

Remittances over the Cycle: Dynamics and Smoothing

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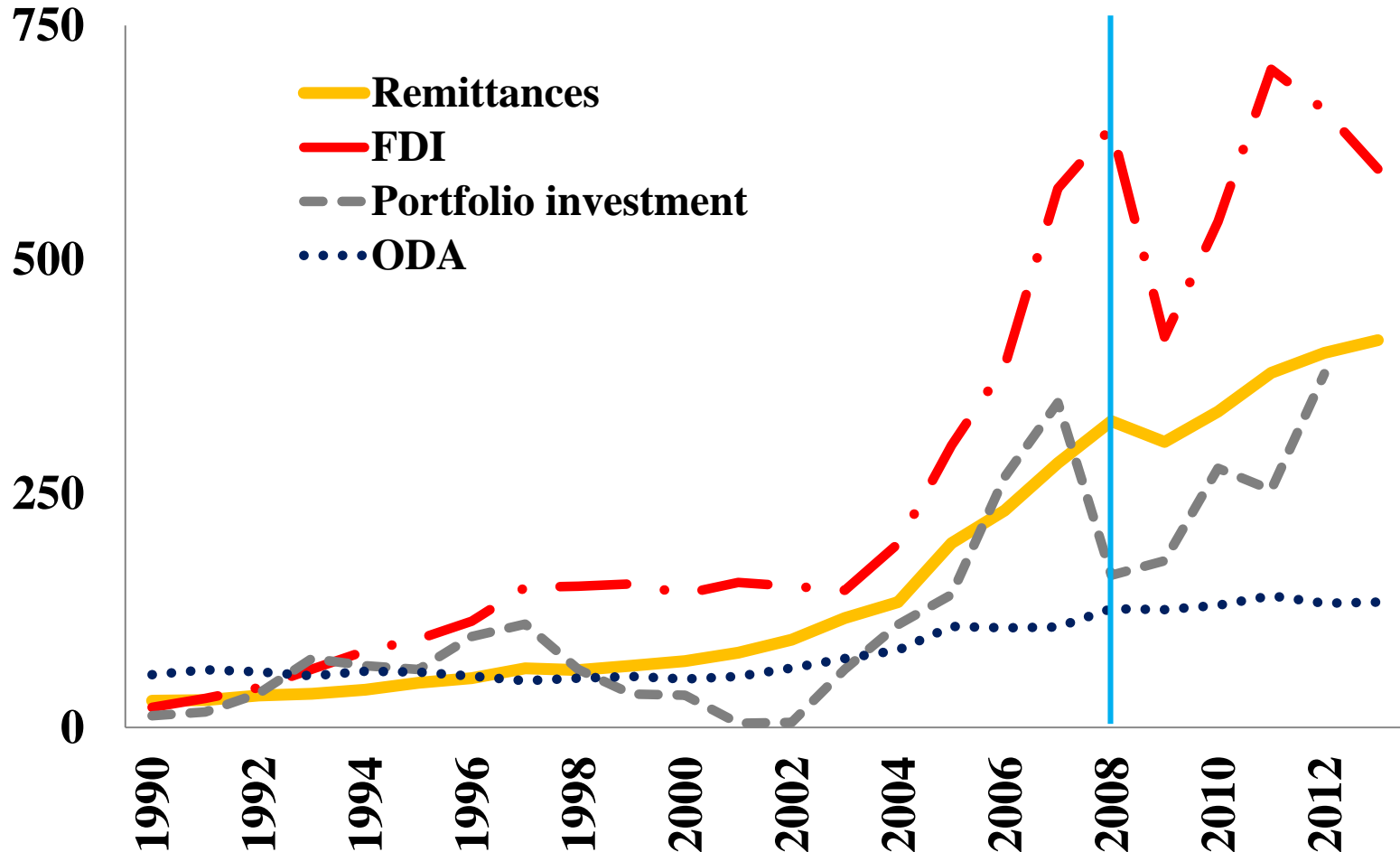
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Foreign currency flows to developing countries

Remittances to developing countries have risen steadily over time

(Current Billion \$)

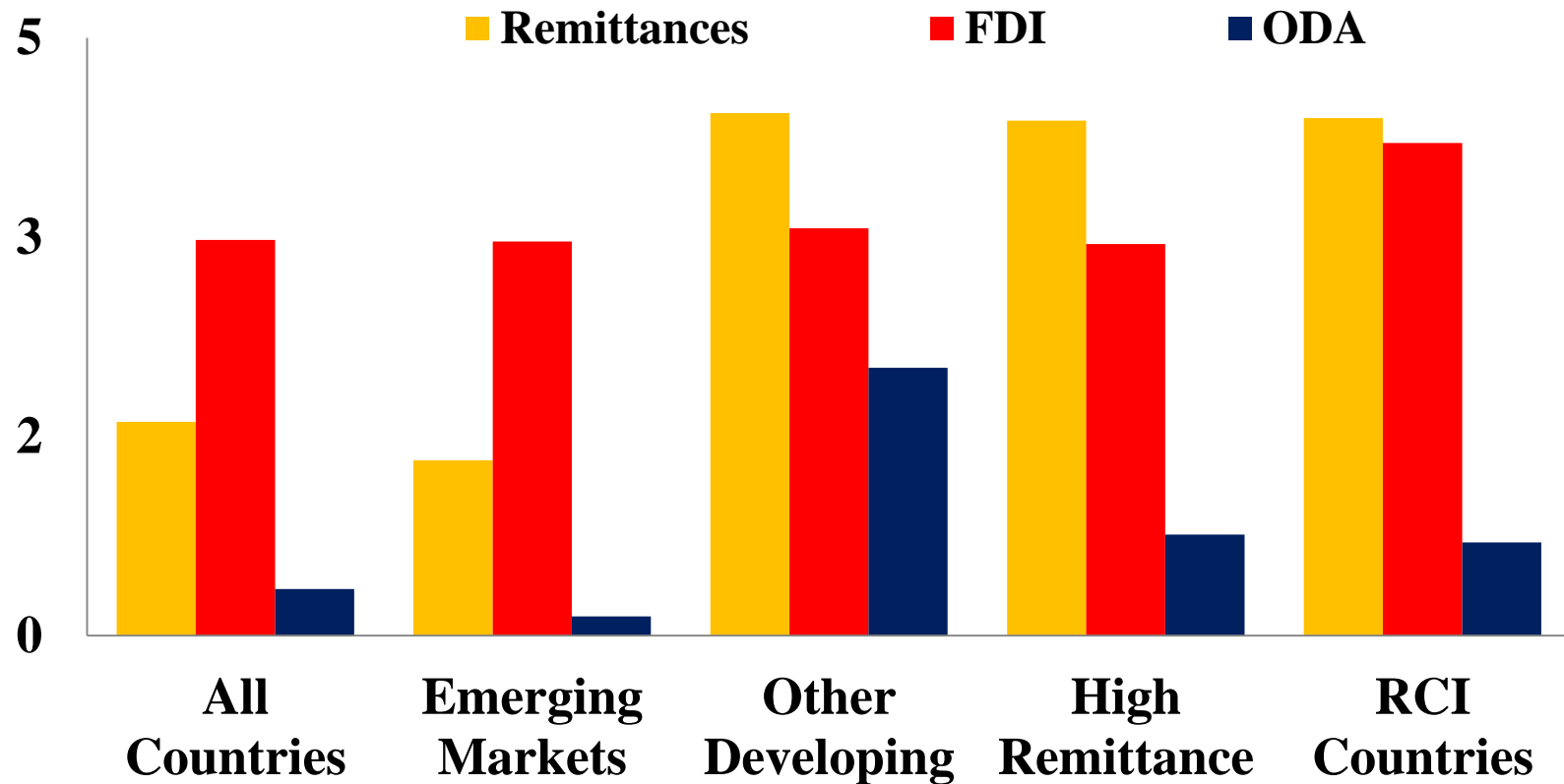


Source: World Development Indicators – 109 countries

Foreign Currency Flows across Country Groups

Remittances are larger than FDI and ODA for developing and high remittance country groups.

(% of GDP)



Source: World Development Indicators and DECPG calculations.

Notes: All Countries includes all countries in the sample. High Remittance refers to a set of countries for which Remittances have been above 1% of GDP. RCI refers to a set of countries for which Remittances and either FDI or Equity Flows have been above the median (1%, 3.5% and 1% respectively). FDI:foreign direct investment and ODA covers official development assistance and aid. The sample period is 2003 – 2012..

- Remittances have grown steadily relative to capital flows – resilient since onset of crisis
- A growing number of countries experienced both large capital and remittance flows
- Interest rates in advanced countries are expected to increase
- *Capital inflows to developing countries projected to moderate (WB 2014)*
- *Increased risk of financial crises and sudden stops in developing economies*

“Remittances act as a major counter-balance when capital flows weaken”

Kaushik Basu - October 2, 2013

Questions

1. How do remittances evolve over the business cycle?
2. How do the *volatility* and *cyclical* of remittances compare with other foreign inflows?
3. How do remittances change during *sudden stops*?
4. Do remittances help improve *consumption smoothing*?

Answers

1. How do remittances evolve over the business cycle?
Remittances are mostly stable and a-cyclical, with variations in cyclical behavior across countries.
2. How do the volatility and cyclical behavior of remittances compare with other foreign inflows?
Remittances are less volatile and more stable than other flows, including FDI and ODA.
3. How do remittances change during sudden stops?
Remittances are more stable during sudden stops than other types of inflows.
4. Do remittances help improve consumption smoothing?
Remittances are correlated with better risk sharing outcomes, suggesting they help improve consumption smoothing.

Literature on Cyclical

of Remittances

Inconclusive evidence on the cyclical behavior of remittances in remittance-recipient country

- Negative correlation in the recipient country
 - Frankel 2011; Bettin, Presbitero and Spatafora 2014
 - Increase after natural disasters - Yang 2008; Mohapatra 2012
- Procyclical with respect to recipient country
 - Lueth and Ruiz-Arranz 2008; Guiliano and Ruiz Arranz 2009
- Studies differ in terms of data and coverage
 - Bettin et al use remittance data from Italian provinces
 - Some (slight) methodological differences
 - Country- or corridor-specific focus - Ruiz and Vargas-Silva 2014
 - We update the findings in literature – wide coverage

Data

- **Sources: WDI**
 - Financial Inflows from DECPG data.
 - Financial Flows & Stocks (Lane and Milesi-Ferretti)
 - Capital controls-Chinn and Ito.
- **Countries: Advanced Economies (33), Emerging Markets (28), Others (48)= Total (109)**
- **Period: 1980-2012**
- Data limitations and measurement issues pronounced for remittances in earlier periods. Results hold for recent time periods and different samples.

How do remittances evolve over the business cycle?

Remittances are mostly stable and a-cyclical, with some variations in cyclical behavior across countries.

Definition of Cyclical

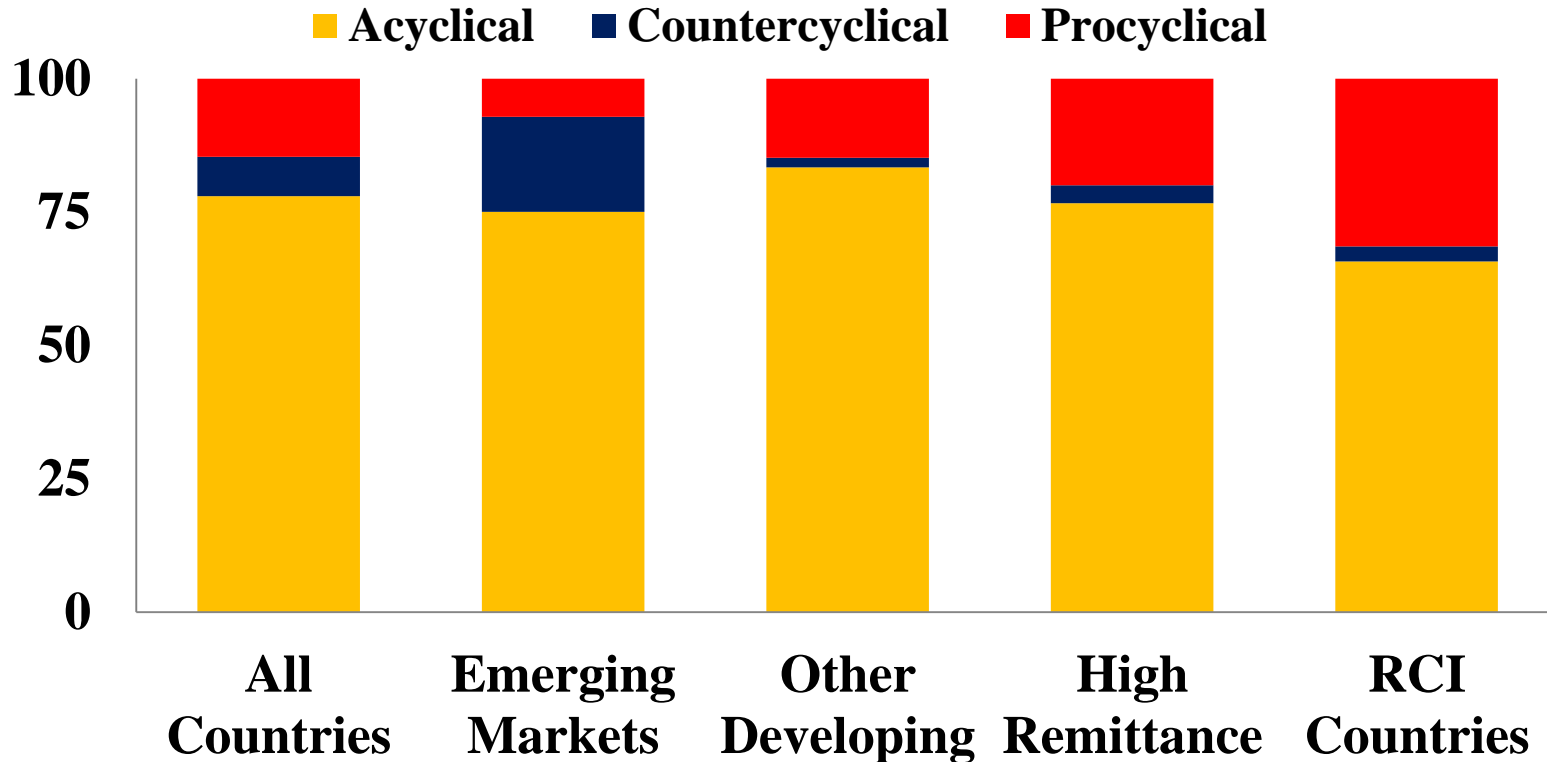
- We re-visit the question of cyclical
- Cyclical defined by correlations of cyclical components of real output and inflow variables.
- *Counter-cyclical*: negative and significant
- *Pro-cyclical*: positive and significant
- *A-cyclical*: not statistically different from zero

- We find that remittances are *a-cyclical*
- Financial flows are *pro-cyclical*
- Aid and Net Exports are *counter-cyclical*

Remittances and Business Cycles

Remittances are acyclical in most countries.

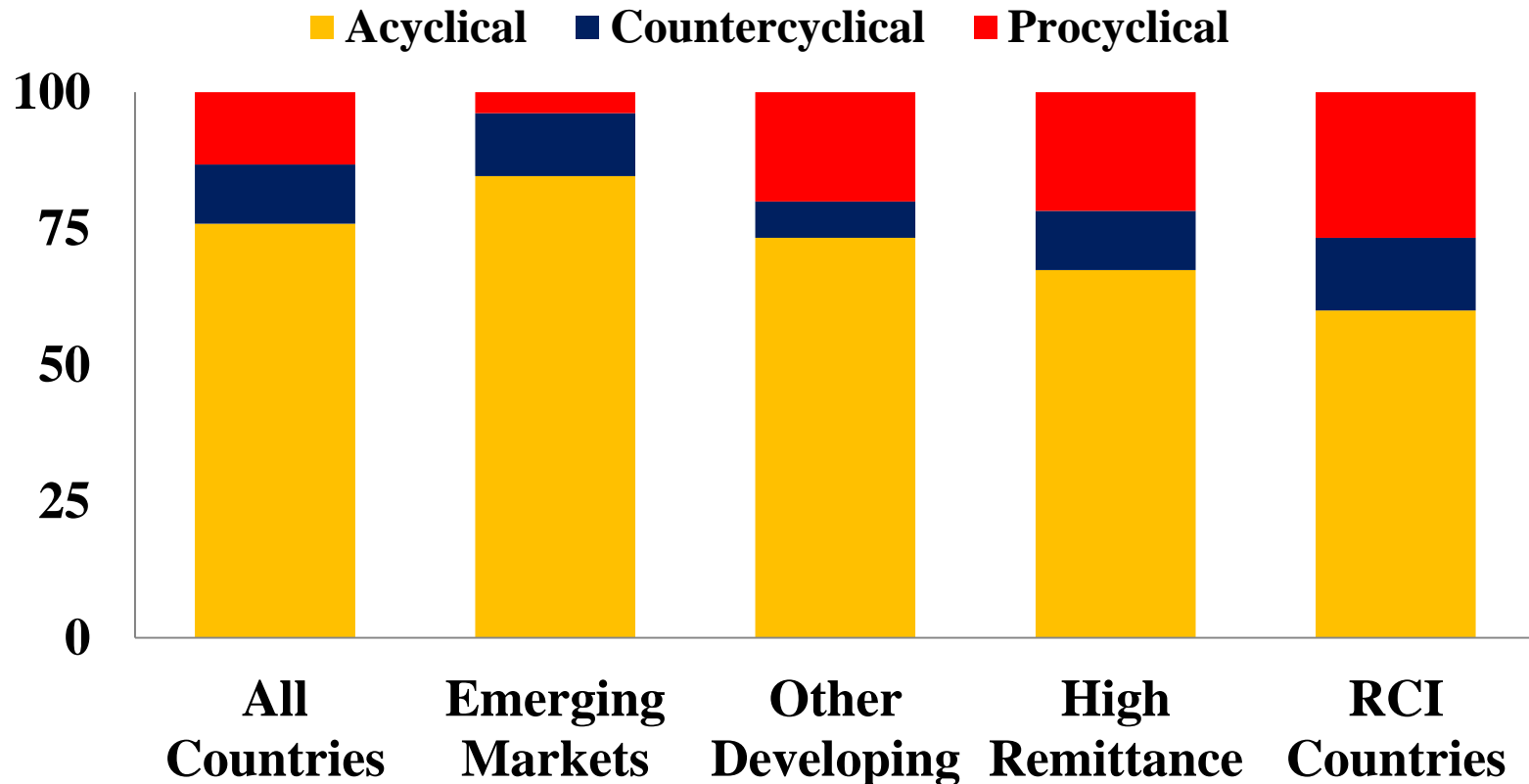
(% of countries)



Note: Cyclicality: correlation between the detrended real series of GDP remittances. RCI refers to a set of countries for which Remittances and either FDI or equity flows have been above the median (1%, 3.5% and 1% respectively) during the 2003-2012 time period. High Remittance refers to a set of countries for which remittances have been above 1% during the 2003-2012 time period. Each series is decomposed into trend and cyclical components using Hodrick-Prescott (HP) filter and the sample period is 1980 – 2012. Results are similar when using other filters.

Remittances and Capital Inflows

*Remittances appear to be uncorrelated with capital inflows.
(% of countries)*



Note: See previous Figure. (i) *procyclical* if the correlation between the cyclical components of remittances and output is positive and statistically different from zero, (ii) *countercyclical* if it is negative and statistically different from zero and (iii) *acyclical* if the correlation is not statistically different from zero

Reconciling Results with Previous Studies

- Capital Flows: Procyclical
 - Broner et al (2013): demean flow and normalize
 - Results for remittances are similar
 - Kaminsky et al (2005): use nominal flows
 - Result for remittances more positive: expected
- Remittances and Aid
 - Chami et al (2008) and Palage and Robe (2001): deflate flows by GDP and Import prices, respectively
 - Results more negative, but majority still acyclical
 - Import price deflator correlated with cyclical output

Relating Results to Previous Studies

Differing Results Not Surprising

	Correlation of Remittances with GDP (% Countercyclical)				
	This Study	Broner et al	Kaminsky et al	Chami et al	Pallage & Robe
All Countries	7.3	4.6	6.4	17.4	37.6
Emerging Markets	17.9	3.6	17.9	28.6	50.0
Other Economies	1.9	7.4	1.9	13.0	24.1
High Remittance	3.3	5.0	3.3	15.0	35.0
RCI Countries	2.9	5.7	2.9	5.7	28.6

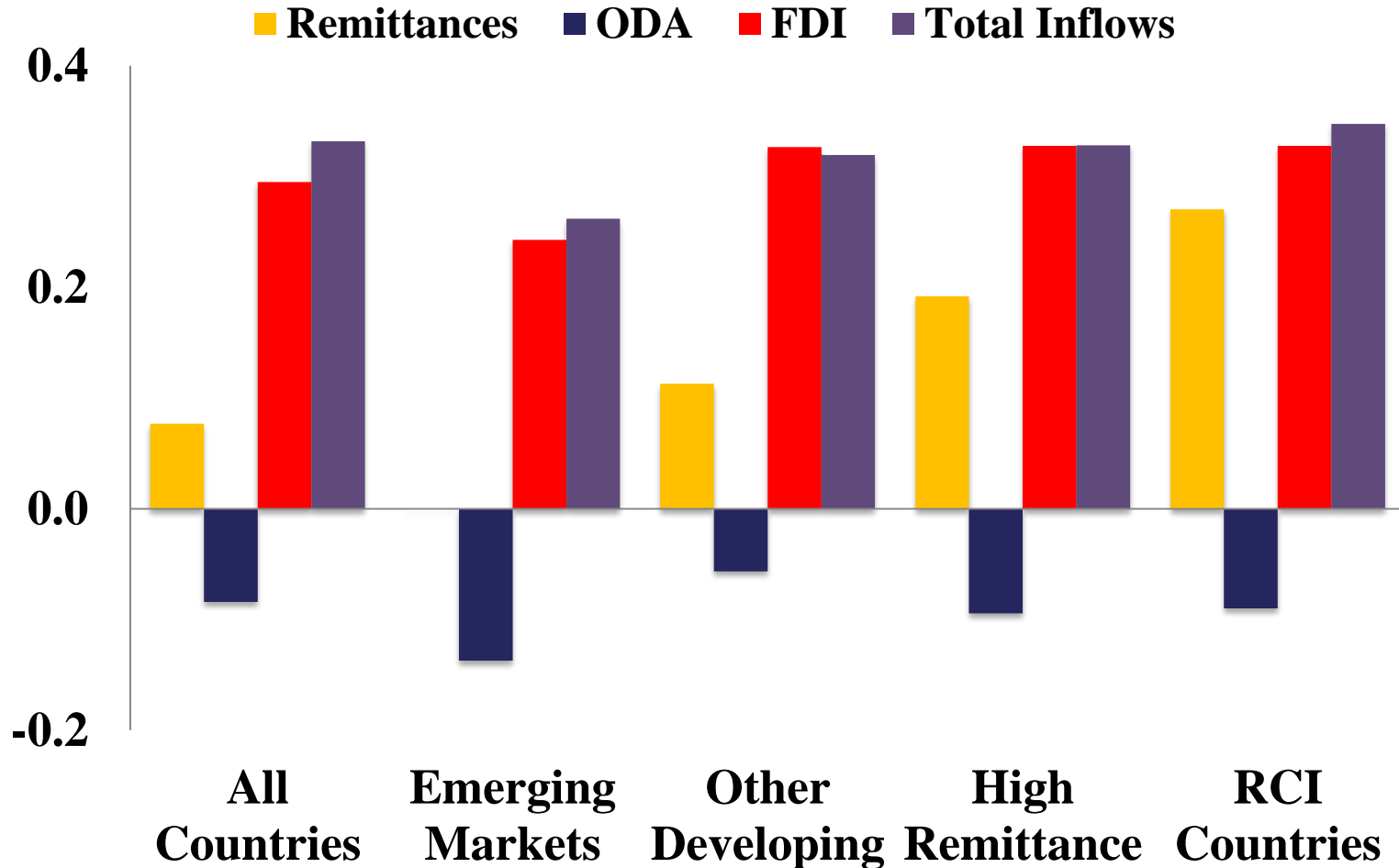
Sample period is 1980 – 2012. Column (2): Broner et al. (2013) normalization method by. Column (3): correlation between the cyclical components of real GDP and nominal remittances. Columns (4) and (5) use the methodologies by Chami et al. (2008) and Pallage and Robe (2001), respectively.

How do the volatility and cyclicality of remittances compare with other foreign inflows?

Remittances are less volatile and more stable than other flows, including FDI and ODA.

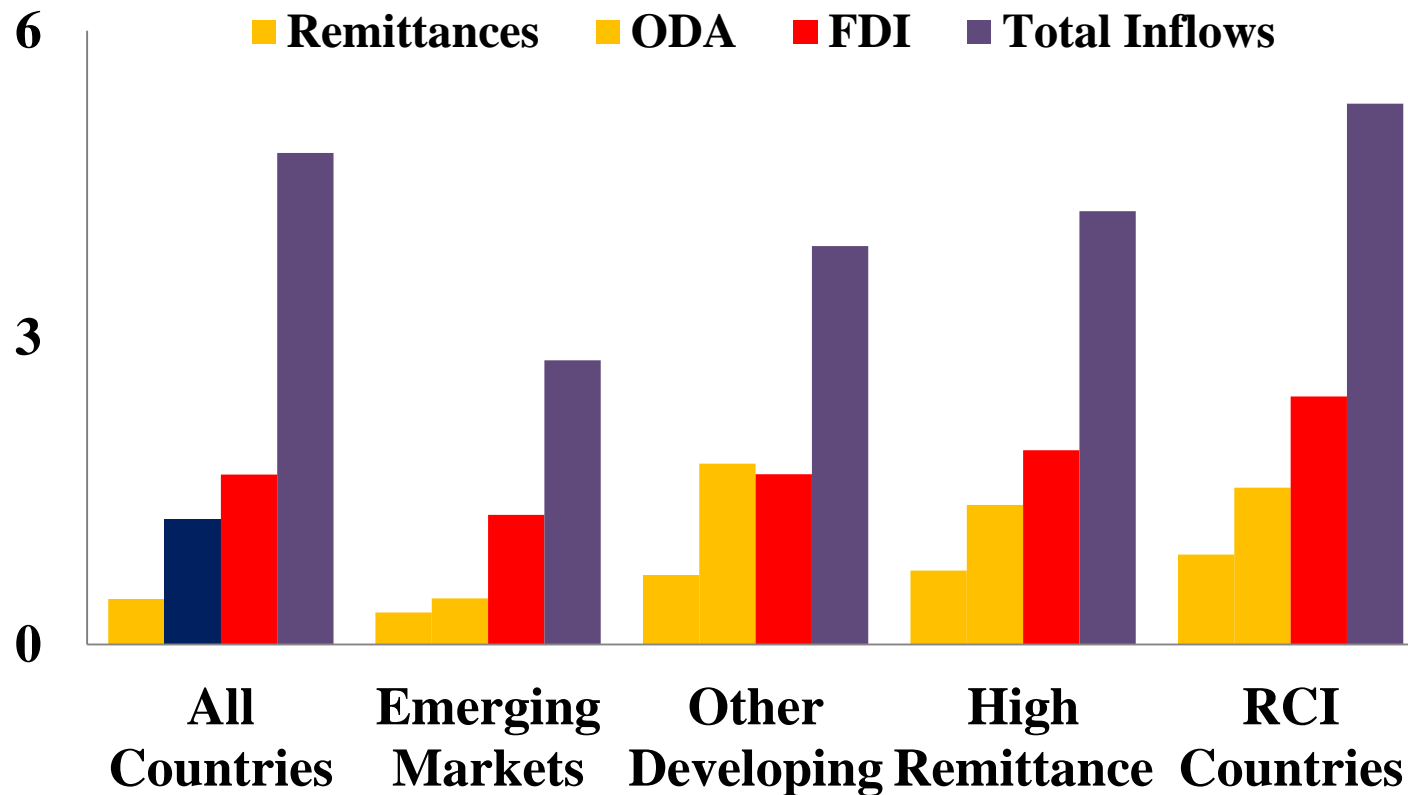
Correlation of Remittances with GDP

Remittances are less correlated with economic fluctuations than FDI and total capital inflows. (Median)



Volatility of Inflows

Remittances are less volatile than ODA, FDI and total capital inflows. (Mean Standard Deviation)



Volatility is defined as the standard deviation of the detrended ratio of the relevant inflow to GDP.

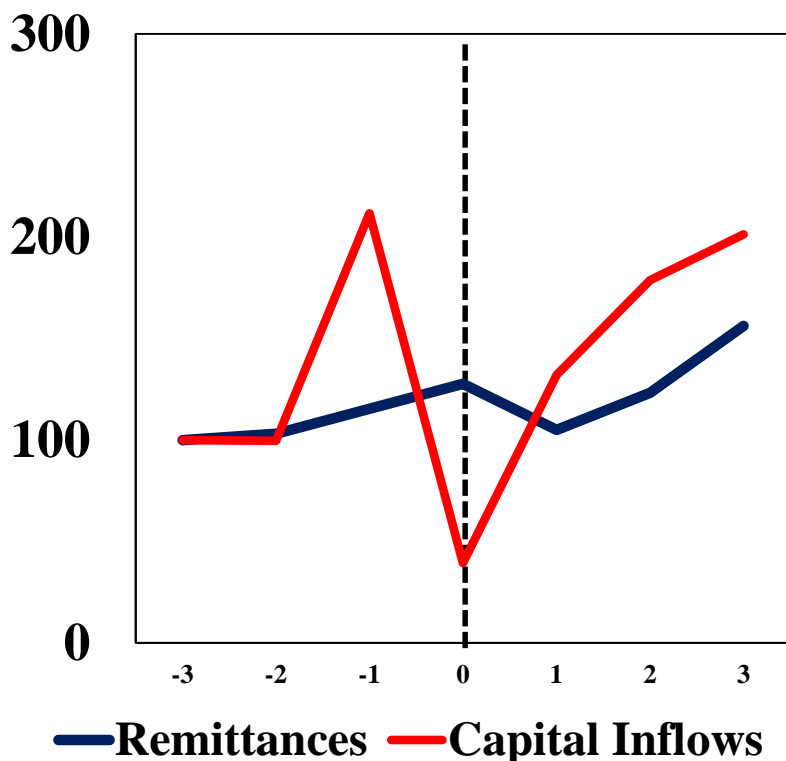
How do remittances change during sudden stops?

Remittances are more stable during sudden stops than other types of inflows.

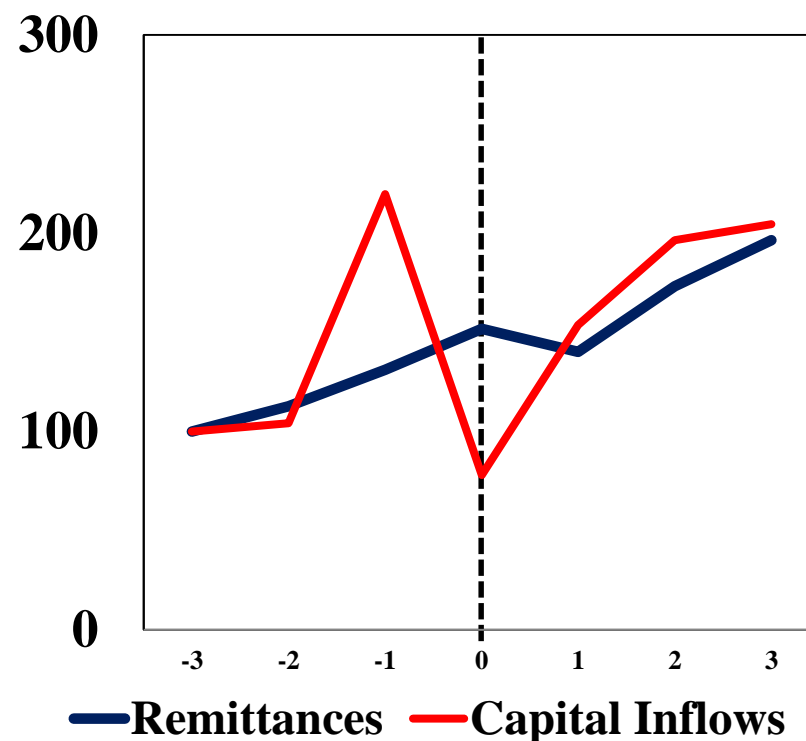
Remittances, Capital Inflows and Sudden Stops

Remittances have been resilient in emerging and developing economies during sudden stops.

2008 crisis



Crises other than 2008

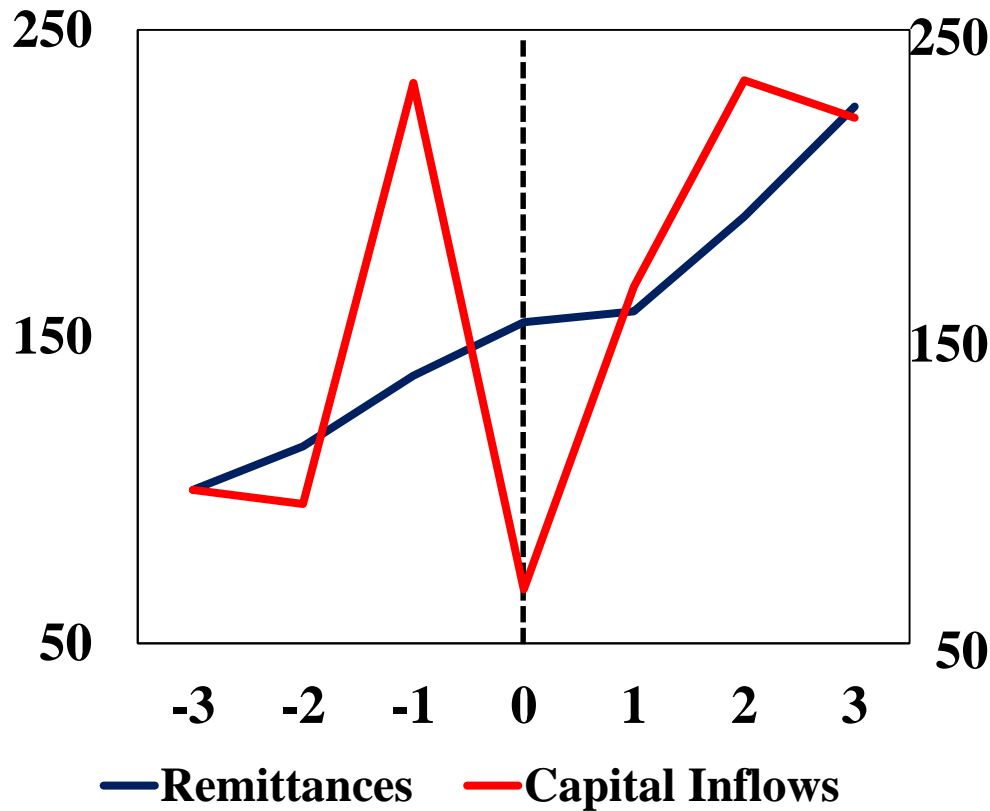


Note: The horizontal axis denotes years. Zero (0) refers to the year of the sudden stop episode.

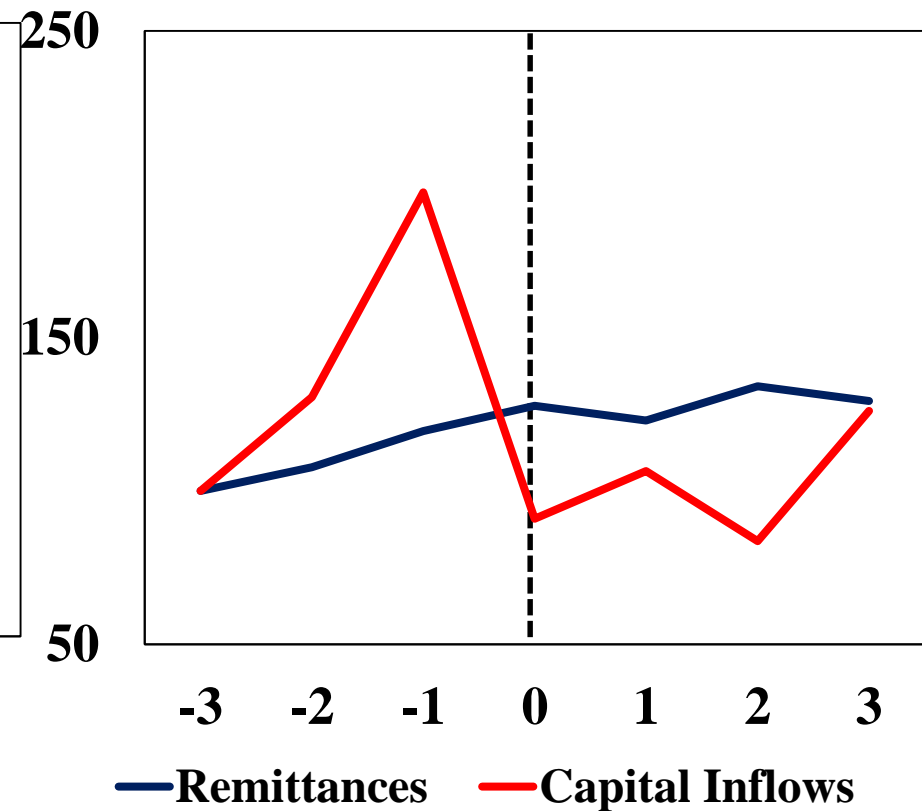
Remittances and Migrant Dispersion

Countries with dispersed migrant stocks showed greater remittance resilience during the sudden stops of 2008. (Index numbers)

More dispersed



Less dispersed



Note: The horizontal axis denotes years. Zero (0) refers to the year of the sudden stop episode. *More dispersed* (*Less dispersed*) refers to countries with migrant concentrations below (above) the sample median. Migrant concentration is defined as the percentage of migrants in the top destination to the total migrant population. Calculations are based on the 2013 bilateral migration matrix provided by the United Nations Population Division (UNPD)

Do remittances help improve consumption smoothing?

Remittances correlated with better risk sharing, suggesting they help improve consumption smoothing.

Consumption Risk Sharing: Standard Approach

$$\Delta c_{it} - \Delta \bar{c}_t = \alpha + \gamma R_{it} + \beta_1 (\Delta y_{it} - \Delta \bar{y}_t) + \beta_2 R_{it} (\Delta y_{it} - \Delta \bar{y}_t) + \Delta \varepsilon_{it}$$

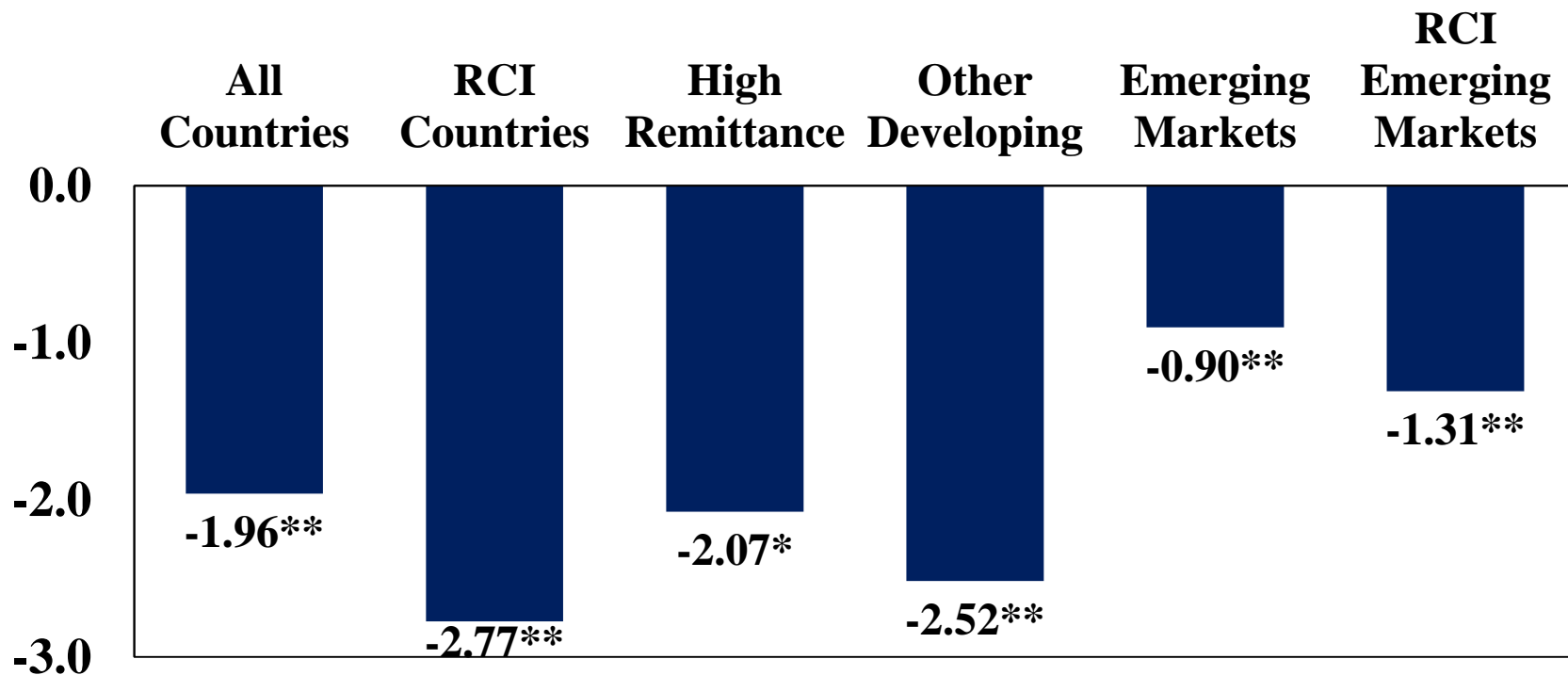
- Δc_{it} ($\Delta \bar{c}_t$): country (world) consumption growth at time t
- Δy_{it} ($\Delta \bar{y}_t$): country (world) GDP growth at time t
- R_{it} : remittance inflow to GDP at time t

H_0 : $\beta_2 < 0$ would provide evidence of consumption smoothing

Lower correlation between country specific consumption and output growth suggests better consumption smoothing, which in turn is associated with higher welfare.

Remittances and Consumption Stability

Remittances help improve consumption stability



β_2 : Risk Sharing Coefficient (Fixed Effects) – 1980-2012

The figure shows Panel OLS estimates for the effect of remittances on consumption stability (β_2). The symbols * and ** indicate statistical significance at the 10% and 5% levels, respectively. High Remittance refers to a set of countries for which remittances have been above 1% during the 2003-2012 time period. RCI (Remittance and Capital Flow Intensive) countries refer to a set of countries for which remittances and either FDI or equity flows have been above the median (1%, 3.5% and 1% respectively) during the 2003-2012 time period.

Risk Sharing, Fixed Effects (Full Sample)

	<i>Dependent Variable: Country Specific Consumption Growth</i>							
	<i>base</i>	<i>base</i>	<i>De-Jure</i>	<i>Equity</i>	<i>FDI</i>	<i>De-Jure</i>	<i>Equity</i>	<i>FDI</i>
Country-Specific Output Growth	0.756	0.814	0.752	0.834	0.815	0.845	0.878	0.841
	[0.072]***	[0.048]***	[0.059]***	[0.058]***	[0.053]***	[0.068]***	[0.078]***	[0.067]***
Remit x Country-Specific Output Growth		-1.956		-2.136	-1.193	-1.217	-2.164	-1.163
		[0.973]**		[0.787]***	[0.599]**	[0.657]*	[0.802]***	[0.613]*
De-Facto x Country-Specific Output Growth				-0.308	-0.112		-0.255	-0.011
				[0.317]	[0.455]		[0.315]	[0.453]
De-Jure x Country-Specific Output Growth			-0.024			-0.098	-0.092	-0.104
			[0.086]			[0.088]	[0.089]	[0.085]
Observations	3,226	2,831	3,030	2,026	2,731	2,762	1,999	2,671
R²	0.252	0.266	0.224	0.259	0.259	0.256	0.254	0.239

Dependent variable is the country-specific consumption growth; De-Jure is the normalized index of financial openness derived from Chinn-Ito index. A negative β_2 suggests that remittances help lower the correlation between country-specific consumption and output growth. Significance at the 5% and 1% levels are distinguished by ** and ***, respectively. Includes country and year fixed effects .1980-2012

Risk Sharing, Fixed Effects (RCI Countries)

	<i>Dependent Variable: Country Specific Consumption Growth</i>							
	base	base	De-Jure	Equity	FDI	De-Jure	Equity	FDI
Country-Specific Output Growth	0.752	0.886	0.725	0.813	0.893	0.892	0.793	0.901
	[0.126]***	[0.094]***	[0.120]***	[0.092]***	[0.101]***	[0.091]***	[0.114]***	[0.090]***
Remit x Country-Specific Output Growth		-2.773		-2.080	-1.771	-1.648	-2.085	-1.617
		[1.252]**		[1.040]*	[0.729]**	[0.841]*	[1.040]*	[0.746]**
De-Facto x Country-Specific Output Growth				1.649	0.220		1.655	0.472
				[1.456]	[0.754]		[1.461]	[0.778]
De-Jure x Country-Specific Output Growth			-0.019			-0.088	0.039	-0.136
			[0.162]			[0.148]	[0.131]	[0.153]
Observations	969	784	832	560	747	761	557	729
R²	0.318	0.368	0.303	0.389	0.387	0.365	0.388	0.353

Dependent variable is the country-specific consumption growth; De-Jure is the normalized index of financial openness derived from Chinn-Ito index. A negative β_2 suggests that remittances help lower the correlation between country-specific consumption and output growth. Significance at the 5% and 1% levels are distinguished by ** and ***, respectively. Includes country and year fixed effects. 1980-2012.

Consumption Risk Sharing: Intuition

- Through which channels can remittances help consumption smoothing, especially since they are *acyclical*?
- *Can help stabilize consumption inter-temporally by supporting saving (World Bank 2006; Aga and Martinez-Peria 2014)*
- *A greater proportion of remittance receipts can be used for consumption during economic downturns*
- *Remittances are unrequited transfers and target the portion of consumers that is likely to be liquidity constrained*

Risk Sharing, Fixed Effects (Emerging-Developing)

	<i>Dependent Variable: Country Specific Consumption Growth</i>							
	base	base	De-Jure	Equity	FDI	De-Jure	Equity	FDI
Country-Specific Output Growth	0.724	0.803	0.765	0.807	0.807	0.860	0.884	0.856
	[0.080]***	[0.057]***	[0.065]***	[0.074]***	[0.062]***	[0.075]***	[0.091]***	[0.074]***
Remit x Country-Specific Output Growth		-1.953		-2.124	-1.160	-1.036	-2.074	-0.992
		[1.024]*		[0.857]**	[0.644]*	[0.710]	[0.871]**	[0.677]
De-Facto x Country-Specific Output Growth				-0.446	-0.172		-0.475	-0.029
				[0.991]	[0.550]		[0.999]	[0.550]
De-Jure x Country-Specific Output Growth			-0.145			-0.218	-0.178	-0.222
			[0.112]			[0.118]*	[0.120]	[0.114]*
Observations	2,384	2,072	2,242	1,323	1,995	2,032	1,318	1,962
R²	0.216	0.229	0.191	0.201	0.226	0.221	0.203	0.210

Dependent variable is the country-specific consumption growth; De-Jure is the normalized index of financial openness derived from Chinn-Ito index. A negative β_2 suggests that remittances help lower the correlation between country-specific consumption and output growth. Significance at the 5% and 1% levels are distinguished by ** and ***, respectively. Includes country and year fixed effects. 1980-2012.

Which policies may help strengthen remittance flows and their consumption smoothing benefits?

Lowering remittance costs and outflow controls.

Main Takeaways

- Remittances:
 - appear to provide a stabilizing counterbalance to volatile capital flows
 - more resilient than other types of flows during business cycle fluctuations
 - more resilient than other types of flows during large macroeconomic shocks, like sudden stops and financial crises
 - have potential consumption risk sharing benefits

Policy Implications

- Lowering controls on remittance outflows
- Policies that lower remittance costs

Thank You