

# **The effects of remittances and migration on accumulation and growth of poor developing countries**

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# Motivation

Hype

Chami et al.

# First model: 7x7, 4 samples

Only one direct effect:

$wr \rightarrow s$  (% GDP)

$s \rightarrow sepri$  (only in poor 42),  $s \rightarrow ri$

$s \rightarrow lit \rightarrow growth$

$growth \rightarrow s, inv$

$ri \rightarrow inv \rightarrow growth$

Growth dampens  $wr$  (not in  
poorest with  $dwr$ )

# 2nd model: 14x14; poor countries only

**Table 1: Signs of significant regressors**

<i>dep. variable</i>	nm/l	gdppc	d(log(l))	wr/gdp	savgdp	gfcfgdp	ri	taxy	peegdp	lit	odagdp	wld	oec	riusa
<i>regressors (a)</i>														
nm/l	-	0	+	0	+	0		0	0		0	0	0	0
gdppc	+	+	+	-	0	+	+	0	0	-		0	0	0
d(log(l))	0	-	+	0	0	+		0	0		0	0	0	0
wr/gdp	+	+	0	+	+	0		-	+		0	0	0	0
savgdp	-	0	0	0	+	0	-	+	0	+	0	0	0	0
gfcfgdp	0	+	0	0	0	+	+	0	0		0	0	0	0
ri	0	0	0	0	0	0	+	0	0		0	0	0	0
taxy	0	0	0	0	0	0	0	+	+		0	0	0	0
peegdp	0	0	0	0	0	0	0	0	+	+	0	0	0	0
lit	0	0	-	0	0	+	0	0	0		0	0	0	0
odagdp	0	-	+	0	-	+	+	0	+	+	+	0	0	0
wld	0	+	0	0	0	0	0	0	0		0	+	0	0
oec	-	0	0	+	0	0	0	0	0	+	+	+	+	0
riusa	0	0	0	-	0	0	0	0	0		0	-	0	+
adj.R-sq.,(J-st.)	(24)	(75)	(72)	0.93	0.87	0.86	0.7	1	0.95	1	0.9	1	1	0.72

(a): details on lags, logs, exponential terms and there combinations can be found in Ziesemer (2008a).

# Issues

- Worker remittances and growth
- Should we search for growth effects in growth regressions alone?
- Separate vs. system estimation

Endogen.?→ SUR? ↓	No	Yes
Cov(i,j) =0	LS (or dyn.pan. meth)	IV
Cov(i,j)>( <)0	SUR	<u>3SLS (ignores fe(?))</u> (GMM-HAC)

# Approach: From single equation regression to multiple interacting effects

- Countries below \$1200 (2000)
- Fixed effects or Arellano-Bover if coefficient of lag dep var obeys

$$\beta_{FE} < \beta_{AB} < \beta_{OLS}$$

- Simulation of system of equations
- Counterfactuals

# Multiple robustness checks:

- (i) Forecasting properties
- (ii) All non-linear results are plotted in order to check for counterintuitive effects from over fitting.
- (iii) In the system simulations we check for end-of-sample realism (non-contamination 1).
- (iv) System simulations check (are not forecasts) for the long-run stability (non-contamination 2).

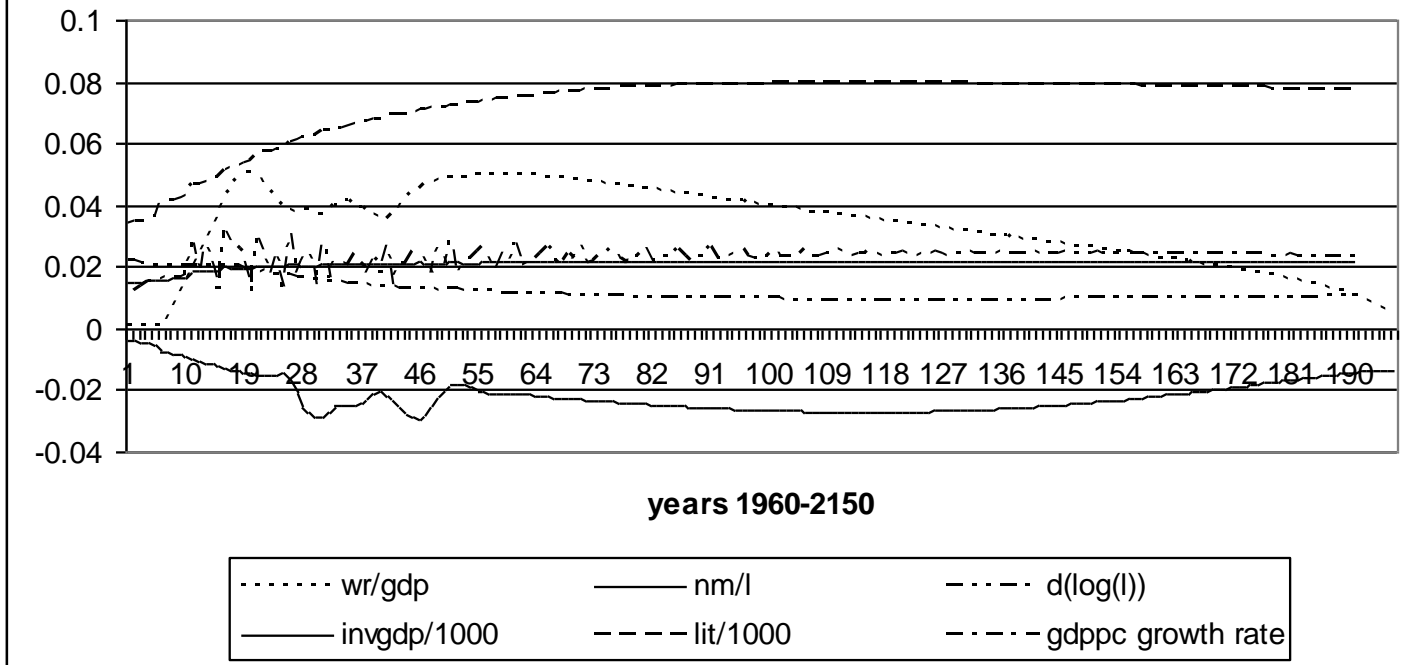
# Major channels of remittances

- Remittances incr GDPpc, savings directly
- Remittances incr peegdp (lit,Lgr,GDPpc)
- Remittances decr tax/GDP (lit,Lgr,GDPpc)
- Remittances reduce emigrat. (Lgr,GDPpc)

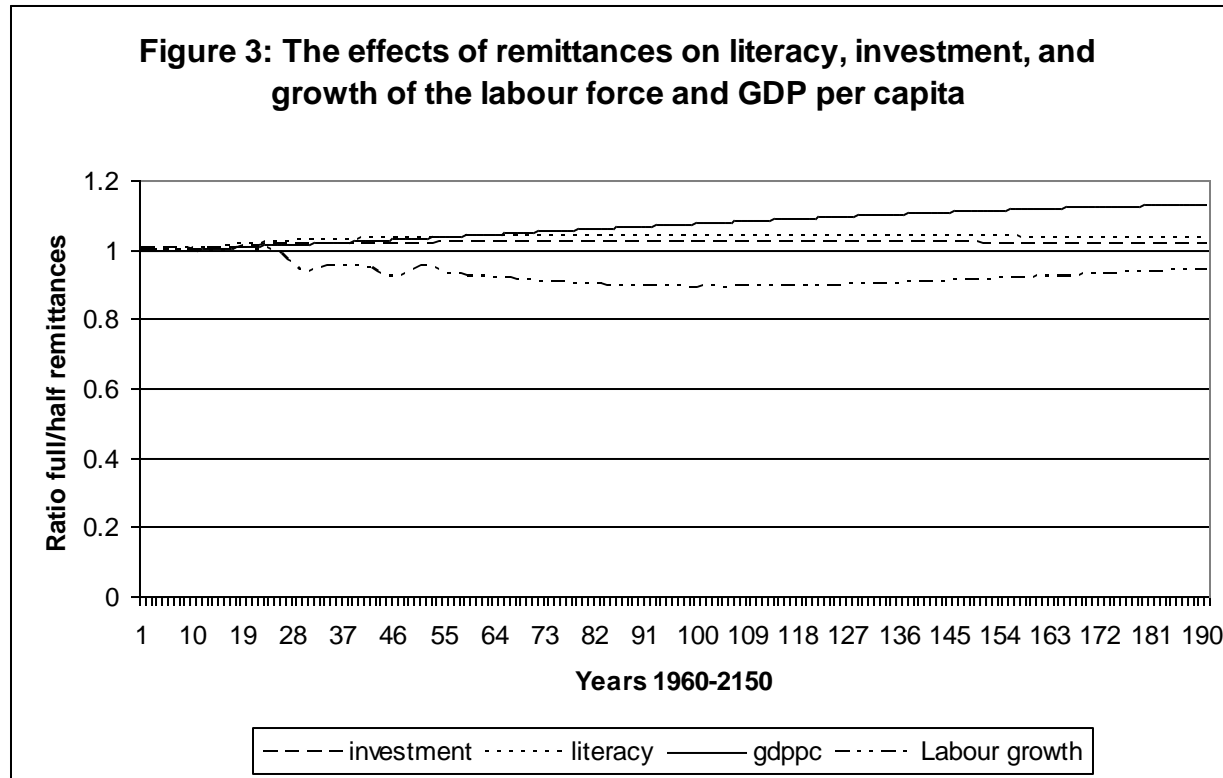


# System simulation

**Figure 1: Regression based simulation of migration hump, investment and remittance ratio, and rates of literacy, growth of labour force and GDP per capita**



# If migrants would send only 50%...



# Effects of emigration

## Emigration

- reduces labour force growth ( $inv \downarrow, gdppc \uparrow$ )
- Reduces savings ratios ( $taxy \downarrow, lit \downarrow, Lgr. \uparrow, gdppc \downarrow$ )

After all repercussions: numerical evaluation  
emigration enhances gdppc

# Summary of model 2

- Remittances are good for accumulation and growth, mainly via higher savings, more emigration (and literacy), less labour growth.
- Emigration enhances growth through the reduction of the labour force with counter effects from lower investment and the link 'savings-tax-education-labour-growth'.

# Special topics

Consequences of the credit crisis

Collinearity

Explicit channels in systems  
disasters, conflicts, and political  
instability

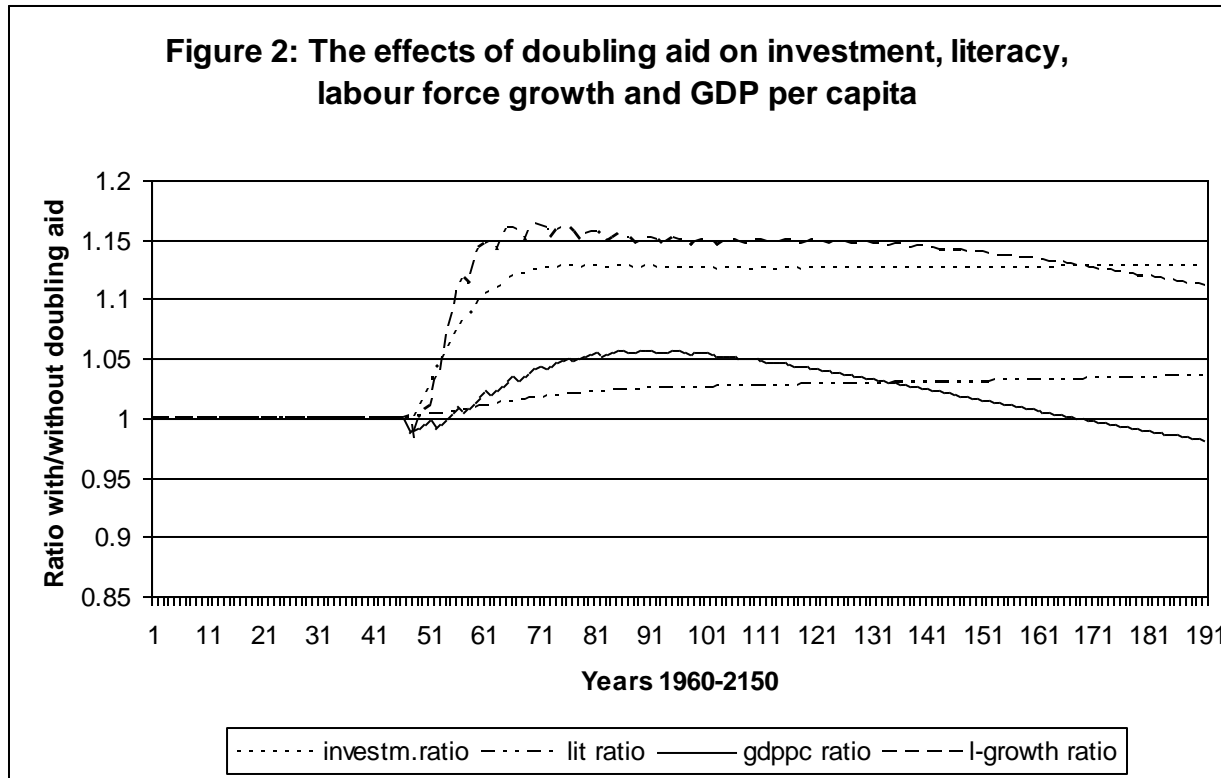
Aid and migration hump

# Major channels of aid in model 2

- Two positive:
  1. Aid, increases investment, incr. GDP pc gr
  2. Aid incr. Peegdp & literacy, decr L-growth, and incr GDP pc; but
- Three negative
  1. Aid, decreases savings and emigration
  2. Aid also increases L-growth directly
  3. Aid decreases GDPpc (growth) directly

# UN: Aid/GDP doubled

from 9.4% to 18.5%



More simulation plots available:

- Ziesemer, T.H.W. (2008a), Growth with Endogenous Migration Hump and the Multiple, Dynamically Interacting Effects of Aid in Poor Developing Countries. UNU-MERIT WP 2008-057.
- Ziesemer, T.H.W. (2008b), Worker remittances, accumulation and growth in poor countries. UNU-MERIT WP 2008-063.



# Related work

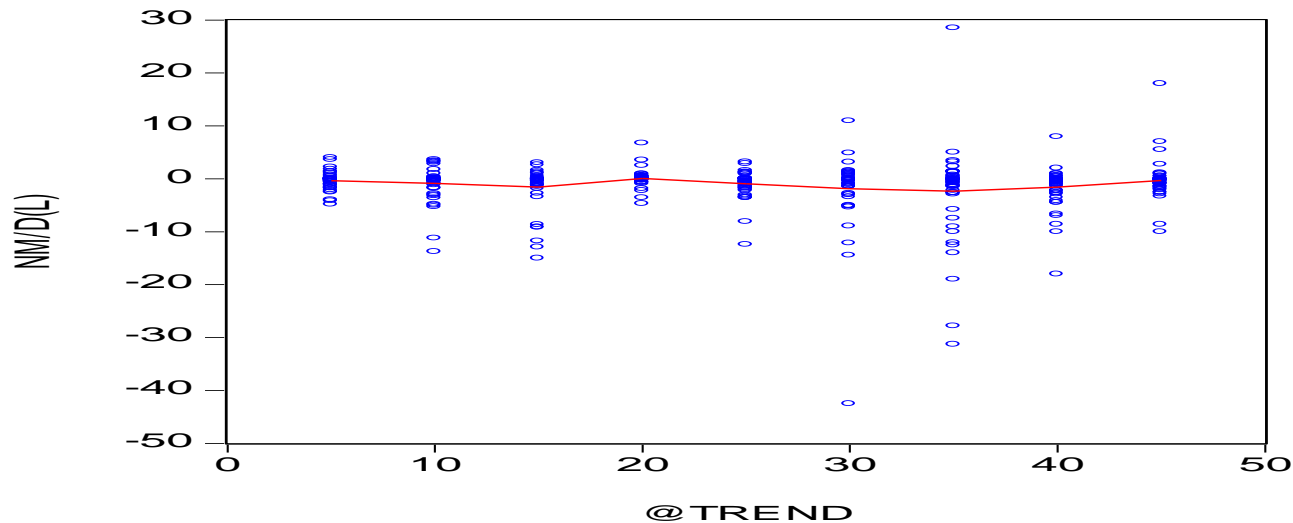
**Revising: Worker remittances and government  
behaviour in the receiving countries  
(DWH test for endogeneity;  
what test for pre-determined vs. exogenous?)**

## **Other papers**

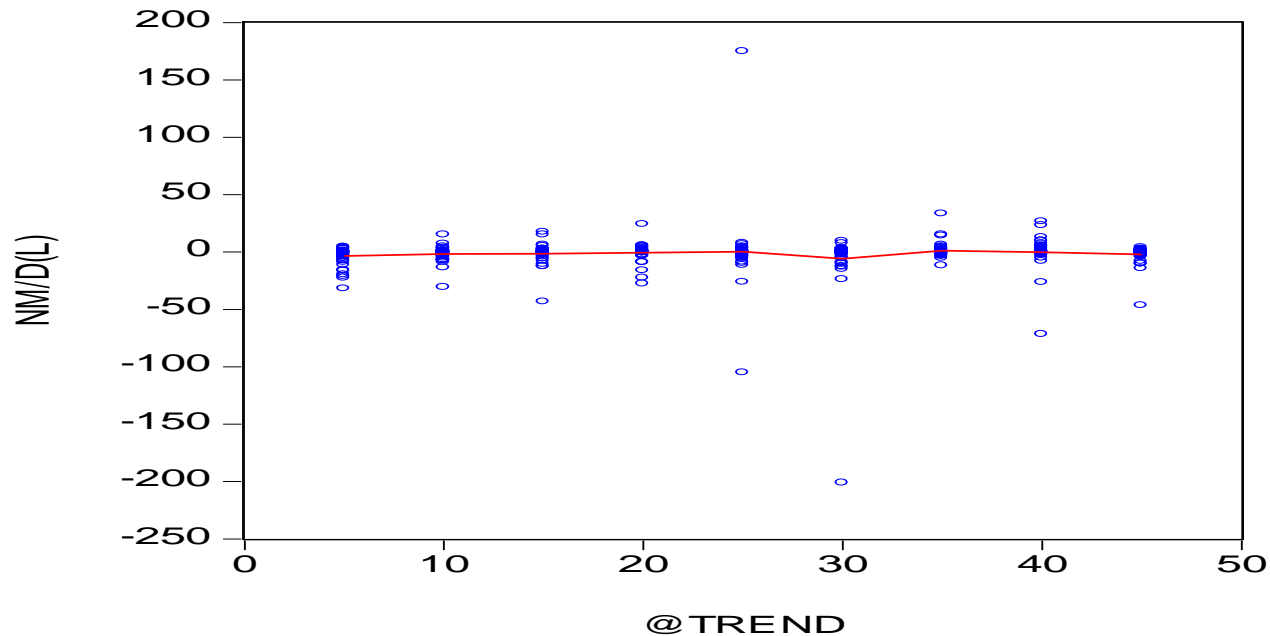
**with Joan Muysken on immigration and growth in NL  
(model and VECM) and**

**with Muysken and Vallizadeh on immigration,  
unemployment and GDP/welfare (theory and calibration  
to German data)**

# Net immigration flows as a share of labour force changes in LDCs under \$1200, 1960-2005 (LOESS)



# Net immigration flows as a share of the labour force changes in LDCs above \$1200 (2000), 1960-2005 (LOESS)



# Published articles

Worker Remittances and Growth: The Physical and Human Capital Channels. *Journal of Economics and Statistics/Jahrbücher für Nationalökonomie und Statistik* Vol.229/6, 2009, Special Issue on 'Migration and Development' edited by Jürgen Meckl. 743-773.

The impact of the credit crisis on poor developing countries: Growth, worker remittances, accumulation and migration, *Economic Modelling* 27, 2010, 1230-1245.

Worker remittances in international growth regressions: The problem of collinearity. *Applied Econometrics and International Development* Vol. 10-2, September 2010, 5-12.

FROM GROWTH REGRESSIONS TO SYSTEMS OF EQUATIONS, *Journal of International Commerce, Economics and Policy*, Vol. 2, No. 1 (2011) 121–137.

Developing countries' net-migration: The impact of economic opportunities, disasters, conflicts, and political instability, *International Economic Journal*, Vol. 25, No. 3, September 2011, 373–386.

Growth with Endogenous Migration Hump and the Multiple, Dynamically Interacting Effects of Aid in Poor Developing Countries, *Applied Economics*, Volume 43, Issue 30, December 2011, pages 4865-4878.

Worker remittances, migration, accumulation and growth in poor developing countries: Survey and analysis of direct and indirect effects. *Economic Modelling* 29, 2012, 103-118.