Does It Pour When it Rains? Capital Flows and Economic Growth in Developing Countries

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June 2016

Financial support from the DFID-ESRC Growth Research Programme, under Grant No. ES/L012022/1 is gratefully acknowledged

Introduction

- **Neoclassical prediction**. **Transfers are expected to go from rich countries to DCs** where investments are seen as more profitable.

But tangible reality conflicts with this view: important capital outflows observed from poor to rich countries **(Lucas paradox)**.

- Most **appealing reasons and unanswered questions**:
  - **Returns** in LDCs are lower than expected when **adjusted for risks**. The Stiglitz Weiss (1981)'s model has brought the microeconomic foundations by considering **informational issues**.

Introduction

- **Allocation puzzle**: external capital does not necessarily flow to the most growing countries (Cf., Gourinchas and Jeanne, 2007, 2013).

Potential ambiguity with respect to the positive impact of external flows on economic growth: These resources can substitute to domestic financing for the most profitable projects, leaving unfunded projects of lower quality (crowding out).

Introduction

Objective of the paper:
We r**evisit the relationship between capital inflows and GDP growth.**

Several **hypotheses** are explored and tested:

- **Net capital inflows matter for GDP growth** as well as their **composition** and possibly their fluctuations over time.
- Beyond the direct positive impact of capital inflows, we also have to account for **indirect effects through the REER** (real exchange rate.
- Different sources of **heterogeneity across the sample** in relation with : the level of development (LICs, MICs), the exchange rate regime.

Outline

The paper is organized as follows.

Section 1 Briefly reviews the existing literature about capital inflows

Section 2 Descriptive statistics and the econometric strategy for estimation.

Section 3 Main econometric results abed their interpretation

Section 4 Concluding remarks.

1- Capital inflows and their components…
Direct implications *on economic growth*

Unilateral private transfers. Second largest type of financial flows to DCs after FDI.

- Beyond the ***brain drain,*** migration can be profitable for the country of origin;
- The domestic **opportunity cost** of migrants working abroad is generally low;
- Increase the **permanent income** of beneficiary households, and sometimes stimulate *building booms*.

1- Capital inflows and their components…
Direct implications *on economic growth*

Official Development Assistance.

- Burnside and Dollar (1997, 2000, 2002). Aid effectiveness is **conditional** on the orientation of resources to most efficient countries.

- Rajan and Subramanian (2008). **No evidence** found to support a positive and robust impact

- A **positive impact.** Guillaumont, McGillivray and Wagner (2015), Guillaumont and Kpodar (2015). Arndt, Jones and Tarp (2010, 2015) broaden the analysis to other dimensions of the social well-being.

1- Capital inflows and their components
Direct implications on economic growth

***Foreign Direct investments*.**

- The **robustness debated**. The outcome greatly depends on the nature of FDI (Privatization).

- **FDI-PPP**: the social benefit of FDI may require a substantial **time lag** before the supply side effects fully occur (infrastructure, mining).

- Raw materials may hamper the manufacturing diversification (**resource curse, Dutch disease)**

1- Capital inflows and their components..
Direct implications on economic growth

Short term capital inflows

- In the late twentieth century **some IMF experts** have considered that an open capital account could be a **signal** and an **incentive** to improve **market discipline** with promising expectations (stability, additional resources).

- **Stiglitz (2000**). Capital account liberalization stimulates economic **fluctuations** when associated flows do not **cause** them.

1- Capital inflows and their components..
Indirect implications through the real exchange rate

- Net capital inflows are seen as one of the main determinants increasing the **price of non-tradables**. The REER is affected differently according to the type of inflows.

- ***Remittances*** may smooth consumption. The **Risk** for a **REER appreciation** will depend on what is done with the external resources**: strong** if resources are channeled to real estate, but **negligible** if spent on imported goods.

- When the recipient of ***ODA*** suffers from supply constraints, capital inflows to **consumption put more pressure** on the price of domestic goods than those channeled to investments (imported goods).

1- Capital inflows and their components..
Indirect implications *on the real exchange rate*

- ***FDIs*** **may have a positive impact** on REER through transfers of technology, managerial know-how and other intangible assets. **However,** FDIs may consist of "pure" transfers of domestic assets. Revenues resulting from a public enterprise selling can be channeled to **permanent expenditures, increasing the price of non-tradables**.

- The role of ***short-term capital*** **transactions** remains debated. They may be stationary variables if they are temporary. But they **may have a stochastic trend, be part of a long-term cycle** with a **lasting influence** on the REER.

2- Empirical methodology and net capital inflow statistics

- Equations (REER, GDP growth) are separately estimated in a panel specification:

- We use a **dynamic specification** given the potential inertia of both REER and GDP Growth rates

- The Blundell and Bond (1998)'**system-GMM estimator** for dynamic panel is implemented:

- The system-GMM estimator helps reducing the endogeneity issues (measurement errors, reverse causality, omission of pertinent variables)

2- Empirical methodology and net capital inflow statistics

- The validity of the instruments is tested by the Sargan-Hansen over-identification test and by the second order serial correlation test AR (2)

- We have taken care of the problem of instrument proliferation, the matrix of instruments is collapsed (Roodman 2009).

- An external instrument capturing economic growth in developed countries has been added: we have generated an average donor growth weighted by the amount of aid that a country receives from those particular donors (Tavares, 2003).

2- Empirical methodology and net capital inflow statistics

- $\boldsymbol{REER_{i,t}} = \propto + \delta REER_{i,t-1} + \sum_{m=1}^{m=5} \boldsymbol{\beta_m Kflows_{i,t,m}} + \theta X'_{i,t} + v_i + \varphi_t + \varepsilon_{i,t}$
- $\boldsymbol{GDP\ Growth_{i,t}} = \gamma + \pi GDP\ Growth_{i,t-1} + \sum_{m=1}^{m=5} \boldsymbol{\rho_m Kflows_{i,t,m}} + \psi Y'_{i,t} + v_i + \varphi_t + \varepsilon_{i,t}$
- $\boldsymbol{m = FDI,\ aid, Remittances, portfolio, other\ net\ inflows}$
- $X'_{i,t}$=**Control variables for the REER model**: trade openness, terms of trade, Balassa index, government consumption
- $Y'_{i,t}$=**Control variables for the growth model**: trade openness, polity 2 (degree of democracy), natural resource rents
- Country and period fixed effects incorporated to control for unobserved heterogeneity

2- Empirical methodology and capital inflow …
Some Additional statistical hypotheses

- The presence of **specificities for LICs** (low-income countries) in the GDP growth model.

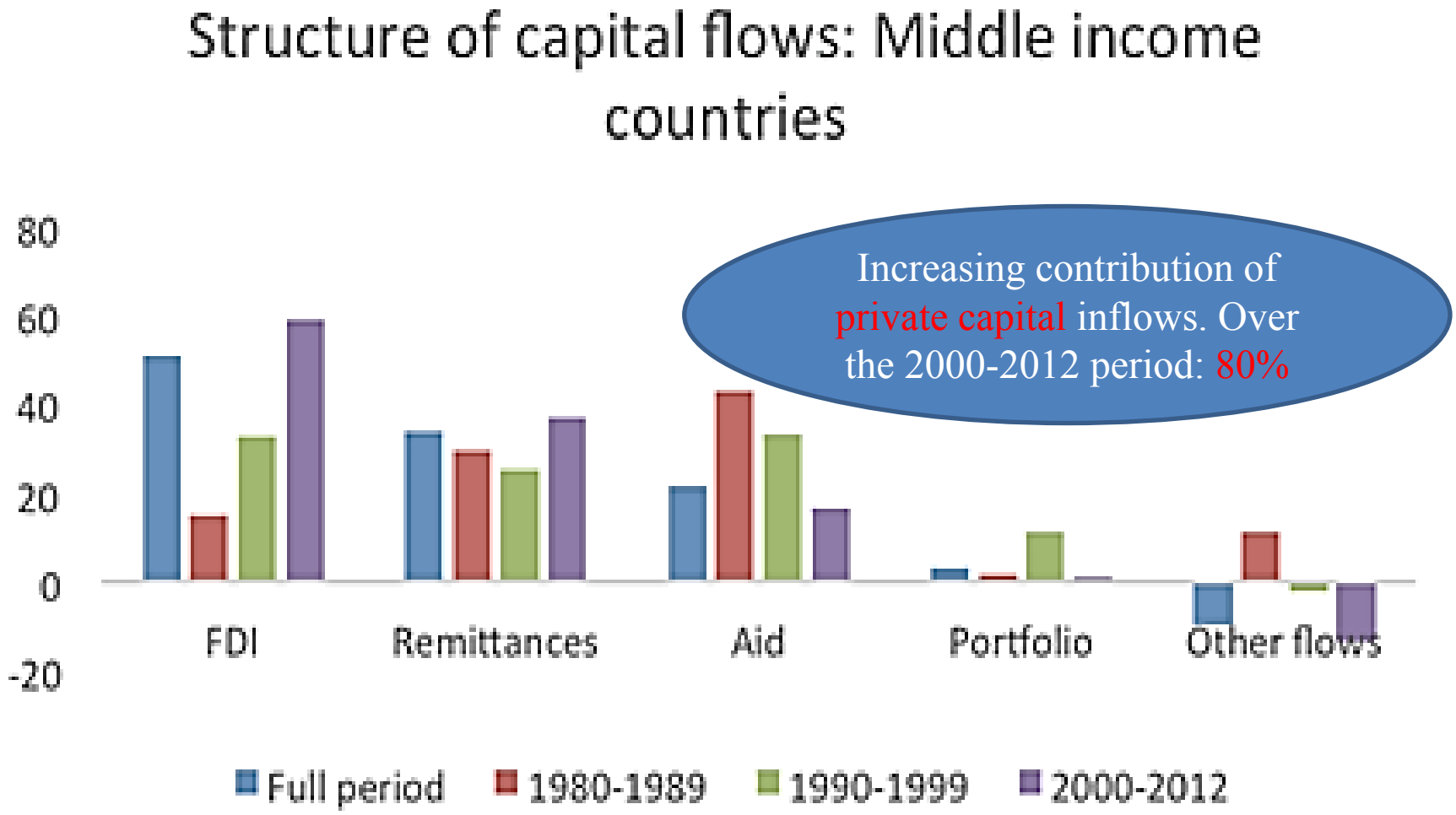
- The role of the **instability/volatility of capital flights** on the REER or the GDP growth

- The assumption that the impact of capital inflows on REERs and GDP growth rates could be conditional on the **exchange rate regime**

2- Empirical methodology and net capital inflow statistics

- **Sample coverage**: 77 low an middle income countries (LICs, MICs)
- **Period**: 1980-2012.
- **Averaged periods of 5-years are considered**
- **Data sources**: WEO, WDI, SWIID

2- Structure of net capital inflow (%)



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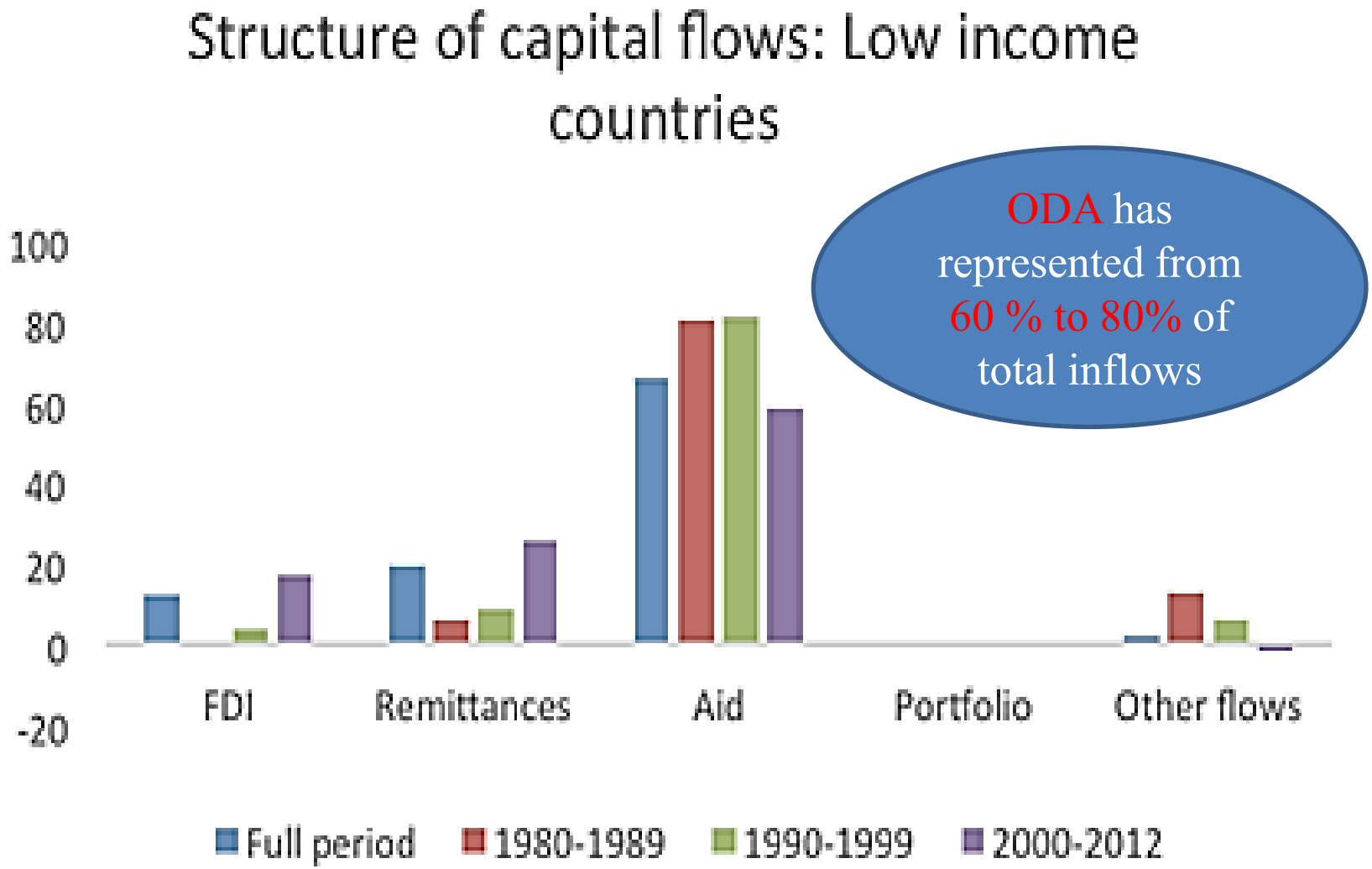
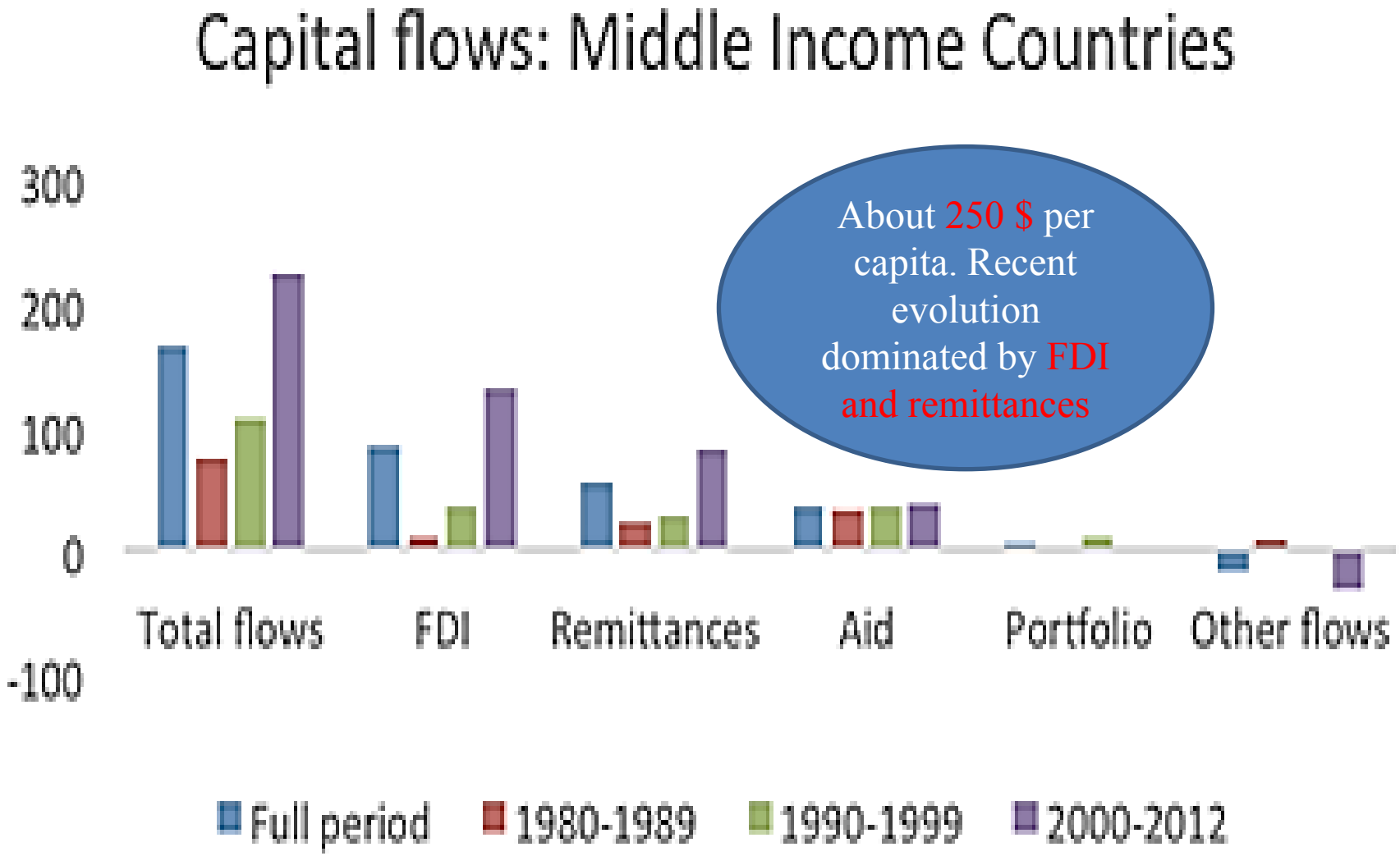


2- Net capital inflow statistics *(dollars per capita)*



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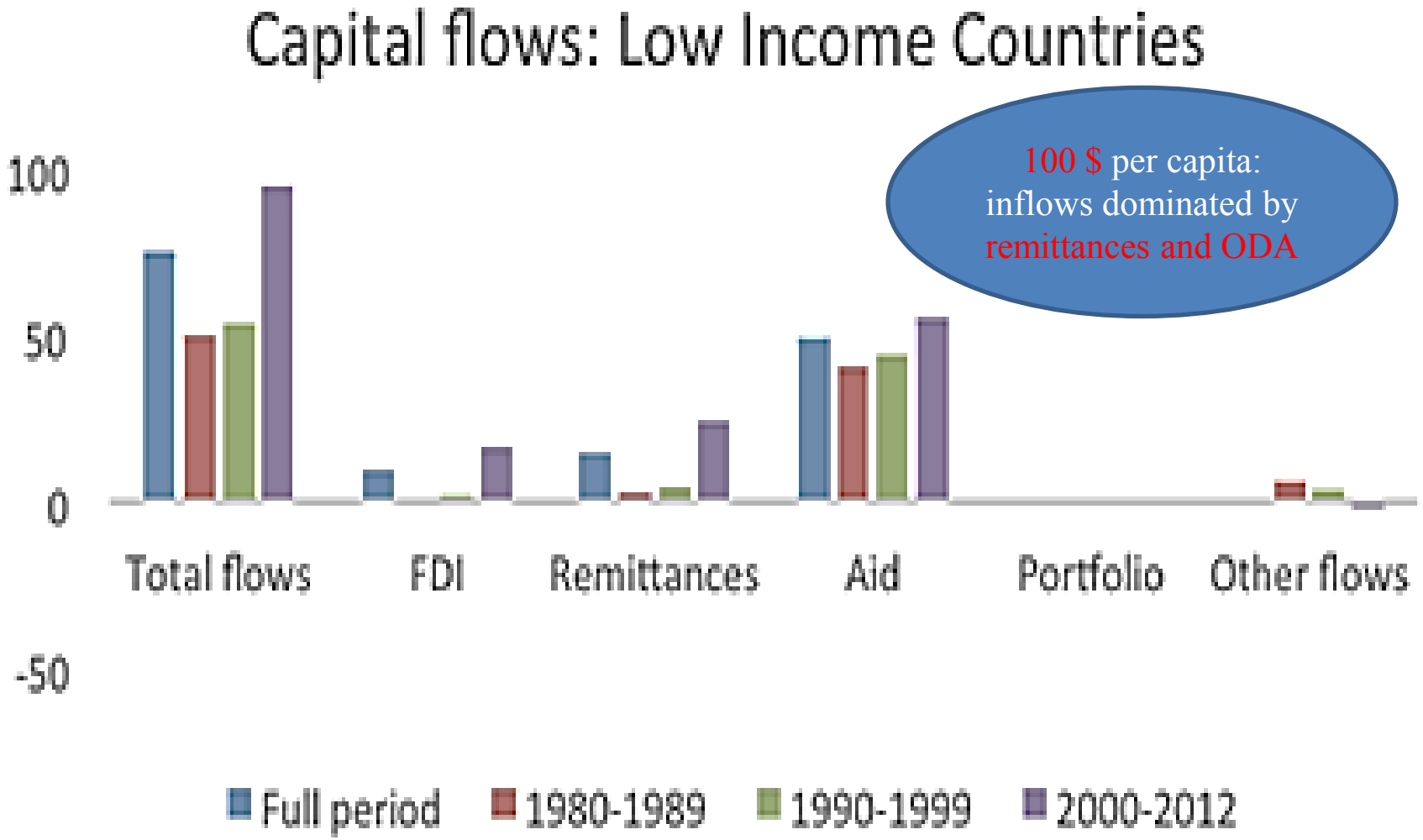

3- Empirical results: *the REER models*

	(1)	(2)	(3)	(4)	(5)
Log(REER) (-1)	0.332***	0.321***	0.261***	0.291***	0.359***
	(0.0289)	(0.0381)	(0.0452)	(0.0412)	(0.0390)
Log(FDI)		0.0267***		0.0236***	
		(0.00731)		(0.00745)	
Log(Remittances)		0.171		0.232**	
		(0.115)		(0.114)	
Log(Aid)		0.141**		0.115**	
		(0.0574)		(0.0504)	
Log(Other flows)		0.00104		0.0108	
		(0.0118)		(0.00929)	
Log(Portfolio)		1.494***		2.036***	
		(0.391)		(0.316)	
Log(Total flows)	0.468***		0.344***		0.526***
	(0.124)		(0.120)		(0.154)
Total flows instability					0.00120
					(0.000785)
Control variables	Yes	Yes	Yes	Yes	Yes
Observations	273	271	255	257	272
Number of countries	64	63	62	62	64
Number of instruments	26	35	27	36	27
AR(1)	0.027	0.0307	0.0523	0.0262	0.0195
AR(2)	0.8957	0.5722	0.9479	0.5845	0.9696
Sargan	0.1012	0.1459	0.1864	0.1635	0.1125

3- Empirical results: *The REER models*

Development level and exchange rate regimes

	(1)	(2)	(3)	(4)	(5)
Log(REER) (-1)	0.314***	0.322***	0.311***	0.304***	0.310***
	(0.0242)	(0.0381)	(0.0368)	(0.0356)	(0.0328)
Log(FDI)		0.0249***		0.0233**	
		(0.00729)		(0.00914)	
Log(Remittances)		0.0970		0.0715	
		(0.101)		(0.105)	
Log(Aid)		0.118*		0.129*	
		(0.0622)		(0.0695)	
Log(Other flows)		-0.000192		0.0101	
		(0.0109)		(0.00900)	
Log(Portfolio)		1.253***		1.592***	
		(0.403)		(0.300)	
Log(FDI)*LIC		-0.0176		-0.114	
		(0.269)		(0.216)	
Log(Other flows)*LIC		0.180		-0.451	
		(0.582)		(0.886)	
Log(Portfolio)*LIC		-3.489		1.241	
		(3.166)		(4.793)	
Log(Remittances)*LIC		1.264***		1.061**	
		(0.482)		(0.488)	
Log(Aid)*LIC		-0.122		-0.0869	
		(0.113)		(0.139)	
Log(Total flows)	0.345**		0.155		0.413***
	(0.138)		(0.159)		(0.122)
Log(Total flows)*LIC	1.001***		1.230***		
	(0.254)		(0.294)		
Log(Total flows)*peg regime					-0.0162***
					(0.00620)
Control variables	Yes	Yes	Yes	Yes	Yes
Observations	273	271	255	257	243
Number of countries	64	63	62	62	62
Number of instruments	30	44	31	45	30
AR(1)	0.028	0.0297	0.0478	0.0242	0.0465
AR(2)	0.8049	0.6502	0.8796	0.6233	0.5733
Sargan	0.1566	0.1259	0.197	0.1926	0.279

3- Empirical Results: *the GDP Growth models*

	(1)	(2)	(3)	(4)	(5)	(6)
GDP Growth (-1)	-0.0532**	-0.0706**	-0.0440*	-0.0760**	-0.0459*	-0.0406
	(0.0246)	(0.0339)	(0.0242)	(0.0351)	(0.0251)	(0.0255)
Log(FDI)		0.00534***		0.00465***		
		(0.00136)		(0.00117)		
Log(Remittances)		0.0715**		0.0871***		
		(0.0293)		(0.0302)		
Log(Aid)		-0.0105		-0.00610		
		(0.00965)		(0.00850)		
Log(Other flows)		0.00413***		0.00331***		
		(0.000924)		(0.000768)		
Log(Portfolio)		0.165***		0.195***		
		(0.0448)		(0.0482)		
Log(Total flows)	0.0193***		0.0365***		0.0361**	0.0476**
	(0.00727)		(0.00854)		(0.0153)	(0.0193)
Log(REER)			-0.0108*	-0.0164***		-0.0131**
			(0.00642)	(0.00401)		(0.00635)
Total flows instability					6.51e-05	4.77e-05
					(7.77e-05)	(9.06e-05)
Control variablest	-Yes	-Yes	Yes	Yes	Yes	Yes
Observations	310	311	309	310	310	309
Number of countries	69	70	69	70	69	69
Number of instruments	24	40	25	41	27	28
AR(1)	0.0221	0.0224	0.0197	0.0204	0.0224	0.02
AR(2)	0.2482	0.2727	0.2119	0.263	0.2094	0.1938
Sargan	0.3474	0.1414	0.3259	0.114	0.449	0.3765

3- Empirical results : *capital inflows and REER*

- The econometric method is not invalidated.
- **A 1 percent increase of capital inflows appreciates the REER by roughly 0.5 percent**.
- **Disentangling the total capital inflows** into their different components: ODA moderately appreciates REER. *Portfolio* investments has a strong impact, but this impact .
- **A peg exchange rate regime mitigates the appreciation effect**: efficient monetary controls to regulate domestic credit and prevent inflation pressures.

3- Empirical results
Capital inflows and GDP growth

- Total **capital inflows** contribute to a **higher growth rate**, but their instability is not a relevant explanatory variable.

- **A doubling of the per capita total capital inflows leads to an increase of the average annual growth rate by about 50%.**

- From the positive impact of inflows to the negative one through the REER. **A 100 % appreciation of the REER is associated with a 25% reduction in annual GDP growth rate** (loss of one percentage point of the average GDP growth).

4- Concluding remarks (1)

- Public aid remains the main external financial source for LICs. **The role of ODA is smaller for MICs** which depend more on FDIs and remittances.
- **Net capital inflows affect the REER** and the impact is more pronounced for LICs (low supply-side capacity, appreciation of non-tradables).
- **Strong impact of net capital inflows on the GDP growth**, but no difference on this variable according to the level of development. **No detrimental impact of capital instability**

4- Concluding remarks (2)

- **Doubling net capital inflows** would have led, *ceteris paribus,* to a net **increase of average growth of about 2 %** over the period 1980-2012.
- **By managing the indirect and negative impact of capital inflows through the REER**, this doubling of financial resources would have resulted in a growth rate of **7.4 % against the 3.7 %** observed over the period (1980-2012).

Thanks for your attention