COULD REMITTANCES SHIELD VULNERABLE HOUSEHOLDS IN TRANSITION ECONOMIES?

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Abstract— The objective of the paper isto provide quantitative estimatesof the effect of remittances onto vulnerability in the case of Macedonia. Transition economies remain large recipients of remittances in terms of the sizes of their economies. As such, remittances are likely to benefit poorer countries, not only by subsidizing or substituting income, but also by reducing household's vulnerability in other meaningful ways, like by supporting health expenditures, improving school outcomes and reducing unemployment. To investigate this in a more rigorous way, we devise an index of social vulnerability for Macedonia, comprehending income poverty, unemployment of both spouses, single parents, as well conditions of impaired health, undernourishment, material deprivation and insufficient clothing. Remittances then are allowed to determine the index of vulnerability. We use the Remittances Survey 2012 for Macedonia and conditional mixed process (CMP) estimator. Results suggest that remittance-receiving households have, on average 6% higher probability to report zero-vulnerability, suggesting that they indeed could act as social protection. However, we document that remittances effect for vulnerability is mainly channeled through income-based indicators.

Keywords— Remittances, Vulnerability, Social Indicators.

I. INTRODUCTION

Migration and remittances may have significant effects on households' economic activities. Migration is associated with loss of human resources for the migrant-sending households which may translate into a loss in production and income, as well a labor constraint. Labor reduction may lead to decreased agricultural production and yields, while any capital (human or financial) taken by the migrant may undermine the thin capital stok of the household (Taylor, 1999). These losses may then negatively affect the welfare of migrant-sending households and increase their vulnerability to income shortfalls or other economic shocks. On the other hand, remittances that follow migration are generally viewed as a source of income, social umbrella, and potential for capital accumulation, and thus constitute the largest direct effect of migration on migrant-sending households. Taylor (1999) indicates that remittances can reduce or even reverse the negative effects of labor and capital losses associated with migration. Remittances can directly contribute to income, alleviate vulnerability and increase production of households left behind.

The theory behind the role of remittances as informal social protection for receivers dates back to the new economics of labour migration (Stark, 1978, 1991). This strand of theoretical underpinnings links the causes and consequences of migration explicitly, so that both positive and negative development effects are possible. Particularly, it puts the household, not the individual as the decision-making unit with regard to the migration decisions (Taylor, 1999). Hence, if the household is exposed to social risks and income shocks, it will opt for diversification of its labour resources so as to minimize these risks (Stark and Levhari, 1982). This is done by sending a migrant abroad, so that the incidence of income shocks and hence falling into poverty is minimized by diversification of income sources and remittances serve as (informal) social insurance at origin (Lucas and Stark, 1985). Therefore, this approach adds the household-level decisions to the individual-level decisions, as the latter are mainly driven by the self-interest, i.e. the objective to maximize personal income.

At the empirical front, the consumption and investment effects of remittances have been widely investigated: some papers date back to 1987, like Lucas, while others are quite recent, e.g. Javid et al. (2012), suggesting that the topic of remittances has not lost of its warmth over the decades. However, the potential of remittances to act as informal social protection and insurance mechanisms in a broader sense has been rarely investigated (Sabates-Wheeler and Waite, 2003). As Sabates-Wheeler and Waite (2003) clearly point out (p.17), migration and hence, remittances have only informal protective role for migrant's family at origin, if not framed by the government in a specific policy. This is also the highlight of De la Briere et al.'s (1997) models of remittances' role: "…migration may be conceptualized as an informal preventive social protection strategy used by migrant households for insurance and risk diversification" (Sabates-Wheeler and Waite, 2003, p.19).

Developing and transition economies have been estimated to have received USD 436 billion as remittances in 2014. Transition economies remain at the top of the list of remittance-receivers in relative terms: Tajikistan (49% of GDP); Kyrgyz Republic (31%); Moldova (24%); Kosovo (15%) and the other Balkan countries (8-12%). However, the microeconomic effects of remittances in transition economies remain rarely investigated in a more rigorous manner. Remittances are broadly understood as alleviating poverty and helping households in other ways (subsidizing health-related costs, contributing to better living by financing the purchase of houses, cars, for weddings and the like), but the magnitude of their effect remains unknown.

The objective of this paper is twofold: first, to review some development indicators vis-à-vis the remittances received in the transition economies of the Southeast Europe (SEE) and the Commonwealth of Independent States (CIS); and, second, to quantify the effect of remittances for vulnerability for one particular case for which we have micro-data on disposal, Macedonia. Results suggest that remittance-receiving households have, on average 6% higher probability to report zero-vulnerability, suggesting that they indeed could act as social protection. However, we only document a role of remittances for improving income-based indicators, i.e. for reducing poverty.

The paper is organized as follows. The next section offers a comparative overview of the ways in which remittances could affect facets of household's social vulnerability and then offers a descriptive overview of various development indicators in the transition economies of SEE and CIS. Next section provides some estimates of the causal effect of remittances for vulnerability for the case of Macedonia. The last section concludes.

II. REMITTANCES AND VULNERABILITY: ECONOMETIC EVIDENCE FROM MACEDONIA

2.1 Vulnerability indicators

Macedonia receives about 20% of its GDP in private transfers per year, out of which it is estimated that between 4% and 10% are pure cash remittances directly contributing to the livelihoods of (poor) households of Macedonian citizens (Petreski and Jovanovic, eds., 2013). On the other hand, the economy is still diving into flagrant unemployment of 27% and a poverty of 26% in 2014. Only 9% of households receive formal social assistance from the government, and it reduces the incidence of poverty by only 3 percentage points. Petreski and Jovanovic (2014) estimate the reducing effect of remittnaces onto poverty in Macedonia to have been around 3 percentage points, hence similar to that of the social assistance. Besides this, no other study has examined the effects of remittances on household welfare/vulnerability in a more rigorous manner.

To be able to pursue our second objective – to investigate if and to what extent remittance affect vulnerability of Macedonian household, we first need to measure vulnerability. There is no consensus in the literature on the indicators defining vulnerability at the individual or household level. The micro-triggers of vulnerability (i.e. those affecting wellbeing negatively) could be loss of job (and hence income), illness, death and the like. Rygel et al. (2005) argue that the most important manifestation of vulnerability is the income shortfall and hence took *poverty* as indicator of vulnerability.Poor people have less money to spend on preventative measures, emergency supplies, and recovery efforts (Clark et al. 1998). However, a large strand of the literature goes beyond poverty in measuring vulnerability. For example, Adger et al. (2004) defined a couple of categories of vulnerability indicators, out of which the following refer to the household vulnerability: economic wellbeing – income and employment; health and nutrition. Given these notions, this paper is based on a vulnerability index which is composed of the following facets of vulnerability:

1. Income poverty, as the most direct measure of the well-being and being the only direct income-based vulnerability indicator;
2. Unemployment of two spouses in households with at least one child;
3. Single (lone) parents;
4. Households with bad health conditions;
5. Households with bad housing conditions;
6. Households who are undernourished;
7. Households with endangered health condition of members;
8. Households without availability of different forms of leisure.

Hence, a household may be ranked on a vulnerability scale ranging between 0 and 7 (since conditions 2 and 3 are mutually exclusive), whereby 0 refers to an absence of vulnerability, while 7 reflects the strongest form of vulnerability. Devised through these components, Table 1 presents the distribution of the vulnerability index for Macedonia. It suggests that more than one third of the households in Macedonia, 37.6% do not reveal any of the vulnerability conditions. Nearly one third, 30.9%, revealed only one condition of vulnerability. The shares significantly decline as we progress up the vulnerability scale: very vulnerable households, which could be arbitrarily taken those with an index of above 5 are only few: 2.3% of all households.

Table 1 – Distribution of the overall Vulnerability index

Vulnerability index		Frequency	Percent	Frequency	Percent
0	Low vulnerability	376	37.6	374,828	35.5
1		309	30.9	317,626	30.0
2		144	14.4	160,188	15.2
3		84	8.4	102,774	9.7
4		64	6.4	76,023	7.2
5		20	2.0	21,147	2.0
6	High vulnerability	3	0.3	4,758	0.5
7		0	0	0	0
Sample		**Un-weighted (n=1.000)**		**Weighted (N=1.057.344)**	

Source: Authors' calculations.

Devised in this manner, the vulnerability index overcomes the drawbacks of the studies based on poverty as a single indicator of vulnerability. In particular, our vulnerability index considers a range of non-income facets of vulnerability, which is rarely done in a similar context, let alone for a transition economy.

2.2 Economic model and data

We use the vulnerability index as a dependent variable in a fairly standard model in order to identify how different personal and household characteristics affect household's vulnerability. As our analysis is at the household level, any personal characteristic refers to that of the household head. We will write the model in the following generic form:

$$VI_i = \alpha + \sum \beta_{1i} Head_ch_i + \sum \beta_{2i} Household_i + \sum \beta_{3i} Community_i + \gamma * Remit_i + \varepsilon_i \quad (1)$$

Whereby VI_i stands for the vulnerability index of household i, as defined above; $Head_ch_i$ captures a bunch of personal characteristics of the household head; $Household_i$ captures a set of household-level characteristics, while $Community_i$ some community/regional level characteristics. The central variable of interest, $Remit_i$ measures remittances and is expressed as a dummy variable by separating receiving from non-receiving households, so as any measurement issues (underreporting) of remittances is avoided. $\varepsilon_i$is the error term which is assumed to be well behaved.

We use the Remittances Survey 2012. The Survey has been collected by the University American College Skopje within a previous effort to analyze poverty and inequality nexus with remittances (see, Petreski and Jovanovic, 2014). The survey comprehends about 60 questions specifically focused on remittances and little to migration. It also captures the socio-economic and demographic variables, making it suitable for the analysis we conduct herein.

2.3 Results and discussion

Table 2 presents the baseline results. The central variable of interest – remittances – is found significant when considering the overall index and its income component. Households who receive remittances have on average lower vulnerability than those who do not. To quantify the effect of remittances on vulnerability, Table 3 gives the marginal effects for the seven outcomes of the vulnerability index. Remittance-receiving households have, on average 6% higher probability to report zero-vulnerability, i.e. that none of the vulnerability conditions we identified in Section 3.1 prevailed**. This is very strong and, probably, the most important result of this study, proving that remittances indeed could act as social protection for remittance-receiving households**. Remittance-receiving households have lower probability by, on average, 1.8% to report two vulnerability conditions than compared to non-receiving households. Afterwards, the effect diminishes to 1.7% and 1.5% for prevalence of three and four vulnerability conditions, respectively, and fully vanishes for the largest vulnerability conditions. T**he main driver of the finding is poverty / income vulnerability, and not non-income vulnerability.** Results suggest that households who get remittances have lower probability of falling into poverty by, on average, 27% than compared to non-receiving households. The result is similar, but still slightly lower than the one found in Petreski and Jovanovic, eds. (2013). Remittances are found insignificant for each outcome of the non-income vulnerability index (not shown, but available on request).

Table 2 – Baseline results

	Vulnerability index		Income vulnerability		Non-income vulnerability	
	First stage: Remittances	Second stage: Vulnerability	First stage: Remittances	Second stage: Vulnerability	First stage: Remittances	Second stage: Vulnerability
	(1)	(2)	(3)	(4)	(5)	(6)
Age of the head	-0.0261	0.0366	-0.0349	0.0088	-0.0255	0.0357
Age squared	0.0002	-0.0005**	0.0003	-0.0001	0.0002	-0.0005**
Gender (1=male)	-0.1518	-0.1351	-0.1497	0.0571	-0.152	-0.1426
Marital status (1=married)	-0.3165	-0.1616	-0.3387	0.3418	-0.3255	-0.2563
Ethnicity (1=Macedonian)	-0.8548***	-0.1866*	-0.8396***	-0.5587***	-0.8583***	-0.0742
Education of the head (ordered scale)	-0.0091	-0.1999***	-0.0043	-0.2321***	-0.0101	-0.1686***
Number of hh members	-0.5153***	0.2795***	-0.5190***	0.4580***	-0.5182***	0.2070**
Number of hh members squared	0.0435***	-0.0128	0.0445***	-0.0207*	0.0436***	-0.0095
Dependency ratio	-0.3302	1.2053***	-0.3362	0.3054	-0.324	1.2812***
Geography (1=urban)	0.2277	0.0052	0.2247	-0.125	0.2217	0.0434
Non-economic motive to migrate	-0.8611***		-0.8611***		-0.8611***	
Remittances (1=the hh receives remittances)		-0.1629*		-0.2658*		-0.1189
Constant	0.9647		1.1258	-0.8993	0.9837	
Observations	991	991	991	991	991	991

*Source: Authors' calculations. *,** and *** denote statistical significance at the 10, 5 and 1% level, respectively. Standard errors given in parentheses.*

Table 3 – Marginal effects: total vulnerability index

	Vulnerability strength						
	0	**1**	**2**	**3**	**4**	**5**	**6**
	No vulnerability ←					**-> Very high vulnerability**	
Age of the head	-0.0134	0.0004	0.0042	0.0039	0.0035	0.0011	0.0002
Age squared	0.0002**	0.000	-0.0001**	-0.0001**	-0.0000**	-0.0000**	0.000
Gender (1=male)	0.0485	0.0002	-0.0149	-0.0146	-0.0135	-0.0046	-0.001
Marital status (1=married)	0.0607	-0.0057	-0.019	-0.0166	-0.0141	-0.0043	-0.0009
Ethnicity (1=Macedonian)	0.0671**	-0.0001	-0.0207*	-0.0201*	-0.0186*	-0.0062	-0.0014
Education of the head (ordered scale)	0.0731***	-0.0024	-0.0228***	-0.0213***	-0.0191***	-0.0062***	-0.0013
Number of hh members	-0.0019	0.0004	0.0006	0.0006	0.0005	0.0002	0.000
Number of hh members squared	-0.1022***	0.0034	0.0318***	0.0298***	0.0267***	0.0087**	0.0018
Dependency ratio	0.0047	-0.0002	-0.0015	-0.0014	-0.0012	-0.0004	-0.0001
Geography (1=urban)	-0.4409***	0.0147	0.1373***	0.1285***	0.1151***	0.0374***	0.0078
Remittances (1=the household receives remittances)	0.0605*	-0.0041	-0.0189*	-0.0170*	-0.0148*	-0.0047	-0.001
Observations	991	991	991	991	991	991	991

*Source: Authors' calculations. *,** and *** denote statistical significance at the 10, 5 and 1% level, respectively. Standard errors given in parentheses.*

CONCLUSIONS

The objective of the paper is, first, to provide a comparative overview of remittances and vulnerability indicators in selected transition economies of the Southeast Europe and the Commonwealth of Independent States; and second, to provide quantitative estimates of the effect of remittances onto vulnerability in the case of Macedonia. Transition economies remain large recipients of remittances in terms of the sizes of their economies. As such, remittances are likely to benefit poorer countries, not only by subsidizing or substituting income, but also by reducing household's vulnerability in other meaningful ways, like by supporting health expenditures, improving school outcomes and reducing unemployment. To investigate this in a more rigorous way, we devise an index of social vulnerability, comprehending income poverty, unemployment of both spouses, single parents, as well conditions of impaired health, undernourishment, material deprivation and insufficient clothing, so as to capture non-income vulnerability conditions.

We regress the index on a standard set of household and community characteristics, adding an indicator of if the household is a recipient of remittances. As remittances are likely endogenous to vulnerability, we use an instrumental variable approach and the conditional mixed process estimator. An indicator of a noneconomic motive to migrate is proposed as instrument, as it is likely correlated with remittances, since any migrant is likely to send remittances irrespective of his migration motive; while uncorrelated with the shocks onto vulnerability. We use the Remittances Survey 2012. Results suggest that remittance-receiving households have, on average 6% higher probability to report zero-vulnerability, suggesting that they indeed could act as social protection in MacedoniaHowever, we find that it is only poverty, as an income-based indicator, is mainly affected by remittances, while the non-income-based indicators, like health, nourishment, clothing, housing, were found to have been unaffected.

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