanent migrant households have higher savings than nonmigrant households. Similar to the results for the urban sample, nonmigrant and temporary migrant households have higher expenditures for repayment of

[4]McKenzie et al. (2006) conclude that among the non-experimental methods the instrumental variable approach performed best but only with a good instrument.

Table 2: Average effects for participants measured as the difference in expenditure (Moldovan leu) – urban sample

	NONM	TEMP	PERM
Food			
NONM	729.8	–313.9 (105.7)***	–221.7 (121.6)*
TEMP	273.9 (94.2)***	1205.1	-214.4 (181.7)
PERM	325.6 (95.5)***	134.0 (214.0)	1091.4
Health			
NONM	122.1	–17.4 (34.0)	-20.0 (29.5)
TEMP	25.9 (58.2)	142.3	–8.3 (35.8)
PERM	59.0 (22.2)***	33.3 (42.7)	162.1
Education			
NONM	54.1	–33.5 (47.1)	8.2 (22.4)
TEMP	76.1 (42.7)*	179.6	89.2 (55.3)*
PERM	44.0 (21.6)	–58.3 (177.7)	75.8
Savings			
NONM	42.2	–19.9 (35.3)	33.6 (12.3)***
TEMP	48.5 (36.8)	90.5	72.7 (33.5)**
PERM	–13.5 (27.8)	–11.9 (69.8)	45.7
Repayment of loans			
NONM	31.5	–25.4 (30.3)	24.4 (18.9)
TEMP	–25.6 (30.4)	34.4	–23.2 (31.4)
PERM	–9.3 (22.3)	4.8 (37.7)	17.6
Dwelling			
NONM	170.8	30.4 (57.9)	18.7 (39.1)
TEMP	–14.0 (92.9)	244.1	34.5 (76.5)
PERM	93.9 (53.2)*	–55.9 (231.6)	228.7
Clothes and shoes			
NONM	126.0	-102.5 (140.7)	–41.9 (40.0)
TEMP	199.4 (80.9)**	378.2	42.9 (92.8)
PERM	57.7 (51.2)	–66.9 (135.7)	219.9

loans than permanent migrant households.

Higher expenditures for food of migrant households are consistent with the notion that remittances by migrants are used to meet current consumption needs. In the rural sample, both non-migrant households and temporary migrant households spend more on the repayment of loans compared to permanent migrant households. As households start to repay debts soon after migration, debt repayment becomes marginal over time (see Ruggiero, 2005). Thus, non-migrant and temporary migrant households have additional expenditures for the repayment of debts compared to permanent migrant households. Contrary to Adams (2005) and Taylor and Mora (2006), both temporary and permanent migrants do not spend more on education than non-migrant households.

Table 3: Average effects for participants measured as the difference in expenditure (Moldovan leu) – rural sample

	NONM	TEMP	PERM
Food			
NONM	534.3	–78.6 (59.7)	–108.5 (65.0)*
TEMP	154.0 (42.7)***	790.2	70.0 (89.1)
PERM	75.3 (52.4)	63.1 (71.7)	614.2
Health			
NONM	166.6	–56.5 (42.9)	-17.3 (42.5)
TEMP	23.8 (28.5)	190.8	4.3 (68.0)
PERM	29.9 (42.5)	–69.7 (114.7)	214.3
Education			
NONM	85.8	–29.1 (49.3)	30.1 (33.3)
TEMP	–25.8 (27.3)	122.7	22.8 (49.8)
PERM	–4.7 (29.1)	5.8 (26.8)	57.0
Savings			
NONM	32.6	–164.7 (285.5)	-17.1 (23.4)
TEMP	131.4 (86.4)	165.3	135.5 (96.9)
PERM	47.9 (15.9)***	–66.3 (127.0)	55.1
Repayment of loans			
NONM	99.3	–175.6 (593.7)	89.2 (37.6)**
TEMP	291.8 (191.4)	383.6	371.6 (184.8)**
PERM	–250 (236.1)	–323.5 (267.7)	10.1
Dwelling			
NONM	58.5	-34.1 (40.5)	15.9 (23.2)
TEMP	6.0 (20.5)	93.5	33.7 (37.4)
PERM	4.8 (25.3)	14.2 (22.8)	50.2
Clothes and shoes			
NONM	189.6	-6.3 (51.0)	–38.9 (32.7)
TEMP	50.9 (31.8)	300.5	102.8 (66.4)
PERM	6.9 (36.8)	38.4 (39.0)	162.6

Table 4: Average effects for participants measured as the difference in the share of households that have more of an asset/good compared to 1998 (percentage points) – urban sample

	NONM	TEMP	PERM
House/apartment			
NONM	7.6	0.8 (6.5)	1.5 (4.4)
TEMP	1.8 (5.8)	15.9	5.3 (6.5)
PERM	0 (4.3)	-1.0 (8.0)	8.1
Land			
NONM	4.7	2.8 (4.4)	–0.4 (3.7)
TEMP	–2.7 (4.3)	6.2	1.0 (4.6)
PERM	1.0 (3.4)	3.1 (4.9)	5.6
Car			
NONM	4.3	–4.0 (6.2)	–4.1 (4.6)
TEMP	6.2 (4.5)	12.3	1.1 (7.2)
PERM	1.8 (4.1)	0 (7.6)	9.3
Tractor			
NONM	1.1	–0.8 (3.1)	–3.7 (3.2)
TEMP	3.5 (1.7)**	3.5	–1.8 (4.7)
PERM	1.0 (2.4)	2.1 (3.7)	3.7
Washing machine			
NONM	13.8	2.0 (7.8)	–5.2 (6.2)
TEMP	5.3 (6.6)	23.0	1.0 (8.4)
PERM	0 (6.2)	3.1 (9.4)	16.8
TV set			
NONM	12.0	4.3 (6.9)	–3.5 (3.8)
TEMP	4.4 (6.5)	19.5	1.8 (7.7)
PERM	0 (5.7)	3.1 (8.7)	15.0

Table 4 displays average effects measured as the difference in the share of households that indicated to own more of an asset or good compared to directly after the crisis in 1998 for the urban sample. A significant treatment effect is found for households participating in temporary migration only. Compared to non-migration households, temporary migrant households own more often more tractors as compared to 1998. It appears that these urban households invest in agricultural activities.

Table 5 shows average treatment effects on the respective households related to assets in rural areas. Compared to nonmigrant households, temporary migrant households and permanent migrant households own more often more houses/apartments and washing machines. In addition, temporary migrant households own more often more TV sets than permanent migrant households. Weak significantly negative parameters are also found with respect to cars for permanent migrant and nonmigrant households compared to temporary migrant households.

5 Conclusion

Employing the matching approach, this paper examined the effect of temporary and permanent migration on household expenditures and on asset/durables ownership.

Regarding treatment effects with respect to expenditures, temporary and permanent migrant households have more expenditures for food than nonmigration households, which is consistent with the notion that remittances by migrants are used to meet current consumption needs. Regarding treatment effects with respect to ownership of goods or assets compared to directly after the regional crisis in 1998, temporary and permanent migrant households are more likely to own more goods or assets than nonmigrant households. In addition, migration has stronger effects on ownership in rural areas.

Overall, the findings indicate that temporary migration has a stronger effect on household expenditures than permanent migration.

Table 5: Average effects for participants measured as the difference in the share of households that have more of an asset/good compared to 1998 (percentage points) – rural sample[a]

	NONM	TEMP	PERM
House/apartment			
NONM	8.4	–6.6 (5.0)	–16.2 (7.6)**
TEMP	6.7 (3.5)*	18.5	–4.0 (9.0)
PERM	11.3 (5.7)**	6.25 (9.1)	16.9
Land			
NONM	13.6	–4.6 (5.6)	–1.2 (6.7)
TEMP	3.7 (4.2)	22.5	13.3 (8.4)
PERM	–4.2 (5.8)	–3.1 (9.3)	9.9
Car			
NONM	9.7	–10.8 (5.5)*	–2.5 (6.6)
TEMP	6.1 (4.0)	19.5	12.2 (7.6)
PERM	1.4 (5.7)	–17.2 (10.2)*	11.3
Tractor			
NONM	4.7	–5.6 (4.2)	–7.3 (6.1)
TEMP	1.1 (2.8)	7.7	–11.5 (7.4)
PERM	8.5 (4.0)	3.1 (7.2)	9.9
Washing machine			
NONM	11.9	–13.6 (6.2)**	–8.3 (8.4)
TEMP	14.5 (4.3)***	30.2	15.1 (10.1)
PERM	14.1 (6.1)**	15.6 (10.1)	21.1
TV set			
NONM	16.8	–8.7 (6.3)	4.25 (6.7)
TEMP	6.7 (4.7)	32.2	23.3 (0.8)***
PERM	–4.2 (6.4)	–9.4 (10.2)	11.3

References

Adams, R. H., Jr. (2005). *Remittances, household expenditure and investment in Guatemala* (World Bank Policy Research Working Paper No. 3532).

Black, D. A., & Smith, J. A. (2004). How robust is the evidence on the effects of college quality? Evidence from matching. *Journal of Econometrics*, *121*, 99-124.

Bryson, A., Dorsett, R., & Purdon, S. (2002). *The use of propensity score matching in the evaluation of active labour market policies* (Working Paper No. 4). Department for Work and Pensions, United Kingdom.

Cuc, M., Lundbäck, E., & Ruggiero, E. (2005). *Migration and remittances in Moldova*. Washington, DC: International Monetary Fund.

Glytsos, N. P. (1997). Remitting behaviour of "temporary" and "permanent" migrants: The case of Greeks in Germany and Australia. *Labour*, *11*(3), 409-435.

Görlich, D., & Trebesch, C. (2006). *Mass migration and seasonality: Evidence on Moldova's labour exodus* (CeGE-Discussion Paper No. 56). Center of Globalization and Europeanization of the Economy (CeGE), University of Göttingen.

Ichino, A., Mealli, F., & Nannicini, T. (2007). From temporary help jobs to permanent employment: What can we learn from matching estimators and their sensitivity? *Journal of Applied Econometrics*. (forthcoming)

Imbens, G. W. (1999). *The role of the propensity score in estimating dose-response functions* (NBER Technical Working Paper No. 237).

Lucas, R. E. B., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *Journal of Political Economy*, *93*(5), 901-918.

Lücke, M., Omar Mahmoud, T., & Pinger, P. (2007). *Patterns and trends of migration and remittances in Moldova: the CBSAXA survey 2006* (Report prepared for the International Organization for Migration (IOM), Moldova Office). Kiel Institute for the World Economy.

McKenzie, D., Gibson, J., & Stillman, S. (2006). *How important is selection? Experimental versus non-experimental measures of the income gains from migration* (World Bank Policy Research Working Paper No. 3906).

Merkle, L., & Zimmermann, K. F. (1992). Savings, remittances, and return migration. *Economics Letters*, *38*, 77-81.

Pinger, P. R. (2007). *Come back or stay? Spend here or there? Temporary versus permanent migration and remittance patterns in the Republic of Moldova* (Kiel Advanced Studies Working Paper No. 438). Kiel Institute for the World Economy.

Rapoport, H., & Docquier, F. (2005). *The economics of migrants' remittances* (IZA Discussion Paper No. 1531). Bonn: Institute for the Study of Labor (IZA).

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70*(1), 41-55.

Ruggiero, E. (2005). Migration and remittances. *Problems of Economic Transition*, *48*(3), 54-83.

Stark, O., & Galor, O. (1990). Migrants' savings, the probability of return migration and migrants' performance. *International Economic Review*, *31*(2), 463-467.

Taylor, J. E., Arango, J., Hugo, G., Kouaouci, A., Massey, D. S., & Pellegrino, A. (1996). International migration and community development. *Population Index*, *62*(3), 397-418.

Taylor, J. E., & Mora, J. (2006). *Does migration reshape expenditures in rural households? Evidence from Mexico* (World Bank Policy Research Working Paper No. 3842).