



Munich Personal RePEc Archive

Do Remittances Reduce Poverty and Inequality in the Western Balkans? Evidence from Macedonia.

Petreski, Marjan and Jovanovic, Branimir

University American College Skopje, University of Rome "Tor Vergata"

2013

Online at <https://mpra.ub.uni-muenchen.de/51413/>
MPRA Paper No. 51413, posted 15 Nov 2013 05:48 UTC

Working Paper

Do Remittances Reduce Poverty and Inequality in the Western Balkans? Evidence from Macedonia.¹

Marjan Petreski

University American College Skopje

III Makedonska Brigada 60 Skopje

marjan.petreski@uacs.edu.mk

Branimir Jovanovic

University of Rome "Tor Vergata"

Via Columbia 2, 00133, Rome

branimir.jovanovic@uniroma2.it

Abstract

The objective of this study is to investigate whether remittances in Macedonia affect poverty and inequality. Using two household surveys, one conducted in 2008, one in 2012, we find that remittances reduce both poverty and inequality. The inequality-reducing effect has been particularly present in 2012.

Keywords: remittances; poverty, income inequality, self-employment, Macedonia

JEL classification: O15

¹ The paper has been generously supported by the Regional Research Promotion Program by the University of Fribourg and the Swiss Agency for Development and Cooperation. The views expressed here are those of the authors and do not necessarily represent opinions of the University of Fribourg or the Swiss Agency for Development and Cooperation

1. Introduction

International migration is one of the most important factors that affect economic relations between developed and developing countries in the 21st century. At the start of the century, it was estimated that about 175 million people, roughly 3% of the world population, lived and worked outside the country of their birth (United Nations, 2002). The international remittances sent back home by these migrant workers have a profound impact on the developing countries of Eastern Europe, Asia, Africa, Latin America and the Middle East.

Remittances that these workers send back to developing countries rose from \$31.1 billion in 1990, to \$76.8 billion in 2000 to around \$400 billion in 2012. These flows are expected to rise 8% in 2013 and 10% in 2014 to reach \$534 billion in 2015 (World Bank, 2012). They amount to over twice the amount of the official development assistance and are 10 times higher than the net private capital transfers to developing countries (Kapur and McHale, 2003). Constituting one of the largest sources of foreign exchange earnings (in some countries even exceeding export revenues and foreign direct investment), remittances become a relatively attractive source of foreign earning for developing countries.

Things are not much different in Macedonia. Since 2004, remittances in Macedonia have averaged 250 million euros per annum (around 4% of GDP), roughly the same as flows from foreign direct investment. Furthermore, their upward trend has been maintained despite the recent crisis – in 2008, before the crisis, they were 280 million euros, while in 2012, after the crisis, they reached 310 million euros.

Given the nature, magnitude, and evolution of these flows it should not be a surprise that remittances are now seen by development practitioners as having a potentially important role to play in supporting the development efforts of recipient countries. There are two main channels in which remittances can support these efforts. First, remittances could flow towards the neediest groups of the population and therefore directly contribute to poverty reduction. Second, with imperfect insurance and financial markets, remittances can also contribute to higher investment in human and physical capital. For example, these flows can remove some of the financial constraints faced by households and small-scale entrepreneurs that prevented them from investing. Thus in this regard, remittances may also potentially contribute to raising the country's long run growth potential through higher rates of capital accumulation.

There are a lot of papers that investigated the issue and determinants of remittances, since they represent one of the most stable external sources of financing for developing countries. At first, researchers were focused on remittances and their direct economic consequences, like economic growth, investment, poverty and income inequality, but lately there have also come out a lot of papers where the non-pecuniary consequences of remittances, such as their impact on health, education, care arrangements and social structures and ethnic hierarchies are examined. According to Pant (2008), whether remittances are utilized for consumption or purchasing houses, or for investment in other things, they have positive impact on the economy by stimulating demand for other goods and services. Migrants send different forms of capital that have developmental impact in their origin countries. These impacts may be in the form of financial, social, political, cultural or economic impact. The impact can be examined at both micro level, like in case of households and macro level like impact on GDP growth, poverty and development.

This study will investigate remittances' impact on social disparities in the Western Balkans, more precisely, in Macedonia. It will investigate the role of remittances for poverty and income inequality. Special emphasis will be put on the Great Recession, and how these relationships have changed with it. The analysis will be done using two household surveys, one conducted in 2008, one in 2012. Findings point out that remittances decrease both poverty and inequality in Macedonia. The inequality-reducing role has been particularly evident during the post-crisis period.

This study is organized as follows: Section 2 makes an overview of the literature on this topic. Section 3 presents descriptive analysis. Section 4 portrays the methodology to be used. Section 5 gives the results and offers discussion and the last section concludes and offers policy recommendations.

2. Literature overview

As for the most economic issues, there is no consensus in the literature about remittances' influence on poverty reduction and income inequality, neither that they are an engine of long-run growth. There are two contrasting views regarding the effects of international remittances on the economy of the labor-sending country: the optimistic view and the pessimistic view. The first one views remittances as mechanisms for economic development while the latter, on the other hand, perceives remittances as an "illness" that weakens the economy.

Remittances have important contribution to human welfare: this aid flows directly to the people who really need it and it does not require a costly bureaucracy on the sending side and “far less of it is likely to be siphoned off into the pockets of corrupt government officials” (Kapur, 2003). Although most international remittances do not flow directly to the poorest people, remittances often make up an important share of the income of poor people and poor communities. Moreover, non-migrant poor might be affected indirectly (positively or negatively) through the economy-wide effects of remittance expenditure on wages, prices and employment. In accordance with the importance of the official international remittances, relatively rich literature exists on their effects on poverty alleviation in developing countries. Some more recent contributions include: Adams and Page (2005); Spatafora (2005); Munzele (2005); Banga and Sahu (2010); Acosta et al. (2007; 2008); Jongwanish (2007); Javid et al. (2012); Siddiqui and Kemal (2006; Nwosu (2009); Adams and Cuecuecha (2008), and **all document remittances as significantly reducing the level, depth and severity of poverty, i.e. international migration of labor has substantial potential benefits for poor people.**

The remittances of money and goods by migrants to their origin countries can also have important impacts on the distribution of household income and welfare. This is especially the case in developing economies, where household earnings are low, inequality is often pervasive and domestic or international migration of family members can provide a major source of income through the remittances of wage earnings. Literature has been rich in investigating this topic also. For instance, McKenzie and Rapoport (2004) argue that when migration to a new destination starts taking place, the cost of emigrating is usually high; implying that, in the presence of liquidity constraints, only high-income members of population can afford the move. At the beginning, when only richer and more educated people migrate to another country, income inequality actually rises. But, as the number of migrants in that destination increases, the cost of emigration declines, giving individuals in low-income households the opportunity to emigrate. This is because emigration costs include not only transportation and borders-crossing costs, but information costs about the specific destination to choose, the search for a job, shelter and so on. Such information costs are significant and tend to decrease as the size of a network of migrants augments. As a result, over time remittances should accrue to low-income households, thereby reducing income inequality at the origin. The empirical literature – e.g. Anyanwu (2011); Kimhi (2010); Adams (1991); Ebeke and Le Goff (2009) – found mixed results, though, **suggesting that remittances’ effect on inequality is far from being uniform** and usually dependent on factors as the level of country’s development; skill endowment of population and potential migrants, existence of information and emigration networks and so on.

3. Stylized facts

Remittance flows represent an important income for households in Macedonia and important source of financing the current account deficit - since 2004 they have averaged 4% of GDP, roughly the same as flows from foreign direct investment. Their upward trend has been maintained despite the recent crisis – in 2008, before the crisis, they amounted to 277 million euro, while in 2012, after the crisis, they are estimated to be 294 million euro (World Bank data)².

The empirical analysis in this paper will be done on two household (HH) surveys. The first has been collected for the project “Development on the Move: Measuring and Optimizing the Economic and Social Impacts of Migration in the Republic of Macedonia”, by Educon Research, Macedonia. This survey has been collected in July-September 2008 and covers 1211 households. The primary focus on this survey (and project) is to analyze migration, so there are questions about remittances. For more details, see Educon Research (2009). The second survey has been collected for this project. It has been designed by the authors of this study, following the UNDP Kosovo Remittances Survey 2010, and has been collected by GfK Macedonia on a total of 1000 household (800 nationally representative households and 200 remittances receiving households), during October and November 2012.

The data on remittances available from the two household surveys, mainly coincide with the official macro data, as can be seen in Table 1. However, households tend to underreport the amount of remittances received – in 2008 the estimates from the available household survey were around 60% of the official macro figures, while in 2012 they were about 80%. Still, the upward trend in the remittances is evident in the micro data too. Looking at them in greater detail, one can observe that the increase in total remittances comes mainly from the extensive margin, i.e. from the increased number of households that get remittances – before the crisis, in 2008, around 16% of the households reported receiving remittances, whereas in 2012, after the crisis, the percentage increased to 21%. At the same time, the average amount of remittances per household remained increased marginally, from 1990 to 2070 euro per receiving household, per year.

Table 1 – Some facts about the remittance flows in 2008 and 2012*

	Average amount of remittances per receiving household (euro)	Percentage of households receiving remittances (%)	Estimated amount of total remittances (mil. euro)	World Bank data on total remittances (mil. euro)
Pre-crisis	1992	15.7	167.5	276.9
Post-crisis	2068	20.7	230.6	293.9

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

² All the nominal amounts (on remittances, consumption etc.) in this section are expressed in 2008 prices, i.e. the data for 2012 have been deflated for the cumulative inflation between 2009 and 2012 (7.4%), for better comparison between the two time periods.

The share of HHs with migrant member remained roughly the same in the two surveys (Table 2). While nearly half of the households in 2008 reported absent migrant who does not send money, this number halved in 2012, suggesting that amid the crisis, households in Macedonia likely strengthened the utilization of the diaspora for income support. Finally, both before and after the crisis, nearly all absent migrant were close family to the responding household.

Table 2 – Households with absent migrant

Total number of households	Remittances' receiving households	% of remittances' receiving households	% of households who reported absent migrant	% of hh with migrants not sending money	Percentage of hh with close-family migrants
<i>Before the crisis</i>					
1211	190	15.7%	28.2%	44.4%	97.4%
<i>After the crisis</i>					
801	166	20.7%	27.2%	23.9%	100%

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

Some additional facts about the two surveys are shown in Table 3 in order to build further intuition about the changes between the two time periods. The share of poor households has decreased substantially, from 26% in 2008, to 18% in 2012, which can be ascribed, apart from the increase in remittances, to the measures undertaken in the period between, which may have positively affected the poor, like the agricultural subsidies program, the increase in the public-sector wages and pensions, and the measures for fighting the informal economy (the reduction of taxes and social contributions and introduction of flat tax system). At the same time, the share of households with self-employed members declined, from 16% in 2008, to 9% in 2012, which comes at a surprise, given the government efforts to improve the business climate, but may be explained by the global crisis. Finally, it can be observed that the remittance flows have much higher standard deviation in 2008 than in 2012 (5464 vs. 2310), which points out that remittances have been more unequally dispersed before the crisis, and have become more equally distributed after the crisis. In other words, after the crisis, remittances might have started to decrease inequality.

Table 3 – Some additional statistics from the two available surveys

	HHs	Female headed	Poor	Albanian	Rural	Urban	Skopje	Self employed	St. dev. of remit.
Pre-crisis	1211	42.6%	25.7%	26.9%	26.1%	50.5%	23.5%	15.9%	5464
Post-crisis	800*	19.5%	17.9%	26.1%	43.1%	37.7%	19.2%	9.2%	2310
*800 households in the representative sample, plus 200 in the booster sample									

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

Table 4 looks at the poverty rates before and after the crisis for receiving and non-receiving HHs. Interesting conclusions emerge. First, no large differences existed in poverty rates before the crisis, depending on whether households were remittances' receivers or not. However, after the crisis, remittance-receiving households exhibit larger improvement in poverty, which is in line with the finding that larger number of households was remittance receiver after the crisis than compared to before the crisis.

Table 2. – Poverty among surveyed households by different characteristics

All	Remittances' receivers	Non-remittances' receivers
<i>Before the crisis</i>		
25.7%	25.3%	25.8%
<i>After the crisis</i>		
17.9%	13.3%	19.1%

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

Table 5 shows some patterns in remittances for different groups in the Macedonian society, before and after the crisis. It can be observed that female-headed households, on average get more remittances than male-headed. However, this difference was especially pronounced before the crisis. After the crisis, female-headed households continued to receive roughly the same amount of remittances than before the crisis (464 vs. 437 euro), while remittances for male-headed households increased substantially (to 420 from 220 euro). This may happen if the increase in remittances was due to children starting working abroad, instead of the households' heads. Another interesting fact is that Albanian households get much higher remittances than Macedonian households, both before and after the crisis. Moreover, remittance flows increased during the crisis for Albanians (to 886 from 440 euro), while they remained unchanged for Macedonians (267 vs. 265). Similar trends are observed in the incidence of remittances, which is higher for Albanian households than for Macedonian ones, especially for the period after the crisis; the share of Albanian households receiving remittances increased during the crisis (to 42%, from 18%), while the share of Macedonian declined (to 14%,

from 16%). It seems that the crisis hit differently Albanian and Macedonian remitters, which may be explained by the fact that Albanian migrants are located in countries which coped relatively well during the crisis (like Switzerland), while most of the Macedonian remitters work in EU countries who have suffered more during the crisis, like Italy.

Table 3. - Some patterns in remittances across different groups, before and after the crisis

	All HHs	Male headed	Female headed	Poor	Non poor	Albanian	Macedonian	Rural	Urban	Skopje
<i>Pre-crisis</i>										
Average consumption (euro)	3550	3537	3567	1031	4420	4464	3213	4543	2973	3687
Average remittances (euro)	313	220	437	338	304	440	265	361	356	164
% of remittance in consumption (for HHs receiving remit.)	14.6%	6.9%	25.0%	39.3%	7.0%	29.6%	8.9%	8.0%	22.7%	5.1%
Share of households getting remittances (%)	15.7%	13.8%	19.2%	17.2%	15.8%	17.5%	15.6%	17.8%	17.5%	11.4%
<i>Post-crisis</i>										
Average consumption (euro)	4946	5101	4302	1631	5678	4105	5242	4661	4967	5541
Average remittances (euro)	429	420	464	269	464	886	267	481	420	328
% of remittance in consumption (for HHs receiving remit.)	11.2%	10.7%	13.4%	15.7%	10.2%	24.6%	6.5%	12.2%	11.1%	9.2%
Share of households getting remittances (%)	20.7%	20.7%	21.2%	15.6%	22.0%	41.7%	13.5%	26.3%	15.9%	19.7%

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

Table 6 shows some statistics on remittances for households with different economic welfare, i.e. households belonging to different consumption groups³. It can be observed that households belonging

³ We will use consumption as a measure of welfare, for two reasons. First, consumption is much less volatile category than the income, which can be contaminated by various shocks when observed at one point in time. For example, a person which is in good economic situation, but is temporarily without a job, will have zero income, which would lead to wrong conclusions about his/her economic situation. If his/her welfare is measured through the consumption, though, a more reliable picture will be obtained, since his/her consumption will not be zero. Second, in the former available survey, for 2008, the data on income is incomplete, since there are data on income from earnings only, not from other sources, such as pensions and social benefits.

to the lower consumption quartiles, i.e. poorer households, received lower amounts of remittances, in absolute terms, both before and after the crisis, which supports the observation from above that remittances might have increased inequality, instead of decreasing it. The finding that poorer households receive less remittances than richer is not surprising, because poorer households are less likely to migrate, due to the costs of migration which they cannot afford. In addition, even if they migrate, poorer households usually are less educated, because of what are likely to earn less and to send less money back home.

Table 4. – Remittances by different consumption groups

	Quartile	Average consumption (euro)	Average remittances (euro)	% of remittance in consumption (for HHs receiving remit.)	% of remittance in consumption (for all HHs)	Share of households getting remittances (%)
Pre-crisis	1 st	1016	338	234.4	39.8	17.0
	2 nd	2136	121	45.4	6.0	13.2
	3 rd	3383	360	66.8	9.9	14.9
	4 th	7664	431	28.3	5.4	19.1
Post-crisis	1 st	1903	287	83.2	14.8	17.9
	2 nd	3411	386	42.7	11.3	26.5
	3 rd	4849	612	58.3	12.9	22.1
	4 th	9691	426	35.4	5.8	16.2

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

Looking at the income from remittances relative to households' consumption, for different groups, it can be observed that the share of remittances in consumption was much higher for the households from the first quartile than for the other households, before and after the crisis, which points out that remittances play important role in satisfying consumption needs for poorer households and might alleviate poverty.

Comparing the situation before the crisis vs. the situation after the crisis, it can be observed that only the lowest-quartile households recorded a drop in the amount of remittances received in 2012 relative to 2008 (from 338 euro to 287). This points out that the crisis has affected the poorest most severely. This is confirmed by the dynamics in remittances for households below and above the poverty line between the two time periods (Table 7). One indeed gets the impression that the crisis has affected the poor most adversely – the share of poor households that receive remittances has fallen after the crisis (to 14.9%, from 16.8%), while the share of non-poor households that get remittances has increased (to 22%, from 15.8%). Similarly, the average amount of remittances for the poor households has fallen

substantially (from 338 to 269 euro), while it has increased for the non-poor households (from 304 to 464 euro).

Table 5. – Remittances for poor and non-poor households

	Quartile	Average Consumption (euro)	Average remittances (euro)	% of remittance in consumption (for HHs receiving remit.)	% of remittance in consumption (for all HHs)	Share of households getting remittances (%)
Pre-crisis	Poor	1031	338	233.0	39.3	16.8
	Non Poor	4420	304	44.3	7.0	15.8
Post-crisis	Poor	1631	269	105.2	15.7	14.9
	Non Poor	5678	464	46.7	10.2	22.0

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

Finally, Table 8 portrays the usage of remittances inflows. The crisis likely led to households increase the usage of remittances for consumption, but also for property purchase and savings, at the expense of longer-term ventures, like education, health-related spending, starting-up a business and agricultural land purchase. However, the increase in consumption has been more prominent for the non-poor. The usage of remittances for starting up a business likely suffered most throughout all sub-groupings amid the crisis.

Table 8. – Usage of remittances

	Consumption of the household (good, clothes, home equipment, car)	Family events	Property investment (excpt. agr. land)	Education	Health	Starting up a business	Agricultural land investment	Savings	Debt repayment	Lending
<i>Before the crisis</i>										
All	40.2%	9.8%	6.1%	11.0%	11.0%	7.3%	4.9%	6.1%	3.7%	0.0%
Male-headed	35.7%	14.3%	4.8%	7.1%	9.5%	9.5%	9.5%	4.8%	4.8%	0.0%
Female-headed	45.0%	5.0%	7.5%	15.0%	12.5%	5.0%	0.0%	7.5%	2.5%	0.0%
Macedonian	38.7%	8.1%	8.1%	8.1%	9.7%	8.1%	6.5%	8.1%	4.8%	0.0%
Albanian	45.0%	15.0%	0.0%	20.0%	15.0%	5.0%	0.0%	0.0%	0.0%	0.0%
Poor	47.6%	4.8%	4.8%	23.8%	9.5%	0.0%	4.8%	4.8%	0.0%	0.0%
Non-poor	37.7%	11.5%	6.6%	6.6%	11.5%	9.8%	4.9%	6.6%	4.9%	0.0%
Skopje	38.0%	10.0%	6.0%	8.0%	12.0%	8.0%	8.0%	6.0%	4.0%	0.0%
Urban (other than capital)	41.9%	9.7%	6.5%	16.1%	9.7%	6.5%	0.0%	6.5%	3.2%	0.0%
Rural	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>After the crisis</i>										
All	47.9%	5.0%	15.8%	6.4%	8.3%	0.7%	0.3%	10.1%	4.5%	1.1%
Male-headed	50.1%	4.2%	16.9%	5.0%	7.3%	0.7%	0.5%	10.2%	3.9%	1.1%
Female-headed	43.2%	6.8%	13.2%	9.3%	10.4%	0.7%	0.0%	9.6%	5.7%	1.1%
Macedonian	44.6%	4.6%	15.8%	6.1%	6.9%	1.0%	0.2%	15.8%	4.4%	0.6%
Albanian	52.0%	5.5%	15.8%	6.8%	10.0%	0.3%	0.5%	3.0%	4.5%	1.8%
Poor	49.6%	2.5%	11.8%	7.6%	9.2%	0.8%	1.7%	11.8%	4.2%	0.8%
Non-poor	47.7%	5.4%	16.4%	6.2%	8.1%	0.6%	0.1%	9.8%	4.5%	1.2%
Skopje	49.5%	6.6%	14.6%	7.0%	7.7%	0.3%	0.7%	6.3%	5.6%	1.7%
Urban (other than capital)	45.7%	3.5%	16.6%	6.4%	8.1%	1.0%	0.2%	13.5%	3.7%	1.0%
Rural	52.8%	7.1%	15.0%	4.7%	10.2%	0.0%	0.0%	5.5%	4.7%	0.0%

Source: DoTM Survey (2008); UACS Remittances Survey (2012).

4. Methodology and data

4.1. Models

The model used in the poverty analysis is very similar to the one from World Bank and Statistical Office of Kosovo (2011). Broadly speaking, it is in accordance with the other existing studies on this issue surveyed in section 2. The main regression is as follows:

$$\begin{aligned} Pr(Poor) = & c1 + c2*gender_head + c3*age_head + c4*age_head_squared \\ & +c5*married + c6*education_head + c7*size_HH + c8*size_HH_squared + \\ & c9*dependency_ratio + c10*main_income +c11*no_income + c12*albanian \\ & +c13*geography +c14*own_house +c15*remittances + c16*dummy2012 + u \end{aligned} \tag{1}$$

The dependent variable is poverty, i.e. the probability of being poor - a dummy variable taking a unitary value if a household had a consumption per capita below the 60th percentile of the median of the consumption per capita in that year. The explanatory variables are standard in the literature: gender of the head, age of the head, age squared, marriage status of the head, education of the head, size of the household, size squared, the dependency ratio, main income in the household, ethnicity, urban/rural, whether household owns a house, the amount of remittances received and a dummy variable for the time/crisis effect. The coefficient on the remittances variable will tell us if remittances affect poverty or not. Also, a cross product between the remittances and the dummy for the crisis period will be included in order to see if the effect of the remittances on poverty changes with the crisis. Differently from other studies, we decide to include the amount of remittances received, and not a dummy variable for receiving remittances. The main reason for this is that we believe that there is a difference in the effect on poverty if a household receives 500 euros of remittances and if it receives 50.000 euros.

Because there might be endogeneity in the relationship poverty-remittances, i.e. because poverty (the dependent variable) may also affect whether a household receives remittances and the amount it receives, we will use an instrumental variable technique to estimate equation 1. The variable that should instrument remittances should satisfy two properties: 1) it should be correlated with the variable it instruments (i.e. remittances); 2) it should not be correlated with the dependent variable in the main regression (i.e. probability of being poor) through channels other from the variable it instruments (i.e. remittances). Our instrument will be **a dummy variable for migrating for completely non-economic reasons** (political, education, marriage, war, discrimination etc.). Our both surveys have questions for the reasons for migrating. The questions are multiple-answer. We take only those cases which reported migrating for studying, marriage, political reasons etc., but not for economic reasons. Hence, our variable is likely to be uncorrelated with the incidence of poverty, i.e.

the second criterion from above should be satisfied⁴. It should also satisfy the first criterion, because migrants who left for purely non-economic reasons should also send money back home.

The impact of remittances on income inequality will be measured through a comparison between the Gini coefficient of the actual household consumption and the Gini coefficient of the consumption that would prevail if there were no remittances.

The simulation of the household consumption without the remittances is done following the existing literature (Acosta et al. 2007, 2008, Adams 1991, Adams and Cuecuecha 2008, Barham and Boucher 1998). First, household consumption per capita *for households without remittances* is regressed on a set of conventional explanatory variables:

$$\begin{aligned} \text{Consumption } p/c = & c1 + c2*\text{gender_head} + c3*\text{age_head} + c4*\text{age_head_squared} \\ & + c5*\text{married} + c6*\text{education_head} + c7*\text{size_HH} + c8*\text{size_HH_squared} + \\ & c9*\text{dependency_ratio} + c10*\text{main_income} + c11*\text{no_income} + c12*\text{albanian} + \\ & c13*\text{geography} + c14*\text{own_house} + c15*\text{self_employment} + c16*\text{dummy2012} + \\ & c17*\text{lambda} + u \end{aligned} \quad (2)$$

Because the sample of non-remittances-receiving households might be non random, the model is corrected for the selection bias, following Heckman (1979), by including a variable measuring the probability for not receiving remittances (*lambda*). Lambda is actually the inverse Mills ratio from the following regression:

$$\begin{aligned} \text{Pr}(\text{no_remittances}) = & c1 + c2*\text{gender_head} + c3*\text{age_head} + c4*\text{age_head_squared} \\ & + c5*\text{married} + c6*\text{education_head} + c7*\text{size_HH} + c8*\text{size_HH_squared} + \\ & c9*\text{dependency_ratio} + c10*\text{main_income} + c11*\text{no_income} + c12*\text{albanian} + \\ & c13*\text{geography} + c14*\text{own_house} + c15*\text{self_employment} + c16*\text{dummy2012} + \\ & c17*\text{remittances_region} + u \end{aligned} \quad (3)$$

The last variable in this regression, *remittances_region*, is required to satisfy the *exclusion restriction* – in order the model to be identified, the first step regression needs to include a variable which does not affect the consumption directly, but affects the probability to receive remittances. Following Acosta et al. (2008), we take the share of households that receive remittances in every region as the exogenous variable. This share is likely to affect the

⁴ It is true that the non-economic reasons for migration might be correlated with the economic background (i.e. poorer persons may be more likely to get married abroad). However, those cases are also likely to cite economic reasons for migration, besides the non-economic. By taking only those observations who cite only non-economic reasons, we believe we exclude these cases.

probability to receive remittances, through network effects. On the other hand, it is not very likely to affect the consumption directly.

This consumption regression is then used to predict the consumption that remittances-receiving households would have had they not received remittances. The predicted values from the model would have very low variance, because they exclude all the random factors that affect household consumption. Hence, to make them comparable to the original consumption data, we would add to them a random component, which would be a series drawn from a normal distribution with a mean and a standard deviation as the residuals from the consumption regression.

Then the Gini coefficient of the actual consumption and the simulated one will be compared. Higher Gini of the simulated series would suggest that remittances decrease inequality.

4.2. Survey setting

Two household surveys are available for Macedonia. The first has been collected for the project “Development on the Move: Measuring and Optimizing the Economic and Social Impacts of Migration in the Republic of Macedonia”, by Educon Research, Macedonia. This survey has been collected in July-September 2008 and covers 1211 households. The primary focus on this survey (and project) is to analyze migration, so there are questions about remittances. For more details, see Educon Research (2009). The second survey has been collected for this project. It has been designed by the authors of this study, following the UNDP Kosovo Remittances Survey 2010, and has been collected by GfK Macedonia on a total of 1000 household (800 nationally representative households and 200 remittances receiving households), during October and November 2012.

The first step in the preparation of the surveys is to define their structure. This is very important, because failure to account for the correct survey design can lead to wrong inference. The representative 800 households of the 2012 survey are stratified on two levels – region⁵ and rural/urban. On the first level of stratification, each region is included in the survey with a number of households proportional to the total number of households in that region. Then, on the second level of stratification, the number of rural and urban households from each region is proportional to the total number of rural/urban households in that region. Then, after the number of rural and urban households for each region has been determined in this way, those households are selected randomly. For the booster sample, 25 remittance-receiving households from each region have been selected and in the

⁵ There are 8 regions in Macedonia – Skopje, Vardar Valley, Pelagonija, Polog, South-West, North-East, East and South-East.

survey design they were assigned a probability proportional to the number of remittance-receiving households in each region without reference to urban-rural characteristic. Because the exact design of the 2008 survey was not known, it was assumed that it is same as the representative part of the 2012 survey. Then, on the grounds of this information, the probability of being selected was calculated for each household from the two surveys, and these probabilities were used to correct the regression estimates.⁶

4.3. Method and data

The poverty and self-employment regressions will be estimated using the logit model, since the dependent variable is binary. The reported results are the marginal effects when the variables are on their mean values (for instance, how much the probability of being poor increases when age of the household head increases from the mean value of 47 to 48).

The first-step regression in the simulation exercise (equation 5) will be estimated using probit. The second-step regression (equation 4) will be estimated using OLS.

Descriptive statistics of the variables used in the econometric analysis is shown in Tables 9 and 10. Table 9 shows the standard statistics of interest for the continuous variables, while Table 10 shows the percentage of observations with the respective attribute for the qualitative variables.

Table 9. – Descriptive statistics of the quantitative variables used in the analysis

	Absolute income inequality	Age of head (years)	Size of household (no. of members)	Dependency ratio	Remittances (EUR)	Consumption per capita (EUR)
Mean	-1.8	47.1	3.5	0.6	516.6	1342.6
Maximum	0.9	93.0	12.0	1.0	30952.4	17668.4
Minimum	-2978.2	17.0	1.0	-0.5	0.0	0.3
St. Dev.	67.4	14.7	1.4	0.3	1771.8	1233.6
25th perc.	-0.6	35.0	3.0	0.5	0.0	636.6
75th perc.	0.4	58.0	4.0	0.8	136.1	1598.0
No. Obs.	1952.0	1986.0	1986.0	1986.0	1986.0	1952.0

Source: Authors' estimations

⁶ This was done using the command “svyset” in Stata.

Table 10. - Descriptive statistics of the qualitative variables used in the analysis

Attribute	% of HH with the attribute
Poor	21.5
Self employment	12.6
Male head	73.1
Married head	79.5
Education of head, secondary	29.6
Education of head, university	12.0
Education of head, postgraduate	0.4
Main income from pensions	9.8
Main income from social benefits	1.7
Main income from other sources	1.4
No income	14.7
Albanian	27.0
Urban	47.8
Capital	18.1
Own house	95.6

Source: Authors' estimations

5. Econometric analysis and discussion

5.1 Remittances and poverty

Table 11 presents the results of the poverty analysis. The first two columns present the baseline results, while the next three columns – the results of the analysis of the effects of the crisis. The first column of the baseline results and the first two columns of the crisis results present the first-step regressions, i.e. the regression where the endogenous explanatory variables (the remittances) are regressed on the instruments (the dummy for non-economic migration)⁷. The most important results of the first-stage regressions are those regarding the strenght of the instruments. It can be seen that the dummies for non-economic migration (*dum_no_econ* and *dum_no_econ*dum2012*) are significant, pointing out that the instrument is unlikely to be weak. To be fair, the F values in the first-stage regressions are below the rule-of-thumb value of 10, but are above 2, so we proceed as if the instruments are not weak.

The results of the baseline second-stage regression is shown in the second column. In general, results have the expected signs and some of them are statistically significant. They suggest that only those heads who have university education have lower probability of falling into poverty by about 17% than

⁷ There are two first-stage regressions in the 'crisis' analysis, one for the remittances, the other one for the cross-product of the remittances with the dummy for 2012.

compared to heads with primary education, which justifies the investment in tertiary education, while the other educational degrees are found not to matter for poverty. The age and marriage are also unimportant for poverty. Each additional member of the household increases the probability of being poor by 7% suggesting that larger households are, on average, poorer than smaller ones. Also, those households which have higher number of dependent members (children and elderly) have higher probability of falling into poverty.

With respect to income, we find that it does not matter for poverty what is the source of the main income of the household. Owning a house is not important for poverty, which may be explained by the high home-ownership rate in Macedonia (around 95%). The probability of being poor is the same for Albanians and Macedonians and for urban (other than capital) and rural inhabitants, as the respective coefficients are insignificant. On the other hand, those living in Skopje, the capital city, have lower probability of being poor by about 7% than rural counterparts, which is not surprising, given the role of Skopje as administrative and financial center of the country. Gender does not matter, either, as well as the crisis, which points out that the fall in the poverty between the two years is explained by the change in the other variables that are included in the regression.

Table 11: Results of the regression

	Baseline regression		Crisis		
	1st step	2nd step	1st step	1st step	2nd step
	<i>remit</i>	<i>poor</i>	<i>remit</i>	<i>remit*</i> <i>dum2012</i>	<i>poor</i>
Age of the head (years)	-38.03	-0.0078	-36.88	0.201	-0.0071
	-34.37	-0.00816	-34.25	-11.53	-0.0279
Age of the head, squared	0.356	7.61E-05	0.344	-0.0865	6.27E-05
	-0.398	-8.24E-05	-0.397	-0.109	-0.00033
Married head	289.7***	0.0447	289.9***	202.9***	0.0547
	-94.75	-0.0541	-94.36	-59.77	-0.0703
Secondary education of head	-58.01	-0.0307	-64.32	-29.27	-0.0318
	-101.4	-0.0433	-101.8	-44.24	-0.0501
University education of head	-136.3	-0.167***	-136.6	-32.07	-0.167***
	-87.6	-0.0327	-87.45	-50.74	-0.0527
Above university education of head	83.14	-0.0379	70.72	37.83	-0.0371
	-386.6	-0.151	-384.6	-142.6	-0.152
Size of HH	-106.6	0.0736*	-98.14	-176	0.0602
	-168.2	-0.0422	-163.9	-129.1	-0.0749
Size of HH, squared	13.33	0.00175	12.12	16.24	0.00296
	-17.27	-0.00444	-16.49	-15.48	-0.00566
Dependency ratio	251.6	0.441***	250.5	239.8*	0.454***
	-180.1	-0.0917	-179.8	-142.2	-0.0885
Main income from pension	-129.2	-0.047	-119	-76.75	-0.0503
	-167.8	-0.0591	-167.2	-150.1	-0.0631
Main income from social assistance	-91.65	0.238	-81.94	-5.405	0.24
	-194.2	-0.156	-194.2	-195.4	-0.173
Main income from other sources	235	-0.0973	246.6	304.6	-0.0823
	-526.6	-0.0941	-526.8	-517.5	-0.11
No income	188.1	0.0418	194	78.93	0.0453
	-212.9	-0.0666	-213.1	-124.2	-0.11
Own house	14.37	-0.0411	13.33	399.9***	-0.008
	-325.2	-0.0696	-324.9	-62.71	-0.311
Albanian	169.2	0.0594	157.4	217.9***	0.0742
	-108.8	-0.045	-109.7	-82.36	-0.0749
Urban	149.8	0.0355	149	197.7***	0.0492
	-99.84	-0.0356	-99.77	-74.13	-0.0611
Capital	0.167	-0.0657*	7.773	102.9	-0.0594
	-114.5	-0.0357	-114.1	-83.73	-0.0776
Male head of HH	-223.1**	0.0163	-229.3**	-157.2**	0.00814
	-101.7	-0.0447	-102	-75.94	-0.0621
Dum2012	360.1***	0.000973	333.7***	579.4***	0.0403
	-103.2	-0.0654	-105.2	-81.02	-0.22
Remit		-0.000272*			-0.00026
		-0.00014			-0.00074
remit*dum2012					-7.95E-05
					-0.00078
dum_no_econ	425.2***		84.44	-36.93	
	-150		-212.5	-44.74	
dum_no_econ*dum2012			606.0**	702.0***	
			-286.4	-193.4	
Constant	985		969.4	-174.1	
	-802.1		-798.8	-408.1	
Observations	1,690	1,690	1,690	1,690	1,690
F stat	4.4		4.5	7.9	
R-squared	0.03		0.031	0.095	

Dependent variables in italics. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Finally, remittances – the focus of this study – are found to affect poverty in a positive fashion, so that an additional thousand euro of remittance money, reduces the probability of being poor by 27% on average (at the mean of the explanatory variables). In other words, a household which has 1600 euros of remittances per year, is 27% less likely to be poor than a household which has 600 euros of remittances (the mean of the variable), on average, *ceteris paribus*. This is a very strong effect.

The results of the crisis second-stage regression are shown in the last column of Table 11. Most of the coefficients are very similar to the baseline results. The main variable of interest here is the *dum_no_econ*dum2012*, which shows whether the effect of remittances on poverty differed in 2012, with respect to 2008. This variable is insignificant, pointing out that the relationship remained unchanged.

5.2. Remittances and inequality

We will measure welfare by consumption, not income, for two main reasons. The first one is that consumption is a better indicator for welfare, since utility in all economic models is represented by consumption, not income. The second one is a purely practical reason – people tend to under-report income much more than consumption, as a result of what around 16% of our households report no income at all.

As explained in section 4.1, the inequality analysis has several stages. The first one estimates the probability for not-receiving remittances. The second one estimates a consumption function for HHs without remittances (correcting for the selection bias, i.e. for the probability of not-receiving remittances). The third stage uses this function to simulate the consumption of remittances-receiving HHs. Finally, the Gini coefficient on this simulated consumption is compared to the actual Gini coefficient.

The results of the first-stage regression, which explains the probability not to receive remittances (equation 3 from above) are shown in Table 12. Since the purpose of our analysis is not to investigate determinants of remittances, we will not interpret this regression in greater details. It is worth noting that most (if not all) of the coefficients appear with the expected signs and magnitudes, and that the variable which is supposed to be exogenous with respect to consumption, the share of household with remittances in the corresponding region, is significant and negative in the first-stage regression, pointing out that the probability not to receive remittances is negatively related to the share of remittance-receiving households in the region.

Table 12. – Results of the first-stage regression for the determinants of the consumption of households without remittances

Dependent variable: Dummy taking value of 1 if household has no remittances	
Gender of the head (1 if male)	0.313***
Age of the head (years)	0.00498
Age of the head, squared	7.96E-06
Marriage status of head (1 if married)	-0.227**
Education of head (1 if with incomplete or complete secondary school)	0.211*
Education of head (1 if with college or university)	0.385**
Education of head (1 if with postgraduate degrees)	0.122
Size of household (no of members)	0.315***
Size of household squared	-0.0238**
Percentage of dependent members in total household members	-0.049
Main income (1 if pension is main income)	-0.0901
Main income (1 if social assistance is main income)	0.397
Main income (1 if other source is main income)	-0.285
No income (1 if the household has no income)	-0.0382
Albanian (1 if Albanian)	-0.342***
Own house (1 if the household possesses own house)	-0.284*
Self employment (1 if household has a private business)	-0.0642
Urban (1 if urban (except capital))	-0.270***
Capital (1 if capital (Skopje))	0.0263
2012 (1 for the year 2012 (during crisis))	0.144
Share of households with remittances in the region	-3.383***
Constant	0.971**
Observations	1,690
<i>Source: Authors' estimates.</i>	
<i>*, ** and *** denote statistical significance at the 10, 5 and 1% level, respectively.</i>	

The results of the second-stage regression (equation 2 from above), which gives the determinants of the consumption of households without remittances, are shown in Table 13. Again, since our main interest does not lie in the determinants of household consumption, we will not interpret these results thoroughly. It is only worth noting that the Inverse Mills ratio is insignificant in the regression, pointing out that there is no selection bias arising from investigating determinants of consumption on a sample of non-remittance receiving households.

Table 13. – Results of the second-stage regression for the determinants of the consumption of households without remittances

Dependent variable: Logarithm of households consumption per capita	
Gender of the head (1 if male)	-0.066
Age of the head (years)	0.0014
Age of the head, squared	-2.58E-06
Marriage status of head (1 if married)	0.0699
Education of head (1 if with incomplete or complete secondary school)	0.0421
Education of head (1 if with college or university)	0.362***
Education of head (1 if with postgraduate degrees)	0.537*
Size of household (no of members)	-0.365***
Size of household squared	0.0224***
Percentage of dependent members in total household members	-0.712***
Main income (1 if pension is main income)	0.00751
Main income (1 if social assistance is main income)	-0.259*
Main income (1 if other source is main income)	0.519***
No income (1 if the household has no income)	0.00234
Albanian (1 if Albanian)	0.0636
Own house (1 if the household possesses own house)	-0.151
Self employment (1 if household has a private business)	0.209***
Urban (1 if urban (except capital))	-0.0431
Capital (1 if capital (Skopje))	0.118**
2012 (1 for the year 2012 (during crisis))	0.581***
Constant	8.082***
Inverse Mills ratio	-0.183
Observations	1,216
R-squared	0.288
<i>Source: Authors' estimates.</i>	
<i>*, ** and *** denote statistical significance at the 10, 5 and 1% level, respectively.</i>	

These estimates are then used to predict the consumption that households which receive remittances would have had, in case they had not received remittances. However, a simple fit of this regression would provide very stable consumption, because it omits all the random factors that affect household consumption. To address this problem, we will follow Barham and Boucher (1998) and Acosta et al. (2008), and will add a series of consumption shocks to the fitted values of the above regression, the former being drawn from a normal distribution with properties as the residuals from the above regression (zero mean and standard deviation

of 0.6598454)⁸. The series that is obtained in this way is then the consumption that households with remittances would have, had they not received remittances.

The Gini coefficient is then calculated on this simulated consumption and on the actual consumption, both for 2008 and 2012. The calculated values are shown in Table 14.

Table 14. – Gini coefficient for actual and simulated consumption

	Gini coefficient	
	Actual consumption	Consumption without remittances
2008	0.4599	0.4499
2012	0.3524	0.3831
Panel	0.4120	0.4263

Source: Authors' estimates

Several things can be noted. First, inequality has decreased from 2008 to 2012 – the Gini coefficient for the actual consumption is lower in 2012 than in 2008. Next, for 2008, the Gini coefficient for the actual consumption is higher than that for the simulated consumption (consumption without remittances). That points out that remittances have been increasing consumption inequality in 2008, but only a little - the difference between the two figures is rather low. On the other hand, for 2012, the Gini coefficient for the actual consumption is lower than that for the simulated consumption. That points out that in this year remittances have been lowering inequality. Observed for the two periods at the same time, the Gini coefficient is lower for the actual series than for the simulated, suggesting that overall, remittances decrease inequality, but only marginally, since the difference in the two coefficients is low. However, the overall result could be rather the combined effect of the inequality increasing effect in 2008 and the opposite effect in 2012. Therefore, it is likely that economically meaningful effect is the one during the crisis, suggesting that remittances had an inequality reducing effect.

6. Conclusion

The objective of this paper is to shed new light on remittances in Macedonia, i.e. on the role they play for alleviation of poverty and inequality, particularly after the Global Recession. For that

⁸ For replication of the results, the seed used for drawing from the distribution was set to 2601.

purpose, we used an existing survey of before the crisis and conducted new one on a representative sample of 1000 households in Macedonia in late-2012, i.e. during the crisis.

The main conclusion of the analysis for remittances in Macedonia is that they reduce poverty, both before and after the crisis. The inequality analysis pointed out that remittances have been increasing inequality in 2008, but only a little, while they have decreased it sizeably in 2012.

7. References

- Acosta, P., Fajnzylber, P. and Lopez, J.H. (2007) The impact of remittances on poverty and human capital: Evidence from Latin American households surveys. *World Bank Policy Research Working Paper 4247*.
- Acosta, P., Fajnzylber, P. and Lopez, J.H. (2008) What is the impact of international remittances on poverty and inequality in Latin America?. *World Development Vol 36*
- Adams R.H. and Page, J. (2005) Do international migration and remittances reduce poverty in developing countries?. *World Development Vol 33*
- Adams, R.H. and Cuecuecha, A. (2008) The impact of remittances on poverty and inequality in Ghana. Policy Research Working Paper 4732
- Adams, R.H., (1991) The effects of international remittances on poverty, inequality and development in rural Egypt. *International Food Policy Research Institute*
- Amuedo-Dorantes, C. and Pozo, S. (2006) Remittance receipt and business ownership in the Dominican Republic. *The World Economy Vol 29*
- Anyanwu, J. (2011) International remittances and income inequality in Africa. *African Development Bang Group Working Paper No. 135*
- Balde, Y. (2009) Migrants' remittances and economic growth in Sub-Saharan Africa. Mimeo.
- Banga, R. and Sahu, P.K. (2010) Impact of remittances on poverty in developing countries. *eSocialSciences Working Paper id 3100*
- Barham, B. and Boucher, S. (1998) Migration, remittances and inequality: estimating the net effects of migration on income distribution. *Journal of Development Economics Vol 55*
- Barnow, B. (1987) The Impact of CETA Programs on Earnings: A Review of the Literature. *Journal of Human Resources, 22(2):157-193*.
- Bassi, L. (1984) Estimating the Effects of Training Programs with Nonrandom Selection. *Review of Economics and Statistics, 66(1):36-43*.

- Cave, G. and H. Bos (1995) The Value of a GED in a Choice-Based Experimental Sample. Mimeo, New York: Manpower Demonstration Research Corporation.
- Chami, R., Fullenkamp, C. and Jahjah, S. (2003) Are Immigrant Remittance Flows a Source of Capital for Development?. *IMF Working Paper 03/189*
- Cochran, W.G., and D.B. Rubin (1973) Controlling Bias in Observational Studies: A Review. *Sankhya*, ser. A, 35(4):417-446.
- Cox-Edwards, A. and Ureta, M. (2003) International migration, remittances and schooling: evidence from El Salvador. *Journal of Development Economics Vol 72*
- Czajka, J., S.M. Hirabayashi, R.J.A. Little, and D.B. Rubin (1992) Projecting From Advance Data Using Propensity Modeling: An Application to Income and Tax Statistics. *Journal of Business and Economic Statistics*, 10(2):117-131.
- De Haas, H. (2007) Remittances, migration and social development: a conceptual review of the literature. *United Nations Research Institute for Social Development. Social Policy and Development Programme Paper No. 34*
- De Haas, H. (2007) The impact of international migration on social and economic development in Moroccan sending regions: a review of the empirical literature. *International Migration Institute Paper 3*
- Ebeke, C. and Le Goff, M. (2009) Why migrants remittances reduce income inequality in some countries and not in others?. Working Papers 200919, CERDI.
- Ekanayake, M. and Mihalis, H. (2008) Do remittances and foreign direct investment promote growth: evidence from developing countries. *Journal of International Business and Economics*
- Funkhouser, E. (1992) Migration from Nicaragua: Some recent evidence. *World Development*, Elsevier, vol. 20(8), pages 1209-1218, August.
- Giuliano, P. and Ruiz-Arranz, M. (2005) Remittances, financial development and growth. *IMF Working Paper 05/234*
- Gustafson, B., & Makonnen, N. (1993). Poverty and remittances in Lesotho. *Journal of African Economies 2*
- Hanson, G. and Woodruff, C. (2003) Emigration and Educational Attainment in Mexico. *NBER Working Paper*. 2003.
- Heckman, J. (1979). "Sample selection bias as a specification error". *Econometrica* 47 (1): 153–61.

- Hildebrandt, N. and McKenzie, D. (2005) The effects of migration on the child health in Mexico. *Economia*
- Javid, M., Arif, U. and Qayyum, A. (2012) Impact of remittances on economic growth and poverty. *Academic Research International Vol. 2, No. 1*
- Jongwanish, J. (2007) Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries. *UNESCAP Working Paper 07/01*
- Kapur, D (2003) Remittances: the new development mantra, paper prepared for the G-24 Technical Group Meeting, 15–16 September (Geneva: Palais des Nations).
- Kapur, D. and McHale, J. (2003) Sharing the Spoils: International Human Capital Flows and Developing Countries. *Mimeo, The Center for Global Development*
- Kimhi, A. (2010) International remittances, domestic remittances and income inequality in Dominican Republic. *The Hebrew University of Jerusalem Discussion Paper No. 2.10*
- Lopez-Calix, J. and Seligson, M. (1990) Small business development in El Salvador: the impact of remittances. *Report of the Commission for the study of international migration and cooperative development, Washington*
- Lopez-Cordova, E. (2006) Globalization, migration and development: the role of Mexican migrant remittances. *INTAL-ITD Working Paper 20.*
- Lopez-Cordova, E. and Olmedo, A. (2006) International remittances and development: existing evidence, policies and recommendations. *INTAL-ITD Occasional Paper 41.*
- McKenzie, D. and Rapoport, H. (2004) Network effects and the dynamics of migration and inequality: theory and evidence from Mexico. *Mimeo, Stanford University*
- Mesnard, A. (2000) Temporary migration and capital market imperfections. *Oxford Economic Papers*, 56(2), p.242-262.
- Munzele-Maimbo, S. and Ratha, D. (2005) Remittances: development impact and future prospects. *The International Bank for Reconstruction and Development, The World Bank.*
- Nwosu, E.O. (2009) Remittances, poverty and income distribution in Nigeria: evidence from household data. *Mimeo*
- Page, J. and Plaza, S. (2005) Migration, remittances and development: a review of global evidence. *Oxford University Press*
- Rappoport, H. and Docquier, F. (2005) The economics of migrants' remittances. *IZA Discussion Paper No. 1531*

- Raynor, W.J. (1983) Caliper Pair-Matching on a Continuous Variable in Case Control Studies. *Communications in Statistics: Theory and Methods*, 12(13):1499-1509.
- Revallion, M & Chen, S (1997) what can new survey data tell us about recent change in distribution and poverty?. *World Bank Economic Review*, 11
- Rosenbaum, Paul (1995) *Observational Studies*, Springer Series in Statistics (New York, NY: Springer Verlag).
- Rubin, D. (1973) Matching to Remove Bias in Observational Studies. *Biometrics*, 29:159-183.
- Rubin, D. (1979) Using Multivariate Matched Sampling and Regression Adjustment to Control Bias in Observation Studies. *Journal of the American Statistical Association*, 74(366):318-328.
- Schneider, F., Buehn, A. and Montenegro, C. (2010) Shadow Economies All Over the World: New Estimates for 162 Countries from 1999 to 2007. *World Bank Policy Research Working Paper Series*, 5356.
- Siddiqui, R. and Kemal, A.R. (2002) Remittances, trade liberalization and poverty in Pakistan: The role of excluded variables in poverty change analysis. *Development Economics Working Papers 22224*, East Asian Bureau of Economic Research
- Spatafora, N. (2005) Workers' remittances and economic development. *World Economic Outlook*
- Taylor, J.E., Mora, J., Adams, R. and Lopez-Feldman, A. (2005) Remittances, inequality and poverty: evidence from rural Mexico. *Working Papers 60287*, University of California, Davis, Department of Agricultural and Resource Economics
- United Nations, Department of Economic and Social Affairs, Population Division (2002). *International Migration Report 2002*
- United Nations, United Nations Conference on Trade and Development (2011). *Impact of remittances on poverty in developing countries*
- Westat (1981) Continuous Longitudinal Manpower Survey Net Impact Report No. 1: Impact on 1977 Earnings of New FY 1976 CETA Enrollees in Selected Program Activities. Report prepared for U.S. DOL under contract No. 23-24-75-07.
- Woodruff, C. and Zenteno, R. (2001) Remittances and microenterprises in Mexico, *Journal of Development Economics* 82
- World Bank (2012) Migration and development brief 19. Migration and remittances units, Development prospects groups, November, 2012

World Bank and Statistical Office of Kosovo (2011) *Consumption Poverty in the Republic of Kosovo in 2009*, May 2011

Yang, D. (2003) The dynamics of international labor migration: understanding the departure and return of overseas Filipino workers. Mimeo.