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

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Abstract

This paper assesses the impact of capital inflows and the composition on the real exchange rate and economic growth in developing countries. Capital inflows can directly support economic growth by relaxing constraints on domestic resources, but can also indirectly weaken growth through the appreciation of the real exchange rate. We employ the Generalized Method of Moments (GMM) for dynamic panel data to deal with the endogeneity bias. Using a large sample of 77 low- and middle-income countries over the period 1980-2012, the results clearly show that capital inflows affect directly and indirectly economic growth. Our main findings are as follows:- (i) a 1 percent increase in total net capital inflows appreciates the real exchange rate by 0.5 percent; (ii) the real exchange rate appreciation effect of remittances is twice as big as the effect of aid, and ten times bigger than the effect of FDI; (iii) overall, capital inflows are associated with higher economic growth after netting out the negative impact of real exchange rate appreciation. Doubling capital inflows per capita would increase growth by about 50, resulting in a gain of roughly 2 additional percentage points on top of the 3.7percent annual growth rate observed within the sample over the period 1980-2012.

Keywords

1. Introduction

After seven decades of studies related to development economics, the evidence about the growth impact of capital inflows remains mixed (Kose et al, 2006). In standard neo-classical theory, assuming free capital markets and diminishing returns, capital should flow from capital-abundant countries (developed countries) to capital-scarce countries (developing countries) leading to the equalization of marginal returns on capital. This prediction is, however, weakly supported by the facts as demonstrated by the "Lucas paradox" (Lucas, 1990). Many factors underlie this "paradox" including the fact that economic returns in developing economies are generally much lower when adjusted for risk. Lenders and creditors are reluctant to take on risk when information on potential debtors is not easy to appraise and/or when enforcing contracts and resolving insolvency raise doubts about the recovery of loans. However, market and institutional inefficiencies are not sufficient to convincingly explain why external capital does not necessarily flow to the developing countries with the highest growth, the so-called "allocation puzzle" (see Gourinchas and Jeanne, 2007, 2013). In addition, when developing countries manage to attract capital inflows, it is not always a blessing, as instability and potential "crowding out" effects can arise with perverse effects on the GDP growth rate. Rather than stimulating growth by filling the investment/savings gap, external resources can substitute for domestic financing of the most profitable projects, leaving some unfunded projects which might have high positive social returns. Furthermore, capital inflows may appreciate the real exchange rate, thereby undermining their effects on economic growth. The objective of this paper is to revisit the relationship between capital inflows and economic growth. To the best of our knowledge, no previous study has investigated the combined direct and indirect effects of capital flows on economic growth of a large sample of low- and middle-income countries.

. Several hypotheses are explored. First, we hypothesize that not only do net capital inflows matter, but also their composition and fluctuations are critical. For example, while short-term flows such as portfolio investments can be procyclical, private transfers can help smooth adverse economic shocks. Private transfers can, for instance, protect the standard of living of households when credit and insurance markets are nonexistent or not available for all (see Thorbecke, 2013).

Second, beyond their expected direct positive impact, we hypothesize that capital inflows may cause some indirect negative effects by their action on the real exchange rate. The literature on the long-term determinants of the real exchange rate identifies capital inflows as one of the most robust determinants. According to this literature, capital inflows increase the level of domestic expenditure in a similar way to the effect of windfalls from natural resources (Corden and Neary, 1982). While the price of tradable goods is exogenous, the price of non-tradables is endogenous to the dynamics of the domestic economy. Excess demand pressures raise the relative price of non-tradable goods, weakening the competitiveness of the tradable sector. Just as capital inflows can be spent differently depending on their nature (equity or debt, short-term or long-term), their impact on the real exchange rate can also vary according to their composition.

Third, we hypothesize that the effects of capital flows on economic growth depend on the level of development and the exchange rate regime. At first glance, the amount and composition of capital inflows would be expected to vary with the recipient country's level of development. For instance, low-income countries receive more per capita Official Development Assistance (ODA) and fewer portfolio investments due to their small domestic financial markets. While a fixed exchange rate can bring stability, and thus long-term returns, it lacks the flexibility and ability to smooth out shocks that a floating or intermediate regime may provide.

We use the dynamic panel GMM technique to deal with endogeneity issues. As expected, our main results show that capital inflows affect economic growth through two different channels: a direct conventional positive one reflected in the investment/savings gap, or the benefits resulting from international transfers of know-how; and an indirect and negative one through the relative price (the real exchange rate). In other words, while foreign capital has a positive impact on growth, it can also affect growth prospects by appreciating the real exchange rate and weakening the recipient country's competitiveness. Accounting for the real effective exchange rate effect, a doubling of per capita net inflows increases the annual growth rate by about 50 percent, which means a gain of roughly 2 additional percentage points on top of the 3.7 percent annual growth rate observed within the sample over the whole period (1980-2012). The real appreciation stemming from remittances is twice as big as the effect of aid, and ten times bigger than the effect of FDI. The impact of remittances on growth is lower in low-income countries.

The rest of the paper is organized as follows:- Section 2 briefly reviews the existing literature covering both the direct impact on growth (higher savings/investment balance) and the indirect impact through the real exchange rate. Section 3 analyzes descriptive statistics and defines our empirical strategy, including the estimation methodology and the treatment of endogeneity. Section 4 discusses our main results, and Section 5 offers some concluding remarks and policy implications.

2. Capital inflows and their components: what are the expected direct and indirect effects?

The difficulty in reaching an unambiguous conclusion on the way external financial resources and their components affect economic growth is related to the different channels of influence.

2.1 Direct implications on economic growth

Private transfers have become the second largest type of financial flow to developing countries, just behind FDI. The cost/benefit analysis of these transfers which occur alongside migrants' remittances delivers mixed conclusions. The positive impact on the GDP growth generally results from a higher level of permanent domestic consumption (see Aggarwal et al, 2011), more rarely from "building booms". As Giuliano and Ruiz-Arranz (2009) established, remittances boost economic growth by providing appropriate alternative means to release financial constraints on domestic investments. Together, these effects can be conditional on the quality of the recipient country's economic policies and institutions (Catrinescu et al, 2009).These positive effects can be partially offset by a "brain drain", that is the loss of productive capacity due to the loss of skilled workers. The magnitude of the loss is, however, difficult to assess and depends on both the opportunity cost of migrants working abroad, and the domestic unemployment rate. In addition, migration can be a source of new opportunities for the country of origin to export. Moreover, an excessive reliance on remittances can lead to the problem of the "Samaritan Dilemma" (Buchanan, 1975) where the recipients over consume and more generally generate "perverse incentives".

The financial flows related to ODA have been discussed at length in prominent works dealing with the principles that govern aid allocation rules. Burnside and Dollar's 2000 paper has

been very influential in academic and policy spheres. By using standard regression techniques from the economic growth literature, the authors explore the effect of foreign aid on domestic growth. They find a strong positive effect for low-income countries pursuing good policies, but no tangible impact for countries with severely distorted policy regimes. Accordingly, aid effectiveness is conditional on resources flowing to the most efficient countries. Overall, previous empirical studies do not provide clear conclusions. The results vary depending on the sample, the specification of the econometric model, and how the endogeneity biases are treated (see Doucouliagos and Paldam, 2008; Murinde, 2012).

Aid flows tend to be associated with human capital and infrastructure expenditures. While these expenditures, which correspond to what Hirschman (1958) called "Social Overhead Capital" (SOC), are essential for the development process, their benefits may only appear in the long term through enhanced productive capacity. Some recent works have questioned the growth impact of aid, generating controversial debates. Rajan and Subramanian (2008) use different estimators on cross-section and panel datasets covering a large sample of developing countries. The authors do not find clear evidence to support a positive and robust impact of ODA. Using the same approach and similar data, Arndt, Jones and Tarp (2010) reach opposite conclusions. These authors confirm the positive effect of aid on growth when the analysis is extended to other social welfare variables such as poverty alleviation, the provision of basic health care, and primary education These "social" issues are what the international community expects - the sustainable development goals (SDGs) (see Arndt, Jones and Tarp, 2015). The role of ODA is, therefore, ambiguous and difficult to clarify beyond the current expenditure focused on the building of human capital and infrastructure services (see Guillaumont, McGillivray and Wagner, 2013; Guillaumont and Kpodar, 2015).

The impact of foreign direct investments (FDIs) mainly depends on what kinds of activities are financially supported. The impact can be limited if FDIs consist of "pure" transfers of assets from the public sector to the international private sector during privatization. This is the case when the government uses the cash to reduce international debt. The only predictable effect would then be potential long-term improvement of firm productivity through know-how transfer. Additional investments tend to follow such an institutional change, increasing gains through additional investments. Greenfield projects related to Public Private Partnerships are probably the trickiest inflows and combine both

SOC and DPA. The social benefit of investments in human resources or infrastructure may require a significant time lag before the supply side effects fully occur. In the Katanga region (DR Congo), investments in copper mining have, for example, been the base for a very large social infrastructure before mining activities begin.

Thus, FDI in different forms or in the same form but in different national contexts is likely to affect economic growth differently. Unfavorable outcomes may occur, especially in low-income African countries or natural resource rich-countries where natural resource exports may hamper the diversification of the manufacturing sector. On the contrary, FDI concentrated in the manufacturing sector, as in many Asian economies, can further enhance growth, for instance by leveraging a low cost skilled labor force. The failure to distinguish between different categories of FDIs has been interpreted by Stiglitz (2008) as a possible explanation of the difficulty to clearly identify the role FDIs play in the development process. In the manufacturing sector, we may assume that this contribution is less difficult to analyze as it generally brings some foreign know-how including more efficient technologies and technical or vocational training. This direct influence on growth can potentially spread, especially if positive spillovers towards domestic firms occur.

If the empirical literature on the impact of FDI does not give unambiguous results, the use of meta-regression techniques has recently provided some useful insights on this issue. From 103 micro and macro studies, Bruno and Campos (2013) show that the number of studies where FDI is found to support growth is four or five times the number of studies where the coefficient is negative. In addition, the authors find that the FDI effect is larger than commonly suggested, for example in De Vita and Kyaw (2009) for countries below some critical human capital and financial development level. Although FDI can be beneficial in triggering economic growth and development of African economies, also using a meta-regression analysis from 32 studies, Wooster and Diebel (2010) show a higher statistical significance of documented spillover effects in Asian countries.

The openness of the capital account to short-term flows has been undoubtedly one of the most controversial subjects in recent decades. To a large extent, the pros and cons are reflected in Stiglitz's 2008 paper. In the historical context of the late 1990s, the liberalization of capital transactions has sometimes been perceived as an extension of free trade of goods. An open capital account offers an incentive to improve market discipline by promising

expectations in terms of macroeconomic stability and additional financial resources. To this argument, Stiglitz (2008) proposes the opposite idea, which is that capital account liberalization stimulates economic fluctuations. Short-term resources are unlikely to be channeled to investments and can jeopardize the realization of social well-being objectives. When short-term resources are correlated with the domestic business cycle, they are also sensitive to changes in the external environment and to sudden slowdowns in private capital inflows (Calvo, 1998). Therefore, via a contagion effect, countries can be made more vulnerable to capital outflows, giving rise to economic crises unrelated to the domestic management of the affected countries.

2.2 Indirect implications on the real exchange rate

Beginning with the influential works of Edwards (1989) and Williamson (1983), there is now a very extensive strand of literature that deals with the specific relationship between capital inflows and the equilibrium real exchange rate, which is determined by factors that affect both a country's internal and sustainable external situation. Net capital inflows are seen as one of the determinants that increase the demand and price of non-tradable goods. The relative price of non-tradables goes up and modifies the initial macroeconomic equilibrium. The question that arises here is whether the real exchange rate can be affected differently depending on the composition of capital inflows.

As mentioned earlier, remittances can act as a buffer to smooth consumption for example when the recipient economy is suffering from an economic downturn (Lueth and Ruiz-Arranz, 2007; Chami et al, 2008). In this case, remittances help to maintain stability by compensating for the effect of macroeconomic shocks, and present only limited risk of a significant real exchange rate appreciation. Conversely, remittances can be connected with various kinds of investment projects. The risk of real exchange rate appreciation is particularly strong if resources are channeled to real estate (construction booms), while it seems negligible if they are spent on imported durable goods. The empirical results are mixed. The studies of Chami et al, (2008); Izquierdo and Montiel (2006); and Rajan and Subramanian (2005) are not conclusive. Rodrik (2009) finds that competitive exchange rate policies were difficult to promote in Jordan and Egypt because of the loss of competitiveness due to transfers from migrant workers in the Gulf countries. In a different context, Naceur et

al (2015) share the same view, arguing that a long-term increase in remittances, and aid devoted to poverty alleviation generate increased spending on non-tradables.

The impact of ODA mainly depends on how resources are used. Assuming that a significant part of official flows is targeted to enlarge a country's basic infrastructure, the relative contribution of domestic consumption to global expenditure should be considered as an important factor in analyzing the evolution of the exchange rate. When the recipient country suffers from supply constraints, capital inflows associated with consumption put more pressure on the relative price of domestic goods than the capital inflows channeled to those investments which have a significant proportion of imported goods. Cerra, Tekin, and Turnovsky (2008), highlight the complexity of this issue. Foreign aid is expected to appreciate the real exchange rate if it stimulates productivity within the tradable sector, while depreciation is likely to occur if aid is channeled to improve productive capacity in the non-tradable sector.

The impact of FDI on non-tradable prices varies greatly according to the specific type of operation. When FDI is for imported machinery and equipment, beyond a potential transitory effect, there is little risk of a sustained appreciation leading to exchange rate disequilibrium. A positive effect of FDIs is also expected on the use of productive resources through transfers of technology, managerial know-how, and other intangible assets (Agénor, 1998; Javorcik, 2004; Kinda, 2010, 2012). However, FDIs may also consist of "pure" transfers of domestic assets between residents and non-residents, somewhat counterbalancing the argument on relative prices, as mentioned earlier. The once and for all revenues or bonanzas resulting from selling public enterprises can be channeled to permanent current expenditures, increasing the price of non-tradables. The number of studies that deal with the impact of private flows on the real exchange rate is limited and results are mixed, as shown by Athukorala and Rajapatirana (2003). Lartey (2007) and Saborowski (2009) find that FDIs cause a real appreciation.

The role of short-term capital transactions remains a matter of debate. In low-income countries, commercial bank loans and international portfolio investments can be seen as temporary transactions. This is consistent with unit root tests, suggesting that short-term capital inflows are stationary (Elbadawi and de Soto, 1998). However, for middle-income countries that have liberalized their capital account, these variables may have a stochastic trend or be part of a long-term cycle, which leads to the appreciation or depreciation of the

real exchange rate. This effect potentially extends to all kind of short-term inflows because domestic banks play a bigger role in these transactions than in FDI. In a recent paper dealing with transition in Central and Eastern Europe economies, Boero, Marvomatis and Taylor (2015) have reconsidered the question. They provide evidence that these economies have known two sources of long run appreciation of their currencies. The first source is due to the Balassa-Samuelson effect. It relates to the relative importance of FDIs which positively affect both the internal productivity level and the international convergence of the costs of living standards. The second source relates to the other components of the capital account; they do not necessarily affect the productivity level and can be a driving force for a prolonged real appreciation.

3. Empirical methodology and descriptive statistics

3.1 The specification of the models

We first estimate the effect of net capital inflows on the real effective exchange rate and then on the economic growth. We use a dynamic specification given the potential inertia of both REER and GDP growth. More specifically, we estimate separately the following equations[1]:

$$REER_{i,t} = \gamma + \omega REER_{i,t-1} + \tau TotalFlows_{i,t} + \pi Y'_{i,t} + \mu_i + \sigma_{i,t} \quad (1)$$

$$REER_{i,t} = a + bREER_{i,t-1} + cAid_{i,t} + dFDI_{i,t} + eRemittances_{i,t} + fPortfolio_{i,t} + gOtherflows_{i,t} + hY'_{i,t} + \vartheta_i + \emptyset_{i,t} \quad (2)$$

$$GDPGrowth_{i,t} = \alpha + \delta GDPGrowth_{i,t-1} + \beta TotalFlows_{i,t} + \theta X'_{i,t} + v_i + \varphi_t + \varepsilon_{i,t} \quad (3)$$

$$GDPGrowth_{i,t} = k + mGDPGrowth_{i,t-1} + \eta Aid_{i,t} + pFDI_{i,t} + \lambda Remittances_{i,t} + \varrho Portfolio_{i,t} + \xi Otherflows_{i,t} + \rho Y'_{i,t} + \psi_i + \varpi_t + \varsigma_{i,t} \quad (4)$$

where $REER_{i,t}$ and $GDPGrowth_{i,t}$ stand for the real effective exchange rate and the economic growth for country i in non-overlapping 5-year periods denoted t. For a country i the REER is defined as follows, where CPI_j is the Consumer Price Index of the country's partner j; e_j and

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[1]The simultaneous estimation of the two equations is theoretically more efficient than separate estimates. This is true however provided two conditions are met. First, errors terms should be cross correlated. Second, the simultaneous equations model should be well specified. If not, misspecification potentially affects the entire system. In that case, single equation estimations are preferred.

w_j are the nominal bilateral exchange rate and the weight of the j-th partner in the total bilateral non-oil imports and exports of the country (i). The weighting pattern refers to the 10 largest trading partners over the period of 2000-2005.

$$Log(REER)_i = \sum_{j=1}^{j=10}[w_j * Log(e_j * ({CPI_i}/{CPI_j}))] \qquad (5)$$

An increase in *REER* indicates a real appreciation in the exchange rate. For each of the 77 low- and middle-income countries (see Appendix 1 for the list of countries), 7 observations are available for the periods of 1980-2012; averaged periods are considered to minimise short-term fluctuations[2].

$TotalFlows_{i,t}$ is a per capita net inflow which consolidates: Foreign Direct Investment (*FDI*), Foreign aid (*Aid*), *Remittances*, *Portfolio* investment, and *Other Flows*. All capital inflows are expressed as a proportion of the population, to control for the heterogeneity of country size. There is no obvious variable for expressing capital flows as ratios. The empirical works assessing the impact of ODA on economic growth tend to report capital flows as a ratio of GDP level, while a of number recent papers focusing on private flows, such as FDI or portfolio investments, report these flows in per capita terms (as a share of population) (see Arndt et al 2015). Following Alfaro and Volosovych (2008), we express capital flows as a ratio to the population, because this variable is more normally distributed, and less subject to both non-stationarity and endogeneity issues. In addition, because population is more stable, expressing capital inflows in per capita terms allows us to capture their real dynamic, rather than GDP fluctuations.

In an alternative specification, we estimate the impact of *Total Flows instability* captured by the Hodrick Prescott filter (See

Appendix2 , Table 1 for the definition of the variables and data sources, and Table 2 for descriptive statistics).$Y'_{i,t}$in equation (1), represents a vector of control variables including: trade openness (*Trade*) as defined by the ratio of imports plus exports over GDP, the standard *Terms of Trade*, the ratio of *Government Consumption* over GDP[3], the *Balassa Index* defined as the ratio between the country's real per capita GDP, and the weighted mean of the same variable for the 10 major trading partners considered for the REER. This last

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[2] 1980-1984; 1985-1989; 1990-1994; 1995-1999; 2000-2004; 2005-2009; 2010-2012
[3] In order to get rid of the multicollinearity with total flows, government consumption has been orthogonalized.

variable is used to capture the impact of the increasing price of non-tradable goods over the development process within a sample for which per capita GDP levels are quite heterogeneous. Hence, we control for most of the usual determinants of the real exchange rate (e.g. Devarajan, 1997; Combes et al., 2012). Trade openness mitigates the rise of domestic prices and real appreciation. The impact of terms of trade is a priori ambiguous: when the terms of trade increase, REER can appreciate if the income effect dominates the substitution effect. The Balassa Index is expected to be positively correlated with the real exchange rate. Finally, government consumption is assumed to fuel REER when the majority of public spending is oriented toward non-tradable goods and services.

In equation (2) $X'_{i,t}$ stands for the vector of control variables. This vector includes the initial level of GDP per capita (*GDPPC*), *Polity2* to capture the degree of democracy, *Natural Rents*, trade openness, and real effective exchange rate (*REER*). Trade openness (Wacziarg and Welch, 2008) and democracy (Acemoglu et al, 2015) are expected to promote economic growth. According to the convergence hypothesis, a higher (??) level of economic development should reduce the economic growth rate. The impact of natural rents is ambiguous (see Sach and Warner, 1995; Brunnschweiler and Bulte, 2008). On the one hand, a "Dutch disease" phenomenon can impede growth, but on the other hand, the discovery and exploitation of raw materials can extend country endowment, and the resulting additional income can contribute to an increase in domestic investments.

We include v_i and μ_i to control for unobserved time-invariant country-level characteristics that are potentially correlated with government revenue, and ϑ_t and φ_t for common time-variant shocks that affect all developing countries. $\sigma_{i,t}$ and $\varepsilon_{i,t}$ are idiosyncratic error terms[4].

Blundell and Bond's (1998) system-GMM estimator for dynamic panels is implemented for two reasons. First, the OLS estimator is inconsistent since the lagged dependent variable is introduced with country fixed-effects (Nickell 1981). Second, the GMM estimator controls for the potential endogeneity of the explanatory variables due to measurement errors, reverse causality, or omission of pertinent variables. In fact, both GDP growth and net capital inflows can be affected by common shocks. For instance, a discovery of natural resources may attract foreign direct investment while affecting economic growth

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[4] In order to reduce the number of instruments, time fixed effects have been omitted in equations where categories of capital inflows appear.
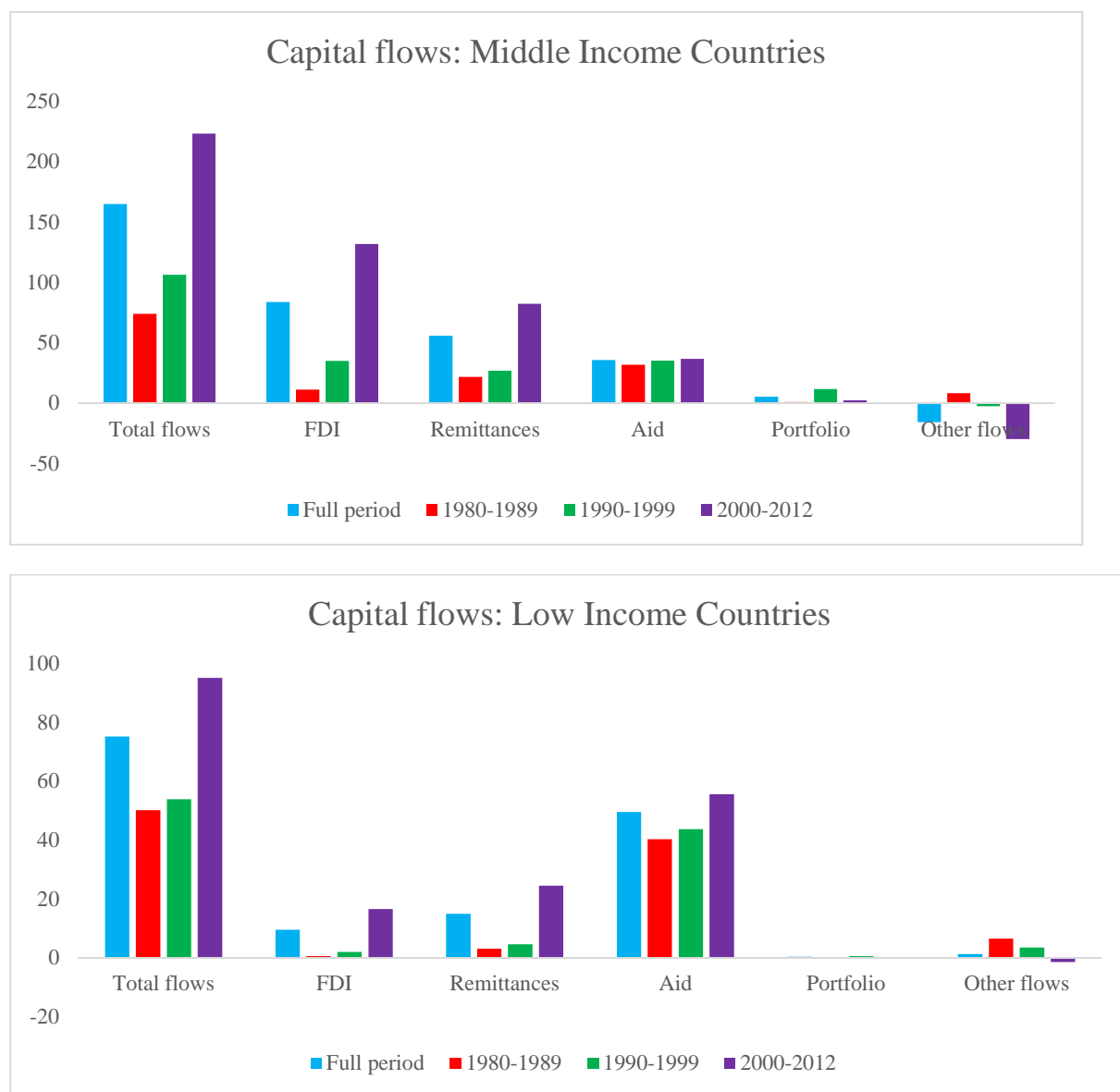
patterns. Furthermore, deteriorating economic and financial conditions could significantly reduce investor incomes and capital inflows, weakening the economic growth. With regard to reverse causality, high capital inflows may increase investment and boost economic growth, but sustained growth in a recipient country can send out positive signals about the country's prosperity and attract more capital inflows.

Equations (1) and (2) are taken in first difference to remove country fixed effects. Equations in levels and first differences are combined in a system and estimated with lagged differences and lagged levels of the explanatory variables as instruments. Therefore, the system-GMM estimator helps reduce the endogeneity issues given that the lagged values used as instruments for capital flows are not affected by the contemporaneous levels of economic growth. The validity of the instruments is tested by the Sargan-Hansen over-identification test and by the second order serial correlation test AR(2); the null hypothesis indicates that the error term does not exhibit auto-correlation. Finally, to deal with the problem of instrument proliferation, the matrix of instruments is collapsed to ensure that the number of instruments does not exceed the number of countries (Roodman 2009). To deal with the problem of "weak instruments" and to augment the precision of the estimation, an external instrument capturing economic growth in developed countries is added: the 10 largest bilateral donors of each country are considered and we generate an average donor growth weighted by the amount of aid that a country receives from those particular donors (Tavares, 2003). This external instrument may affect the allocation of foreign aid and the other net capital inflows including FDI and remittances, but does not directly affect economic growth in recipient countries.

3.2 Net capital inflow statistics

The aggregated net total of external financing is broken down into 5 broad categories: private unilateral transfers or remittances; official development assistance (ODA); foreign direct investments (FDI); portfolio investments (corporate bonds and other private debt securities); other inflows including liabilities to foreign banks. This sub-section presents an overview of the long-term evolution of the volume as well as the composition of net capital inflows over the period 1980-2012. Statistics are provided separately for low- and middle-income countries, LIC and MIC, respectively, for the whole period and for sub-periods. Per capita total and external financing by component are considered in percentages.

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Figure1: Per capita total net capital inflows and their structure (current U.S. dollars)

Capital flows: Middle Income Countries

Capital flows: Low Income Countries

Source: IMF World Economic Outlook

Figure 1 shows that net capital inflows per capita have substantially increased over the last thirty years. For MICs, it has more than tripled, increasing from 74 U.S. dollars in the 1980s to 223 U.S. dollars over the sub-period beginning in 2000. This long-term change illustrates the financial integration of developing economies into the globalization process. Although the dynamic of net inflows is much less pronounced for LICs, it does nevertheless exist. For LICs for the same sub-periods, total net inflows have almost doubled, from 50 to 95 U.S. dollars per capita, per annum. Similarly, the structural composition of external financing has greatly changed. At the beginning of the 1980s, regardless of the level of development,

official aid constituted the bulk of the inflows. It accounted for about 40 percent of the total financing for the MICs, and 80 percent for the LICs, more than remittances, the second largest category. In relation to the decreasing role of aid, the composition of ODA has also changed dramatically to a larger proportion of grants than loans. ODA flows are now focused primarily on LICs and on extending human capabilities, especially through health or education expenditures, rather than directly supporting productive investments or hard infrastructure as was the case during the 1980s.

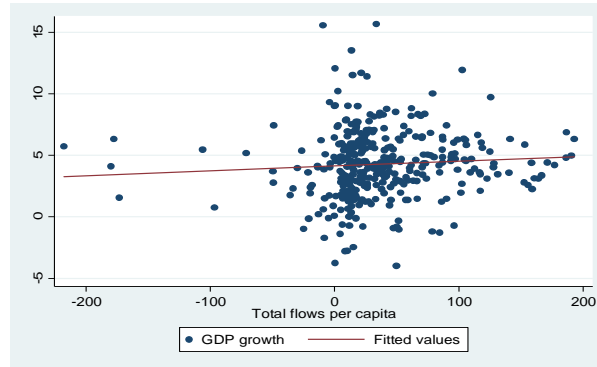**Figure 2: Total net capital inflows and their structure (%)**

Source: IMF World Economic Outlook

At the end of the period under review, FDIs represented the largest component of total external inflows for MICs, more than 50 percent. By comparison, FDI represented only 17 percent of inflows in LICs. For MICs, FDI inflows have been dominated by the purchase or

creation of manufacturing firms, with some expected positive upstream and downstream effects on economic growth. Accordingly, the size and the composition of financial inflows matter. Different kinds of external resources are likely to induce different impacts depending on the per capita income level. The complexity of the potential relations between growth and external capital inflows is reflected by the correlation and distribution of the dots in Figure 3.

Figure 3: Net capital inflows and economic growth (total sample)

4. Regression results

Table 1 shows the effect of capital inflows on the real exchange rate (REER). The statistical testsdo not invalidate the econometric method. In other words, the null hypothesis of the *Sargan* and the *AR*(*2*) tests are not rejected. Moreover, the positive coefficient of the lagged dependent variable highlights an inertia effect that legitimates the dynamic panel specification. However, not only is the coefficient below 1 to catch the totality of the REER dynamic, but total capital inflows is associated with a real appreciation of the exchange rate (equation 1). A 10 percent increase in capital inflows appreciates the REER by roughly 5 percent. This result is robust to the introduction of government consumption and the instability of net total capital inflows: the first variable is significant (equations 3 and 4) while the second is not (equation 5). Equations 2 and 4 break down total capital inflows into their different components. In equation 2, FDI (0.03) and Aid (0.14) elasticities, appreciate moderately the real exchange rate, while *Portfolio* investments have a strong impact. The effect of *Remittances* is only significant in equation 4 where we control for government consumption. The positive effect of this variable is approximately twice the effect of *Aid* and ten times larger than the impact of FDI.

With respect to the vector of control variables, the coefficients of the terms of trade, the Balassa Index, and government consumption are statistically significant with positive signs, while an increase of trade openness is found to reduce the real appreciation.

Table 1: Net capital inflows and the real effective exchange rate (REER)

	(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)
Trade openness	-0.00448***	-0.00379***	-0.00454***	-0.00387***	-0.00469***
	(0.000261)	(0.000891)	(0.000861)	(0.00110)	(0.000944)
Terms of trade	0.000384**	0.000353	0.000605**	0.000214	0.000691**
	(0.000162)	(0.000307)	(0.000276)	(0.000262)	(0.000275)
Balassa index	0.00151***	0.00135**	0.00122**	0.00153***	0.00131**
	(0.000461)	(0.000524)	(0.000491)	(0.000471)	(0.000549)
Government consumption			0.0110***	0.0137***	
			(0.00349)	(0.00369)	
Constant	0.174	-9.139***	1.986**	-13.09***	-0.333
	(0.795)	(2.777)	(0.820)	(2.164)	(0.929)
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

Standard errors in brackets: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

In Table 2, the specificity of low-income countries (LIC) is captured through a multiplicative dummy variable associated with total capital inflows or capital components

(equations 1 to 4). The impact of total inflows on the REER is higher in LICs (equation 1) where the demand side outperforms the supply response, generating a real appreciation of the external value of the domestic currency. The elasticity of the REER is about 1 percent for LICs compared to than 0.4 percent for MICs.When the different categories of capital inflows are considered (equation 2), this appreciation effect of remittances proves to be greater in LICs. Alternative specifications (equations 3 and 4) do not invalidate these regression results.

Table 2 also displays the specific effect resulting from the exchange rate system. A dummy variable is introduced for countries with a "peg" regime. This variable, which is considered in a multiplicative way with the total capital inflows (equation 5) is obtained from Ilzetzki, Reinhart and Rogoff's 2010 classification, and combines: no separate legal tender, pre-announced peg (or currency board arrangement), pre-announced horizontal band which is narrower than or equal to +/- 2 percent,or *de facto* peg. This binary variable does not necessarily coincide with the bipolar view of the two corner regimes. We do not hypothesize that only hard pegs or floating exchange rate systems are viable (see Summers, 2000; Fisher, 2001). We only support the idea that, on average, arrangements where intentions of a limited flexibility of the exchange rate are clearly expressed produce some comparable outcomes. The regression coefficient of this variable is negative and significant, reflecting that "peg regimes" mitigate the appreciation effect that stems from capital inflows. One explanation is that peg regimes go hand in hand with appropriate controls by monetary authorities who regulate domestic credit and prevent inflation pressures. In developing economies, a good example of this effect can be found in the Franc Zone, where the fixed parity of the CFA franc vis-à-vis the Euro has been maintained for several decades thanks to strong and efficient regulatory control of the money supply.

Table 2: Real exchange rate, net capital inflows in low income countries (LICs) : variation according to the exchange regime

	(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)
Trade openness	-0.00444***	-0.00397***	-0.00411***	-0.00348***	-0.00398***
	(0.000680)	(0.000887)	(0.000689)	(0.000918)	(0.000805)
Terms of trade	0.000441*	0.000477*	0.000247	0.000219	0.000336
	(0.000268)	(0.000279)	(0.000279)	(0.000261)	(0.000282)
Balassa index	0.00155***	0.00148***	0.00134**	0.00192***	0.00130**
	(0.000586)	(0.000469)	(0.000549)	(0.000399)	(0.000522)
Government consumption			0.0144***	0.0191***	
			(0.00417)	(0.00355)	
Constant	-1.166	-0.685	0.242	-13.15	0.691
	(0.764)	(8.385)	(1.239)	(12.19)	(0.741)
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

Standard errors in brackets: *** p<0.01, ** p<0.05, * p<0.1.

The GDP growth model is estimated in Table 3. The negative sign of the lagged endogenous variable could be interpreted as the consequence of a stop-and-go growth cycle. Trade openness and natural rents promote economic growth while the *Polity2* variable is not significant. It is worth mentioning that the positive impact of natural rents does not indicate the absence of negative long-run effects that we poorly capture with the model. Indeed, the presence of natural rents can be a source of the "Dutch disease" phenomenon with the accompanying perverse consequences for the implementation of the diversification process. Total capital inflows positively affect growth (equations 1, 3, 5, and 6), but their instability does not prove to be a relevant explanatory variable (equations 5 and 6). Coefficients are semi-elasticities which can be interpreted as follows: a doubling of per capita total capital inflows leads to an increase in average annual growth by about 50 percent (equation 1). The transmission channel can be more deeply explored by controlling for the real exchange rate impact (equations 3, 4 and 6), thus using the REER to distinguish the direct positive impact of inflows from the negative impact. Through this distinction we expect the coefficient of total capital inflows to be higher when the REER is incorporated in the econometric specification. The results confirm our expectation: a 100 percent appreciation of the REER is associated with a 25 percent reduction in annual GDP growth (a reduction of about 1% of growth rate). Moreover, it is worth noting that the coefficient of total inflows varies significantly depending on the introduction (or not) of the REER: equation (1) versus equation (3). In equation (3), the coefficient of total capital inflows is roughly twice the coefficient of this variable in equation (1). Consequently the direct effect represents a doubling of the GDP growth rate.[5]

It is worth noting that the coefficients associated with the instability of total net capital inflows or their components are not statistically different from zero. At least two reasons may explain these results. First, arguably uncertainty plays a key role in economic decisions, so it can be expected to have an impact on growth. Therefore, uncertainty should ideally be measured *ex ante*. It should either emanate from an expectations model, or from a firm survey. Because both measures are difficult to implement, *ex post* measures have generally been considered. A variance calculated over the economic cycle is an example of such an approach. Other *ex post* measures are derived from GARCH models but they rely on high frequency data, which are not available for this empirical work. Second, the idiosyncratic

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[5] When particular capital inflows are considered (equations 2 and 4), it proves impossible to distinguish direct and indirect effects

variability is not big enough once period- and country- fixed effects are introduced. Put differently, instability measures are mainly time or country invariant. In addition, when breaking down instability according to sub-categories of inflows, covariances are not taken into account. This means that compensating variations of instability are excluded from our measure of volatility. Thirdly, **t**he most volatile capital inflows identified in the literature, namely portfolio investments, are almost inexistent for most of the investigated low- and middle-income countries (see Figures 1 and 2). In other words, from the perspective of assessing the importance of financial volatility, MIC case studies with high frequency data on gross and net inflows of their short term components, are likely to be the best way to draw fruitful lessons for LICs intending to fully liberalise their capital account.

Table 3: Effect of capital inflows on GDP growth

	(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)
Log(GDPPC)	-0.00303	-0.00866	-0.00745	-0.00599	-0.00666	-0.0103
	(0.00591)	(0.00569)	(0.00658)	(0.00543)	(0.00589)	(0.00703)
Trade openness	0.0409***	0.0318***	0.0418***	0.0266**	0.0446***	0.0433***
	(0.00647)	(0.0116)	(0.00685)	(0.0114)	(0.00481)	(0.00624)
Polity2	0.000989**	0.000514	0.000689	0.000279	0.000963**	0.000713
	(0.000479)	(0.000418)	(0.000484)	(0.000410)	(0.000484)	(0.000484)
Natural rents	0.000407*	0.000843***	0.000294	0.000598***	0.000180	0.000147
	(0.000209)	(0.000223)	(0.000218)	(0.000212)	(0.000212)	(0.000241)
Constant	-0.0824	-1.539***	-0.109	-1.789***	-0.163*	-0.147
	(0.0642)	(0.360)	(0.0694)	(0.408)	(0.0940)	(0.105)
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

Standard errors in brackets: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4 : Effect of capital inflows on LICs' economic growth

	(1)	(2)	(3)	(4)
GDP Growth (-1)	-0.0692**	-0.0956**	-0.0713**	-0.102**
	(0.0350)	(0.0427)	(0.0328)	(0.0408)
Log(FDI)		0.00500***		0.00430***
		(0.00139)		(0.00114)
Log(Remittances)		0.0636*		0.0791**
		(0.0326)		(0.0326)
Log(Aid)		-0.0133		-0.0181
		(0.0167)		(0.0149)
Log(Other flows)		0.00409***		0.00328***
		(0.00109)		(0.000972)
Log(Portfolio)		0.152***		0.186***
		(0.0551)		(0.0525)
Log(FDI)*LIC		0.0321		0.0349
		(0.0384)		(0.0353)
Log(Other flows)*LIC		-0.0662		0.0164
		(0.186)		(0.172)
Log(Portfolio)*LIC		0.221		0.148
		(0.485)		(0.427)
Log(Remittances)*LIC		-0.104		-0.134*
		(0.0665)		(0.0689)
Log(Aid)*LIC		0.00875		0.0166
		(0.0212)		(0.0198)
Log(Total flows)	0.0415***		0.0601***	
	(0.00839)		(0.0110)	
Log(Total flows)*LIC	-0.0346		-0.0451	
	(0.0330)		(0.0326)	
Log(REER)			-0.0117*	-0.0136***
			(0.00633)	(0.00388)
Log(GDPPC)	-0.00859	-0.00183	-0.0120**	-0.00119
	(0.00548)	(0.00549)	(0.00604)	(0.00534)
Trade openness	0.0446***	0.0270**	0.0431***	0.0267**
	(0.00506)	(0.0111)	(0.00623)	(0.0113)
Polity2	0.000987**	0.000746*	0.000722	0.000527
	(0.000484)	(0.000411)	(0.000479)	(0.000387)
Natural rents	0.000273	0.000907***	0.000205	0.000711***
	(0.000196)	(0.000247)	(0.000218)	(0.000242)
Constant	-0.121*	-1.705	-0.134*	-1.939*
	(0.0695)	(1.056)	(0.0692)	(1.020)
Observations	310	311	309	310
Number of countries	69	70	69	70
Number of instruments	27	41	28	42
AR(1)	0.0247	0.0212	0.0244	0.022
AR(2)	0.2779	0.4055	0.2791	0.4356
Sargan	0.4661	0.0758	0.4608	0.0805

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 4 presents the results of our tests for the presence of specificities for low-income countries (LICs) in the GDP growth model. The only conclusive result we get is with equation (4). The impact of remittances proves lower in LICs. A possible explanation for this result is that remittances are dedicated to consumption rather than to investments (Chami et al, 2012). Table 5, presents the results for the assumption that the impact of total inflows on economic growth could be conditional on the exchange rate regime. No statistical difference is found across the different specifications, with or without the REER.

Table 5: Effect on GDP growth and the peg regime economies

	(1)	(2)	(3)
GDP Growth (-1)	-0.0683*	-0.0658	-0.0837*
	(0.0412)	(0.0419)	(0.0442)
Log(Total flows)	0.0334***	0.0390***	0.0452***
	(0.0109)	(0.0129)	(0.0133)
Log(Total flows)*peg regime	0.000559	0.000608	0.000937
	(0.000675)	(0.000703)	(0.000810)
Log(Total flows)*LIC			-0.0581
			(0.0391)
Log(Total flows)*LIC*peg regime			-0.00113
			(0.00144)
Log(REER)		-0.00891	-0.00719
		(0.00723)	(0.00723)
Log(GDPPC)	-0.00303	-0.00350	-0.00385
	(0.00561)	(0.00633)	(0.00641)
Trade openness	0.0406***	0.0362**	0.0366**
	(0.0139)	(0.0146)	(0.0142)
Polity2	0.000583	0.000430	0.000559
	(0.000483)	(0.000475)	(0.000465)
Natural rents	0.000802***	0.000841***	0.000905***
	(0.000299)	(0.000283)	(0.000284)
Constant	-0.175**	-0.164	-0.104
	(0.0817)	(0.101)	(0.103)
Observations	278	278	278
Number of countries	66	66	66
Number of instruments	27	28	30
AR(1)	0.0001	0.0001	0.0001
AR(2)	0.4399	0.4888	0.3706
Sargan	0.4895	0.4436	0.4907

Standard errors in brackets: *** p<0.01, ** p<0.05, * p<0.1

5. Conclusion and policy implications

After a sharp decline during the 1980s, net capital inflows to developing countries have significantly increased in the 2000s. This phenomenon is in line with the acceleration of globalization via the traditional channel of international trade, but also through an increasing financial openness in developing economies. Globalization has also been accompanied by a pronounced modification in the composition of capital inflows. While foreign aid was initially the prevailing source of finance, and still remains so for low income countries, the role of ODA is now much smaller for middle income economies which now depend mainly on FDIs and to a lesser extent on remittances. We find that the contribution of net capital inflows to the variation in the real effective exchange rate (REER) was significant, and the impact was more pronounced for LICs. This effect may be related to low supply-side capacity and the implication of net capital inflows in the appreciation of the non-tradable to tradable price ratio.

With respect to economic growth, we find a strongly positive and significant impact of net capital inflows on GDP growth, in accordance with the expected contribution of these external resources to filling the saving/investment gap. However, we did not detect a difference with respect to the level of development. On average, doubling net capital inflows would lead to a net increase in average growth of about 2 percentage points over the whole sample, including for the LICs. Adjusting this increase for the indirect impact of the external financial capital inflows due to real exchange rate appreciation, we also found that greater inflows would lead to a growth rate of 7.4 percent compared to the 3.7 percent observed over the period 1980-2012. While the direct impact on growth does not differ across the two per capita GDP levels, it is worth noting that the indirect impact is significantly higher and proved to be not negligible for LICs. The elasticity of the REER to the total capital inflows is about 1 percent for LICs against less than 0.4 percent for MICs. The results for economic growth hold when we control for other determinants of growth such as the presence of natural rents, trade openness, an institutional variable, and the long run convergence effect. A more extended econometric specification rejected the hypothesis that instability of net capital inflows or their respective components could be relevant variables for the explanation of the REER or the GDP growth rate.

Although the influence of ODA did not prove statistically significant for explaining GDP growth, including for LICs, it is likely to affect the long run well-being of populations

through different indirect channels. Official aid potentially contributes to an increase in human capabilities and infrastructure, and helps the promotion of public goods which condition the long run development process and the integration into the world economy. The impact of FDIs on growth is a more direct one. It has been found to be stronger in LICs than in MICs, conflicting with some views that attractiveness of a country is conditional on the quality of its institutions, the availability of a high level of the human capital, or the quality of the financial market. This result probably needs to be qualified. Indeed, most often, LICs benefit from FDI oriented to the exploitation of natural resources with few backward and forward effects. FDIs in MICs are likely to have stronger structural influences through horizontal and vertical relations within the domestic economy. Therefore, the challenge for LICs is to use FDIs as a lever to promote both raw material processing and a larger participation in global value chains.

This paper has also shed light on the effect of Portfolio investments, which remains limited in LICs. If regression coefficients have shown significant impacts on GDP growth, they have also displayed some risks of currency overvaluation. The same problem arose with the remittances that support domestic consumption and housing investments in a context where the relative price of the non-tradable goods rises. Developing countries should fully take account of the fact that capital inflows, while critical to finance development needs and spurring economic growth, can also lead to significant REER appreciation and loss of competitiveness, thereby complicating macroeconomic management. Together, the complex nature of inter-relations between variables calls for the State to play an active role between excessive regulation and unbridled liberalization of external capital flows and their components.

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Appendices

Appendix 1 :

List of countries			
Code	Country	Code	Country
DZA	Algeria	LBN	Lebanon
AGO	Angola	LSO	Lesotho
ARG	Argentina	LBR	Liberia
BGD	Bangladesh	MDG	Madagascar
BEN	Benin	MWI	Malawi
BOL	Bolivia	MYS	Malaysia
BWA	Botswana	MLI	Mali
BRA	Brazil	MRT	Mauritania
BFA	Burkina Faso	MUS	Mauritius
BDI	Burundi	MEX	Mexico
KHM	Cambodia	MOZ	Mozambique
CMR	Cameroon	NAM	Namibia
CAF	Central African Rep.	NPL	Nepal
TCD	Chad	NER	Niger
CHN	China.P.R.: Mainland	NGA	Nigeria
COL	Colombia	PAK	Pakistan
COG	Congo. Republic of	PAN	Panama
CRI	Costa Rica	PRY	Paraguay
CIV	Côte d'Ivoire	PER	Peru
DJI	Djibouti	PHL	Philippines
DOM	Dominican Republic	RWA	Rwanda
ECU	Ecuador	SEN	Senegal
EGY	Egypt	SLE	Sierra Leone
SLV	El Salvador	ZAF	South Africa
GAB	Gabon	LKA	Sri Lanka
GMB	Gambia. The	SDN	Sudan
GHA	Ghana	SWZ	Swaziland
GTM	Guatemala	SYR	Syrian Arab Republic
GIN	Guinea	TZA	Tanzania
GNB	Guinea-Bissau	THA	Thailand
HTI	Haiti	TUN	Tunisia
IND	India	UGA	Uganda
IDN	Indonesia	VEN	Venezuela. Rep. Bol.
IRN	Iran. I.R. of	VNM	Vietnam
JAM	Jamaica	YEM	Yemen. Republic of
JOR	Jordan	ZMB	Zambia
KEN	Kenya		
LAO	Lao People'sDem.Rep		

Appendix2 :

Table 1: Data sources		
Variables	Definition	Sources
GDP growth	Economic growth	IMF World Economic Outlook
FDI	Foreign direct investment per capita	IMF World Economic Outlook
Remittances	Migrant transfers per capita	IMF World Economic Outlook
Aid	Foreign aid per capita	OECD datasets
Portfolio	Portfolio flows per capita	IMF World Economic Outlook
Other flows	Non classified flows per capita	IMF World Economic Outlook
Trade	Imports plus exports over GDP	World Bank-World Development indicators (2014)
Natural rents	Natural resource rents over GDP	World Bank-World Development indicators (2014)
Polity2	Degree of democracy	Polity IV Project (Marshall and Jaggers 2002)
GDPPC	GDP per capita	IMF World Economic Outlook
Balassa index	Measure the degree of a country competitiveness	CERDI
REER	Real effective exchange rate	CERDI
Terms of trade	Terms of Trade	IMF World Economic Outlook
Peg regime	Dummy variable that takes the value of 1 if the exchange rate regime is pegged	Ilzetzki, Reinhart and Rogoff (2008)
LIC	Low income countries. Dummy variable that takes the value of 1 if the country belongs to the group of the IMF low income group classification	IMF World Economic Outlook
Government consumption	Government final consumption expenditures	World Bank-World Development indicators (2014)
Total flows instability	Standard deviation of the Hodrick Prescott filter's cyclical component.	Authors' calculation

Table 2: Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Log((FDI)	549	5.591211	0.4215709	-1.839352	7.249561
Log(remittances)	550	6.191947	0.3486743	-0.8348733	7.161528
Log(aid)	598	4.292293	0.4454119	2.899052	6.153531
Log(other flows)	570	7.372105	0.358694	-0.8100761	7.780177
Log(portfolio)	558	6.993121	0.3951974	-2.199669	7.237709
Log(total flows)	567	6.27252	0.3398315	-0.3081539	7.184275
Log(REER)	552	4.787605	0.5994099	3.524452	11.83555
Total flows instability	557	9.326372	14.93246	0.0303224	123.5963
Trade	578	56.96595	38.99618	9.436654	510.855
Terms of trade	529	114.9497	49.55432	22.14194	488.4496
Balassa index	451	119.532	37.7183	72.18857	326.8341
Log(GDPPC)	570	6.918076	1.054014	4.450716	9.037553
Polity2	562	0.727847	6.130204	-9.8	10
Natural rents	580	11.10079	12.54401	0.000499	69.99982
Government consumption	556	14.14722	5.87593	2.80376	40.65649
GDP growth	574	3.7714	4.16064	-42.4511	33.347