

# Home is where the money's going: determinants and impacts of remittances in the Ganges Brahmaputra and Mekong deltas

Sylvia Szabo<sup>1</sup>, Zoe Matthews<sup>1</sup>, W Neil Adger<sup>2</sup>

<sup>1</sup> *University of Southampton, Southampton, United Kingdom*

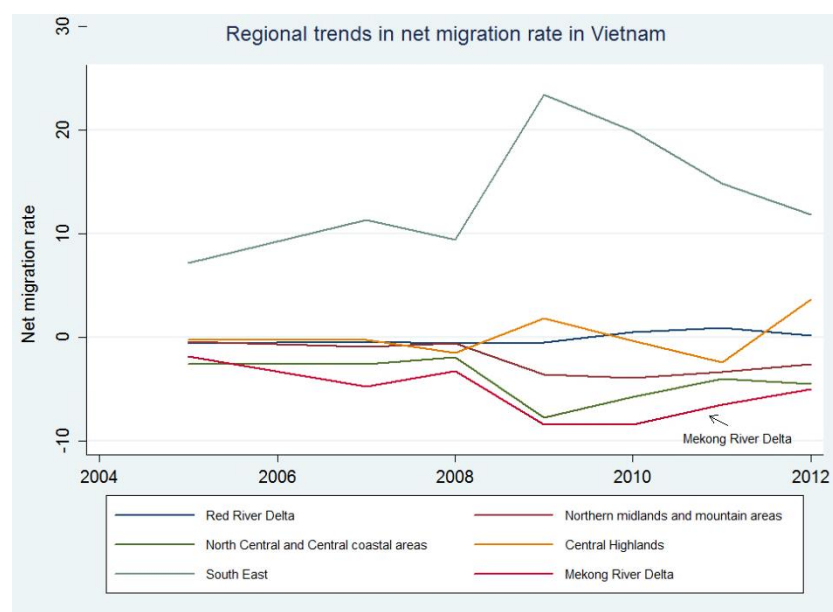
<sup>2</sup> *University of Exeter, Exeter, United Kingdom*

## 1. INTRODUCTION

Globally, over 230 million people are international migrants and around 700 million are internal migrants (World Bank, 2013). In 2013 remittances exceeded 404 billion, which constituted an increase of 3.5% as compared to 2012 and this growth is projected to accelerate (World Bank, 2014). At the country level both international migration and remittances were proved to be significant predictors of poverty reduction, even when controlling for confounding factors (Adams & Page, 2005). At the micro level, existing studies confirmed that households which receive remittances benefit from higher objective and subjective standard of living (Semyonov & Gorodzeisky, 2008; Xing et al., 2010; ILO, 2013).

Analysing the determinants and impacts of remittances is particularly important in these developing countries and regions where a combined number of push factors operate. In the environmentally vulnerable Ganges Brahmaputra and Mekong deltas the economic push and pull factors are exacerbated by the impact of natural disasters, increasing salinity intrusion and droughts. In both Ganges Brahmaputra and Mekong delta regions, the impact of environmental disasters has been widely documented. In Bangladesh between 1976 and 2001, 270 million people were affected by floods and 25 million people were affected by droughts (Reuveny, 2008). Out migration to neighbouring India intensified after the creation of the Farakka Barrage and resulted in clashes amongst ethnic, religious and socioeconomic lines (Swain, 1996; Reuveny, 2008). Similarly, in the Mekong delta, out migration is relatively higher as compared to other regions in the country (Figure 1). People who are reliant on crop production for their livelihoods are forced to relocate due to flooding and wider environmental degradation (Warner, 2010). It is expected that

environmental change will continue to act as a key push factor and thus be an indirect determinant of the volume of migrants' remittances.



**Figure 1 Regional trends in net migration rates in Vietnam (2005-2012).**

In this context, the purpose of the present study is twofold. First, to estimate the volume of remittance flows and examine the key determinants of remittances in the Ganges Brahmaputra and Mekong delta regions. The second objective of this research is to analyse the impacts of remittances on households' well-being, including health outcomes, education and food security. The study area consists of the two delta regions as specified by the Belmont Forum's DELTAS project definition. More specifically, it comprises the divisions of Khulna, Barisal, Dhaka, Sylhet and the majority of Chittagong<sup>1</sup> in the Ganges Brahmaputra delta and the thirteen provinces in the Vietnamese Mekong delta<sup>2</sup>. The definition of remittances used in this paper refers to personal transfers and encompasses remittances sent both from abroad and domestically.

## 2. DATA AND METHODS

The present study makes use of the data from the 2012 Vietnamese Living Standards Survey (VLSS) and 2010 Bangladesh Household Income and Expenditure Survey (HIES). The most recent 2010 HIES dataset contains a

<sup>1</sup> Belmont Forum DELTAS project excludes the following districts from its definition of the Bangladeshi Ganges Brahmaputra delta: Khagrachari, Rangamati and Bandarban.

<sup>2</sup> The thirteen provinces of the Mekong delta include Long An, Tiền Giang, Bến Tre, Trà Vinh, Vĩnh Long, Đồng Tháp, An Giang, Kiên Giang, Cần Thơ, Hậu Giang, Sóc Trăng, Bạc Liêu, Cà Mau.

specific module on migration, which constitutes a new development as compared to the previous waves of the survey. With regards to VLSS, migrant population was identified by including in the study sample only these individuals who lived away from home, either within the same province, a different province or a different country. We use standard predictors of remittances, including migrant's attributes as well household level characteristics (Hagen-Zanker & Siegel, 2007; Niimi et al., 2008). With regards to the former, the standard socio-economic variables are accounted for, such as migrant's age, sex and educational attainment. In addition, following on existing literature, we control for the length of migration and migration destination (internal vs. international migration). The standard well-being (and human development) indicators include household income, health, food security and sanitation. We operationalise the human well-being concept by using four selected variables, each pertaining to a different aspect of well-being. The specific variables include overall household income, expenditure on health (measuring investment in health), percentage of expenditure spent on food and access to sanitation. In order to control for community effects, we apply multilevel linear and logistic regression modelling.

### **3. PRELIMINARY EMPIRICAL RESULTS**

Based on the results of multilevel modelling (Appendices 1 & 2), it can be noticed that migrant's characteristics have a significant impact on the amount of remittances transferred in both Ganges Brahmaputra and Mekong deltas. In particular, the length of stay away from home, educational attainment, as well as whether migration is internal or international play a significant role. Not surprisingly, households with international migrants are significantly more likely to receive higher amounts of remittances. Controlling for other factors included in the model, in the GBD remittances in these households are likely to be almost 142% higher as compared to households with internal migrants. In terms of households' characteristics, household size and wealth indicators (such as wall material and access to sanitation) are statically significant predictors of remittances in the GBD, but not the Mekong delta. Household size is likely to have a positive impact on remittances because of a greater need of larger families for financial support. On the other hand, household wealth can be indicative of higher educational attainment of the migrant, which can in turn translate into higher earnings and remittances.

As expected, the amount of remittances transferred has a significant effect of household well-being (Appendix 2). This is the case in both delta regions. Thus, for example, households which receive highest remittances (measured by top tertile), have a significantly higher probability of having access to sanitary facilities. Similarly,

receiving more remittances is negatively associated with proportion of expenditure spent on food, indicating a lower risk of food insecurity.

#### 4. FUTURE RESEARCH

Future research will involve detailed model evaluation and sensitivity analyses. The paper will also provide a set of concrete policy recommendations in the context of increasing global mobility and climate change.

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**APPENDIX 1 Determinants of remittances in the Ganges Brahmaputra and Mekong deltas (preliminary results).**

**Table 1 Determinants of remittances in the Ganges Brahmaputra and Mekong deltas.**

Remittances (total amount transferred, log)	GBD	Mekong
variable	$\beta$ (SE)	$\beta$ (SE)
<i>Migrant characteristics</i>		
<i>Length of stay abroad</i>		
1 year or less	0.35 (0.06)***	0.70 (0.18)***
2 to 4 years	0.49 (0.06)***	0.65 (0.17)***
Baseline: more than 4 years	1.00	1.00
<i>Educational attainment</i>		
secondary	0.06 (0.07)	0.28 (0.12)**
college or higher	0.25 (0.07)***	-0.08 (0.20)
Baseline: primary or none	1.00	1.00
<i>Migrant is a female</i>		
	-0.50 (0.14)***	0.06 (0.11)
Baseline: migrant is a male	1.00	1.00
<i>International migrant</i>		
	1.42 (0.05)***	2.03 (0.27)***
Baseline: internal migrant	1.00	1.00
<i>Household characteristics</i>		
<i>Rural location</i>		
	-0.01 (0.07)	-0.22 (0.15)
Baseline: urban location	1.00	1.00
<i>HH size</i>		
	0.02 (0.01)**	-0.04 (0.03)
<i>HH dependency ratio</i>		
	-0.08 (.10)	0.61 (0.20)***
<i>HH head is female</i>		
	0.31 (0.05)***	0.03 (0.13)
Baseline: HH head is male	1.00	1.00
<i>HH has sanitary latrine</i>		
	0.18 (0.05)***	0.19 (0.12)
Baseline: HH doesn't have sanitary latrine	1.00	1.00
<i>Wall material</i>		
rudimentary	0.18 (0.06)***	-0.12 (0.28)
finished	0.18 (0.07)**	-0.07 (0.16)
Baseline: natural	1.00	1.00
<i>HH engaged in fishing</i>		
	-0.003 (0.07)	-0.21 (0.12)*
Baseline: HH did not engage in fishing	1.00	1.00
<i>HH occupancy status: owner</i>		
	-0.19 (0.09)**	0.47 (0.52)
Baseline: HH occupancy status: not owner	1.00	1.00
Constant	6.84 (0.14)***	5.18 (0.58)***
<i>Random effects parameters</i>		
SD (constant)	0.16 (0.04)	0.45 (0.10)
SD (residual)	0.97 (0.02)	1.39 (0.04)
log likelihood	-2,531.2	- 1,276.4
number of observations	1,808	720
number of groups	83	40
LR test vs. linear regression, chi <sup>2</sup>	11.2, p<0.00	18.9, p<0.00

## APPENDIX 2 Impacts of migrants' remittances on household well-being (preliminary results)

Table 2 Impacts of migrants' remittances on household well-being (GBD).

Controls	Income (log)	Health (expenditure, log)	Access to sanitation	Food security (% spent on food)
Variable	$\beta$ (SE)	$\beta$ (SE)	OR (CIs)	$\beta$ (SE)
Remittances				
2 <sup>nd</sup> tertile	0.59 (0.05)***	0.17 (0.12)	1.39 (1.04; 1.84)**	-0.04 (0.01)***
3 <sup>rd</sup> tertile	1.09 (0.05)***	0.26 (0.12)**	1.45 (1.09; 1.94)**	-0.06 (0.01)***
Baseline: 1 <sup>st</sup> tertile	1.00	1.00	1.00	1.00
<i>Rural location</i>	-0.30 (0.05)***	0.03 (0.14)	0.40 (0.27; 0.59)***	0.07 (0.01)***
Baseline: urban location	1.00	1.00	1.00	1.00
<i>HH size</i>	0.10 (0.01)***	0.08 (0.02)***	1.09 (1.04; 1.15)***	0.001 (0.00)
<i>HH head is female</i>	-0.26 (0.05)***	0.28 (0.13)**	1.48 (1.12; 1.95)***	-0.04 (0.01)***
Baseline: HH head is male	1.00	1.00	1.00	1.00
<i>Age of HH head</i>	0.01 (0.00)***	0.01 (0.00)***	1.02 (1.01; 1.03)***	-0.001 (0.00)***
<i>Education of HH head</i>	0.03 (0.00)***	0.02 (0.01)*	1.10 (1.07; 1.13)***	-0.01 (0.00)***
<i>HH engaged in fishing</i>	0.25 (0.05)***	-0.05 (0.12)	1.02 (0.75; 1.39)	-0.02 (0.01)**
Baseline: HH not engaged in fishing	1.00	1.00	1.00	1.00
<i>Any HH member suffers from chronic illness</i>		0.43 (0.11)***		
Baseline: No HH member suffers from chronic illness		1.00		
Constant	8.13 (0.12)***	4.99 (0.31)***	0.07 (0.03; 0.14)***	0.66 (0.02)***
<i>Random effects parameters</i>				
SD (constant)	0.16 (0.03)	0.30 (0.08)	0.79 (0.60; 1.05)	0.04 (0.01)
SD (residual)	0.79 (0.01)	1.45 (0.04)		0.14 (0.00)
log likelihood	-2,203.0	-1,659.1	-1,022.7	971.4
number of observations	1,850	917	1,855	1,855
number of groups	83	74	83	83
LR test vs. linear regression, chi2	18.3, p<0.00	6.2, p<0.01	74.1, p<0.01	74.2, p<0.00

**Table 3 Impacts of migrants' remittances on household well-being (Mekong delta).**

Controls	Income (log)	Health (expenditure, log)	Access to sanitation	Food security (% spent on food)
Variable	$\beta$ (SE)	$\beta$ (SE)	OR (CIs)	$\beta$ (SE)
<b>Remittances</b>				
2 <sup>nd</sup> tertile	0.05 (0.05)	0.15 (0.13)	1.31 (0.89; 1.93)	-0.03 (0.01)***
3 <sup>rd</sup> tertile	0.30 (0.05)***	0.33 (0.13)*	1.90 (1.28; 2.82)***	-0.06 (0.01)***
Baseline: 1 <sup>st</sup> tertile	1.00	1.00	1.00	1.00
<i>Rural location</i>	-0.25 (0.06)***	0.01 (0.14)	0.42 (0.27; 0.67)***	0.005 (0.01)
Baseline: urban location	1.00	1.00	1.00	1.00
<i>HH size</i>	0.21 (0.01)***	0.15 (0.03)***	1.12 (1.03; 1.23)**	-0.001 (0.00)
<i>HH head is female</i>	-0.18 (0.05)***	-0.23 (0.12)*	1.00 (0.69; 1.45)	0.01 (0.01)
Baseline: HH head is male	1.00	1.00	1.00	1.00
<i>Age of HH head</i>	-0.002 (0.00)	0.01 (0.00)**	0.99 (0.98; 1.01)	0.00 (0.00)
<i>Ethnicity of HH head (Viet)</i>	0.41 (0.08)***	0.87 (0.19)***	0.95 (0.54; 1.68)	-0.04 (0.02)**
Baseline: other	1.00	1.00	1.00	1.00
<i>HH engaged in fishing</i>	-0.08 (0.05)*	0.17 (0.11)	0.27 (0.19; 0.38)***	-0.004 (0.01)
Baseline: HH not engaged in fishing	1.00	1.00	1.00	1.00
Constant	7.70 (0.17)***	2.80 (0.38)***	0.06 (0.03; 0.14)***	0.57 (0.03)***
<i>Random effects parameters</i>				
SD (constant)	0.17 (0.04)	0.18 (0.08)	0.56 (0.34; 0.92)	0.04 (0.01)
SD (residual)	0.60 (0.02)	1.41 (0.04)		0.12 (0.00)
log likelihood	-736.4	-1,396.7	-482.2	537.2
number of observations	796	788	796	796
number of groups	40	40	40	40
LR test vs. linear regression, chi2	20.8, p<0.00	2.1, p<0.10	16.5, p<0.01	24.2, p<0.00