

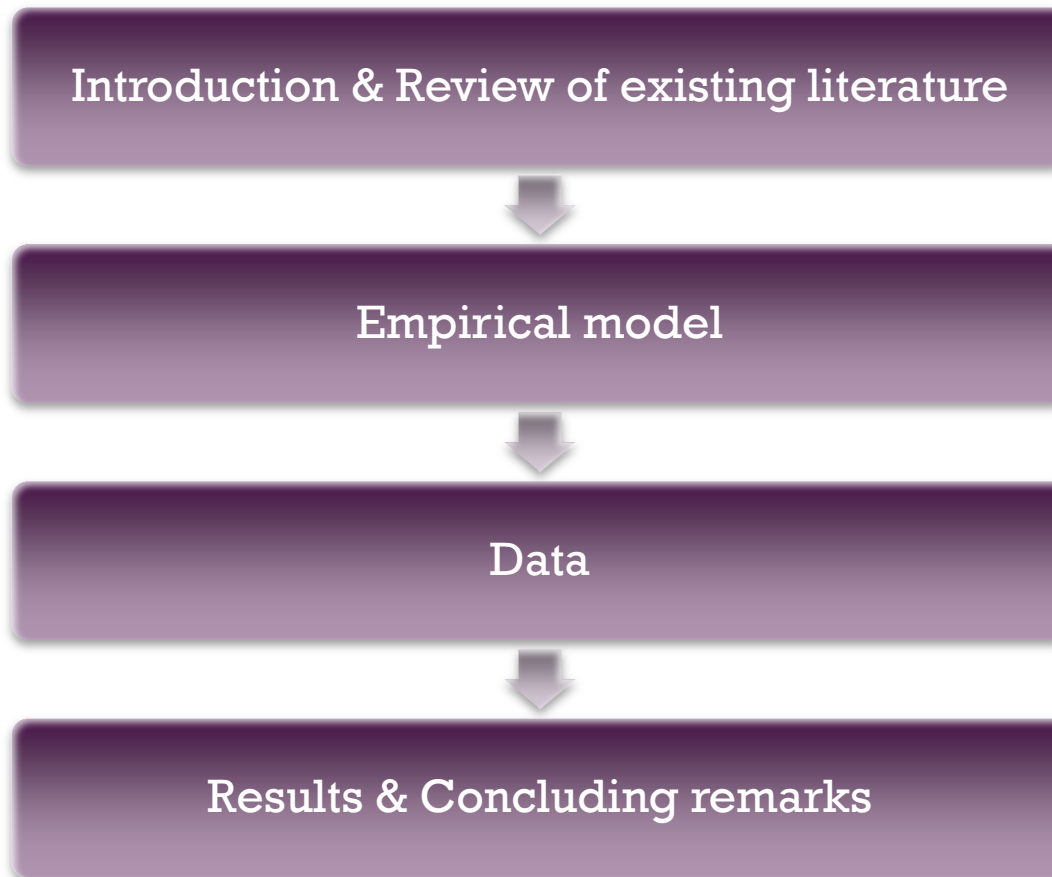


Graduation Thesis

Impact of Workers' Remittances on the Real Effective Exchange Rate in the Former Soviet Union

OJIMA Ryota
4th grade, Russian Major, Dept. of Foreign Studies
Tokyo University of Foreign Studies

+ Table of contents



+ Objectives of thesis

- i. Do migrant workers' remittances really appreciate the real effective exchange rate (REER)?
- ii. If they do, are the effects of the remittances on the REER in the Former Soviet Union (FSU) the same as that in other regions?
- iii. If not, what makes the differences in the impact between the FSU and other developing countries?

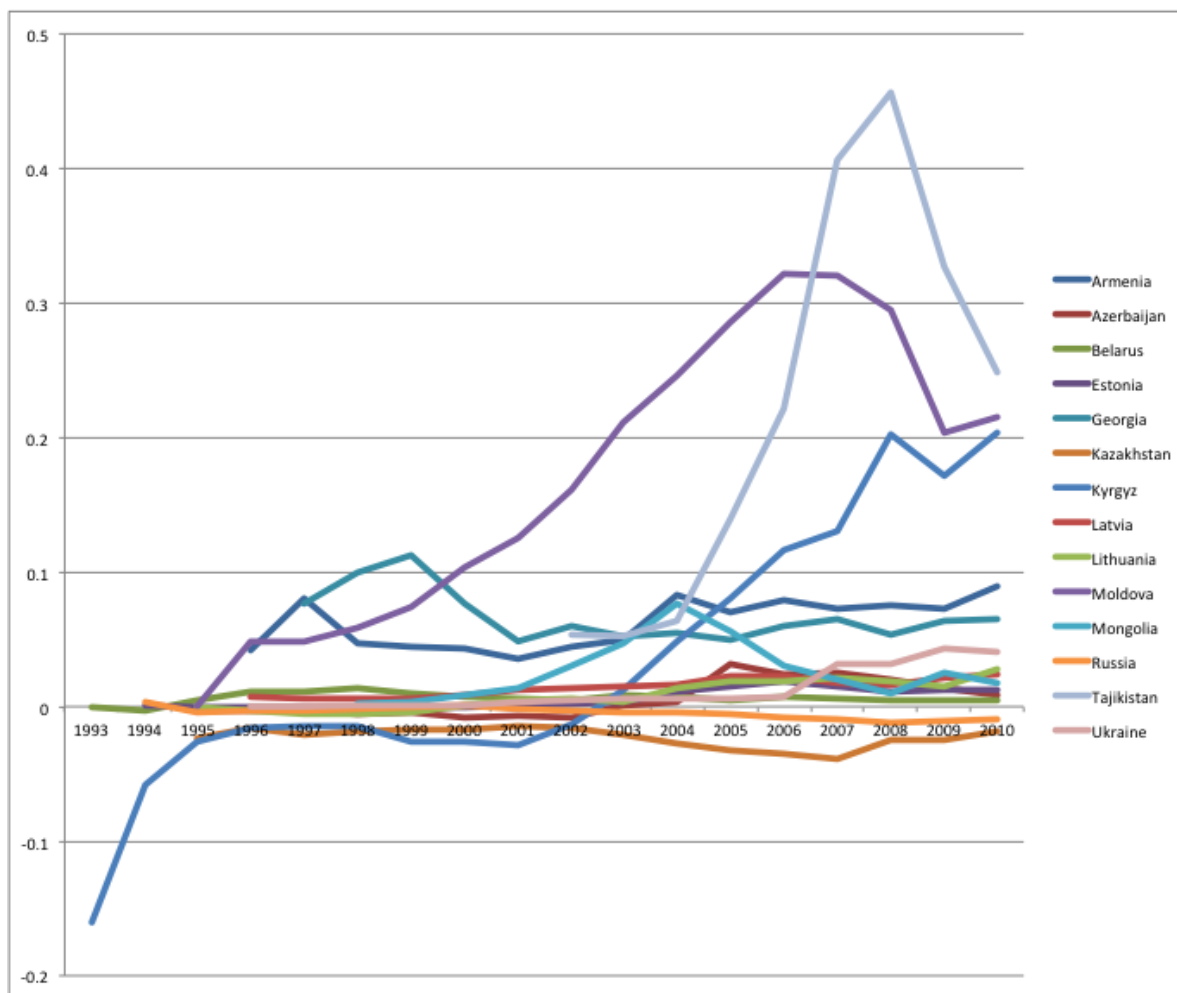
+ The Former Soviet Union



+ Introduction – description of remittances in the FSU

- 7 of top 10 migration corridors in the Europe and Central Asia are from/to Russian (Migration and Remittances Factbook (World Bank, 2011))
- Remittances in the FSU region have significantly increased during 2000's.
 - e.g.) The amount of remittances received by Tajikistan increased from 78.6 million dollars (6.4 % of its GDP) in 2002, to more than 2.5 billion dollars (49.3% of GDP) in 2008
- Common language, economic and social system, and business culture

+ Ratio of net remittance receipt to GDP of the FSU countries



+ Effects of remittances on recipient economies

Positive

- No obligation of repayment
- Boost capabilities of household consumption and investment
- Prevent recipient countries from balance-of-payments crises

Negative

- Labor drain
- Most of them tends to be just consumed, not invested.
- May cause Dutch disease effect

+ What is Dutch Disease (DD)?

- A large capital inflow results in real exchange rate appreciation, causing factor reallocation and de-industrialization (a decline in the production of tradable sector).
- DD originally refers the phenomenon that in a resource-rich country, an increase in the revenue of natural resource sector leads higher wages, consumer price and exchange rate, causing lower growth in the tradable sector such as manufacture, which ends in de-industrialization in a long term. The classic model was developed by Corden (1984).

+ DD effect of remittances

In a small open economy... Recall the PPP theory: $\frac{1/P_t^*}{1/P_t} = e$

- Spending effect: in a small open economy, while a growing demand does not raise the price of tradables, the prices of non-tradable items increase due to the demand
- Resource move effect: relative price change between tradable and non-tradable industries makes the latter more profitable and moves factors of production to the non-tradable sector.
- Income effect: an increased non-labor income reduces household labor supply. This reduced labor supply would raise wages, appreciating relative prices in internal markets.

+ Existing empirical studies

- Amuedo-Dorantes and Pozo (2004)
“Workers’ Remittances and the Real Exchange Rate: A Paradox of Gifts”
 - Fixed-Effects Model
 - Focus on “the levels of variables”
 - Latin America
 - Appreciate by 0.22-0.226%

- Lopez et al. (2007) “Remittances and the Real Effective Exchange Rate”
 - First-Differenced Model
 - Focus on “the rates of change”
 - Compares Latin America with other developing countries
 - Appreciate by 2.04-29.39%

- Suzuki (2008) 「援助等の資金流入が途上国の実質為替レートに与える影響」
 - Whole developing countries
 - PMG estimation. Compare remittances with aid and FDI, and aid by loan and gift.
 - Remittances appreciate the REER more

+ Empirical model - First-Differenced Model

$$\Delta \log(reer_{it}) = \theta \Delta x_{it} + \beta \Delta \log(remit_{it}) + \gamma \Delta \log(remit_{it}) \times fsu + \varepsilon_{it}$$

reer: real effective exchange rate

Δ : first difference operator

$$\Delta \log(reer_t) = \log(reer_t) - \log(reer_{t-1})$$

remit: ratio of the REER to country's GDP

x: a set of control variables

ε : error term

fsu: takes 1 if the country is in the FSU region, and 0 otherwise

+ Data description

- Region: 14 countries in the FSU region and other developing countries in the world
- Period: 2000-2010
- Data type: unbalanced panel data
- Number of countries in sample: 104

+ Variables

All variables are log-transformed and first-differenced (except for prod.).

- Remittances (remit) ($=\text{remit}/\text{GDP}$)
- Remittances \times fsu (0 or 1) (fsuremit)
- Terms of trade (tot) ($=P_x/P_m$)
- Trade openness (open) ($=(X+M)/\text{GDP}$)
- Productivity (per capita GDP growth)
- Government's consumption expenditure (cg) ($=\text{cg}/\text{GDP}$)
- Net foreign assets (nfa) ($=\text{nfa}/\text{GDP}$)
- International aid (aid) ($=\text{aid}/\text{GDP}$)

+ Data sources

- REER: Darvas (2011) “Real Effective Exchange Rate for 178 countries”
- GDP, GDP growth, tot, open, nfa, aid, cg:
World Development Indicators (World Bank)
- open: International Financial Statistics (IMF)

+ Expected signs of coefficients

Explanatory variables	Sign
Remittance	+
Remittance in the FSU	0?
Terms of trade	+
Trade openness	+/-
Productivity	+
Government's consumption expenditure (cg)	+/-
Net foreign assets	+
International aid	+

+ Calculation of REER (Ref.)

$$REER_t = \frac{NEER_t \cdot PI_t}{PI_t^{foreign}}, \quad NEER_t = \prod_{i=1}^N S(i)_t^{w^{(i)}}, \quad PI_t^{foreign} = \prod_{i=1}^N PI(i)_t^{w^{(i)}}$$

Where NEER is the geometrically weighted average of the nominal effective exchange rate between the country and its trading partner, PI is the price index of the country, PI (foreign) is the geometrically weighted average of the price indices of trading partners.

+ Results 1

Source	SS	df	MS
Model	1.56110121	8	.195137651
Residual	3.46027347	811	.004266675
Total	5.02137468	819	.006131105

Number of obs = **819**
 F(8, 811) = **45.74**
 Prob > F = **0.0000**
 R-squared = **0.3109**
 Adj R-squared = **0.3041**
 Root MSE = **.06532**

fdlreer	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
fdltot	.0411594	.0246465	1.67	0.095	-.007219	.0895379
fdlopen	-.2279772	.0184579	-12.35	0.000	-.2642082	-.1917462
gdpgrowth	.2034322	.0496087	4.10	0.000	.1060555	.3008088
fdlnfa	-.1582491	.0536254	-2.95	0.003	-.2635102	-.0529881
fdlchg	.0373813	.0211258	1.77	0.077	-.0040865	.0788491
fdlaid	-.0085636	.0041481	-2.06	0.039	-.0167059	-.0004213
fdlremit	.1825888	.0156493	11.67	0.000	.1518709	.2133067
fsufdlremit	-.0698488	.0450521	-1.55	0.121	-.1582812	.0185837

+ Results 2

- All coefficients have statistical significance at least at 10% level and most of them follows our primary assumption.
- One unit increase in remittances brings 18.9% of REER appreciation.
- “fsuremit” is negative but has no statistical significance
→ Does not reject the hypothesis “Remittances in the FSU appreciate as much as in other developing countries
- The coefficients of “nfa” and “aid” are negative, contradicting our assumption.

+ Concluding remarks & Policy discussion

- Remittances does appreciate the REER both in the FSU and in other developing countries.
- Since remittances in the FSU region are on the rapid increase, policymakers in the region should consider its impact.
- The appreciation of the REER is more remarkable with the remittances than that with the aid.
- Policymakers should reduce the income tax that may decrease the labor supply, and increase the indirect tax such as the VAT.
- Austerity budget, stabilization fund