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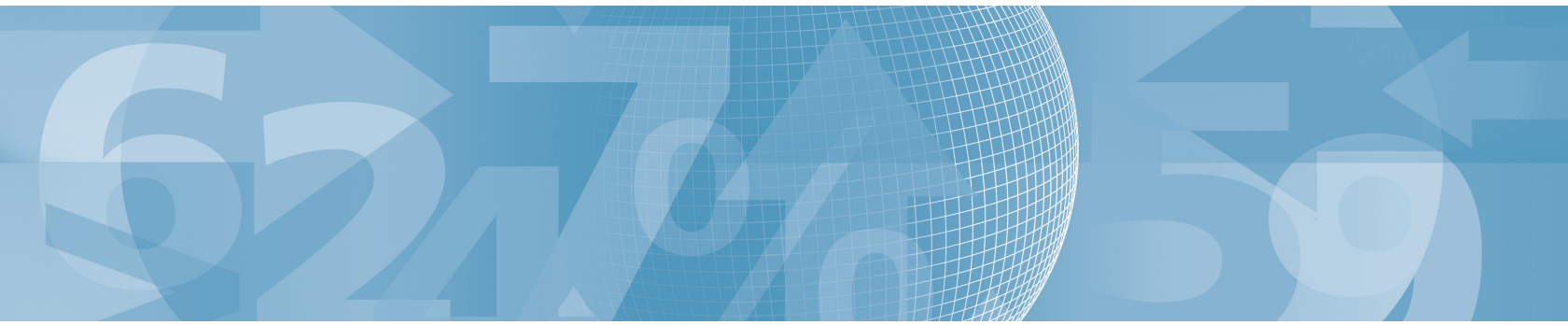
External Performance in Low-Income Countries



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Preface

Assessments of exchange rate misalignments and external imbalances have become more prominent in the daily work of the International Monetary Fund, with frequent application to virtually every country. However, undertaking an external assessment for low-income countries (LICs) remains challenging because they have received limited attention in the literature—in part because of lack of data—and methodologies developed for advanced economies and emerging markets cannot be automatically applied to LICs. LICs are likely to be characterized by different policies, heavier distortions in the financial sector, lower access to official external financing, higher sensitivity to exogenous shocks, and different composition of external trade. While an earlier IMF Occasional Paper (Lee and others, 2008) summarizes methodologies available for an external assessment in advanced economies and emerging markets, this paper extends the analysis to LICs.

More precisely, this paper offers estimates of the relationship between the real effective exchange rate, the current account, and the net external assets position and a set of fundamentals in the medium to long term, with particular emphasis on LICs. The lack of attention paid to these countries has often been justified by data limitations, which led us to build a large database, unique in the set of indicators and number of countries it covers. Despite extensive data-collection efforts, this study still lacks wide coverage for many indicators, thus highlighting the need for further efforts to improve data production and quality control.

We find that the same broad set of economic fundamentals coherently explains the three external indicators in LICs. We also find that medium-term determinants of LICs' external balances are somewhat different from standard determinants found in the literature. In addition to standard determinants, aid flows (grants and concessional loans), domestic financial liberalization, the removal of capital account controls, shocks (terms of trade, natural disasters), demographic measures, and the quality of institutions have a significant impact on the indicators of external balances of LICs. The results are generally consistent across methodologies and—for standard economic indicators—are mainly in line with the existing literature. The paper also derives a new measure of trade elasticities, which is important in gauging the coherence of exchange rate assessments based on the three external indicators.

The main results for LICs are innovative and interesting. Domestic financial liberalization tends to be associated with higher current account balances and net foreign assets positions, suggesting a positive effect on domestic saving. Capital account liberalization tends to be associated with lower current account and net foreign assets positions, and more appreciated real exchange rates, as predicted by standard theories. Negative exogenous shocks tend to raise (respectively, reduce) the current account in countries with closed (respectively, open) capital accounts pointing at the importance of capital account frictions in shaping intertemporal consumption-smoothing decisions. Finally, foreign aid is progressively absorbed over time through net imports, and tends to be associated with a more depreciated real exchange rate in the long run, a result that may reflect larger productivity gains in the nontradable relative to the tradable sector (however, given that government consumption is controlled for in the regression and has a positive coefficient, the overall effect of aid on the real exchange rate, including the channel via government consumption, would be smaller in absolute value or may even be positive).

This paper is the result of an IMF Research Department project on external performance in low-income countries. Peter Pedroni has been an impressive consultant for the project, and the authors are grateful for the invaluable help he offered through extensive support, discussions, and advice. The authors are also grateful to Oya Celaysun for her views on issues related to the net foreign assets in LICs. We benefited from discussions with and comments from Andy Berg, Olivier Blanchard, Nicolas Courdacier, Atish Ghosh, Michael Klein, Nelson Mark, Peter Montiel, Jonathan D. Ostry, Antonio Spilimbergo, Kenneth West, other colleagues at the

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The opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the national authorities, the IMF, or IMF Executive Directors.

In memory of our friend and colleague Alessandro Prati, who passed away on June 21, 2009. His intellectual depth was and will remain a vast source of inspiration to all of us. His careful analysis, sharp intuition, and relentless curiosity guided the search for most of the new results offered in this paper, and for many more insights that remain on the research agenda.

1 Overview

This paper empirically investigates the external balance of low-income countries (LICs) by offering a coherent analysis of determinants of medium- to long-term real exchange rates, current accounts, and net foreign assets, and by emphasizing factors that are more likely to be specific to LICs.[1] The rise and persistence of large external imbalances in recent years have renewed interest in this area from both empirical and theoretical perspectives, and have also highlighted the need for a multi-pronged approach to the analysis of external balances based on multiple indicators. In this paper, the simultaneous analysis of the three indicators of external balance allows the consistency of the results across indicators to be checked, an effort generally absent in the literature. The focus on LICs aims at filling another gap. Although the literature on the determinants of the real exchange rate and of the current account is vast, few contributions focus specifically on LICs, or account for features that are specific to—or more important for—this set of countries. This analysis emphasizes factors such as structural policy and institutional distortions, access to special external financing, and a larger macroeconomic sensitivity to exogenous shocks. The empirical analysis required extensive efforts to create a wide database, covering a unique set of indicators and economies.

A large literature has based the analysis of medium-term determinants of current accounts on the standard intertemporal approach emphasizing saving and investment decisions (Chinn and Prasad, 2003; Lee and others, 2008).[2] A more recent empirical literature has aimed at explaining the patterns of global imbalances that have widened over the past decade as a function of financial crises, financial distortions, and institutional settings (Gruber and Kamin, 2007; Chinn and Ito, 2007; and, from a theoretical perspective, Gourinchas and Jeanne, 2007; Mendoza, Quadrini, and Rios-Rull, 2008; and Caballero, Farhi, and Gourinchas, 2008). Others have illustrated the role of labor market policies and exchange rate regimes in influencing the persistence and dynamics of the current account (Ju and Wei, 2007; Chinn and Wei, 2008) and the relationship between the labor market, financial frictions, and fiscal policies in shaping the optimal current account responses to shocks (Blanchard, 2007).

The literature on real exchange rates is vast and justice to all contributions cannot be done here. Broad surveys are offered by Froot and Rogoff (1995); Rogoff (1996); and for developing countries, by Edwards (1989); Hinkle and Montiel (1999); and Edwards and Savastano (2000).[3] The traditional findings of Meese and Rogoff (1983) on the unpredictability of exchange rates at short horizons are still undisputed, and the literature has converged toward explaining the behavior of real exchange rates at medium- to long-term horizons as a function of fundamentals (Engel and West, 2005; Engel, Mark, and West, 2008). Empirical analyses of long-run real exchange rates are typically guided by steady-state relationships in models involving the intertemporal and intratemporal allocation of resources between tradable and nontradable sectors (Obstfeld and Rogoff, 1999; Montiel, 1999; Ricci, Milesi-Ferretti, and Lee, 2008; and Vegh, forthcoming).

A growing literature has uncovered the medium-term determinants of gross and net foreign assets, after the creation of the Lane and Milesi-Ferretti database of external positions.[4] Lane and Milesi-

[1]Real exchange rates can be defined in many different ways, depending on the price concept adopted for comparison across countries. Unless otherwise noted, this paper refers to consumer price index–based (CPI-based) real effective exchange rates, in line with most other empirical analysis. In theoretical discussions related to small open economies that take the price of tradables as given, consumer price index-based real effective exchange rates would be closely related to the ratio of the price of nontradables to tradables.

[2]For earlier contributions on the determinants of saving in advanced economies and emerging markets, see Schmidt-Hebbel, Webb, and Corsetti (1992); Edwards (1995); Masson, Bayoumi, and Samiei (1998); and Bosworth and Collins (1999).

[3]For a recent application to Central and Eastern European countries, see Maeso-Fernandez, Osbat, and Schnatz (2004).

[4]For the latest version, see Lane and Milesi-Ferretti (2007).

Ferretti (2002b) offer a theoretical and empirical discussion of long-term determinants of the net foreign assets position. Faria and others (2007) show that more-open economies with better institutions have a greater equity share in external liabilities.

Few studies have focused on LICs with the notable exceptions of Edwards (1989) and Hinkle and Montiel (1999).[5] This paper argues that LICs differ from other countries mainly along three broad dimensions, which simultaneously affect the current account, the real exchange rate, and the net foreign assets position. These three dimensions are (1) structural policies or distortions, particularly those related to the capital account and the domestic financial system; (2) exogenous shocks, particularly natural disasters (the effects of which may depend on the degree of capital account openness) and terms of trade shocks; and (3) official external financing (grants and concessional loans).

These factors are particularly important for the sample of countries considered in this paper. First, LICs face greater distortions—some of which are policy-induced—than do other countries. For example, capital account controls, which were prevalent in a large number of countries in the sample, may reduce the ability of LICs to borrow to bring consumption and investment forward, as required by a lower level of development or the occurrence of negative shocks. Capital controls may therefore affect domestic demand, the current account, net foreign assets, and the real exchange rate.[6] Domestic financial liberalization such as occurred during the 1980s and the 1990s in many developing countries may reduce borrowing constraints and boost investment, which would tend to lower the current account and the net foreign assets position, and cause the real exchange rate to appreciate. But financial liberalization may also raise private saving, which, everything else equal, would improve the current account and the net foreign assets position, and cause the real exchange rate to depreciate.

Second, LICs are in general more exposed to shocks than are other countries, and may—as a result of the lack of diversification of their production structure—experience larger macroeconomic consequences associated with these shocks.[7] For example, LICs are exposed to frequent terms of trade fluctuations associated with both their exports (e.g., main crop or natural resources) and their imports (e.g., oil). Such terms-of-trade fluctuations affect the real exchange rate and the current account through income effects as well as through intra- and intertemporal substitution effects. Moreover, LICs frequently experience natural shocks, such as droughts, floods, windstorms, and earthquakes, that have larger macroeconomic consequences than they do in high- and middle-income countries—including on the external position. Finally, wars and violent political transitions between regimes have often occurred in the historical sample. Such events, by disrupting investment, consumption, and capital flows, can have a bearing on the current account and the real exchange rate at a relatively short horizon.

Finally, capital flows are typically of a different nature in LICs than they are in other countries. A large part of LICs' foreign borrowing is in the form of official development assistance (grants or concessional loans). Such capital flows do not respond to market incentives, and often do not need to be repaid, thus contributing to the financing of larger trade deficits over the medium term. Aid flows also have often been associated with the risk of Dutch disease, and are expected to lead to more appreciated real exchange rates in the short run by increasing aggregate demand (Van Wijnbergen, 1984). In the long run, however, the effect on

[5]For recent contributions, see Chudik and Mongardini (2007); Di Bella, Lewis, and Martin (2007); Elbadawi (2007); Roudet, Saxegaard, and Tsangarides (2007); Delechat (2008); and Kireyev (2008). The impact of fiscal and monetary policies on the real exchange rate and the current account in the presence of large distortions has been explored by Edwards (1988) and Prati and Tressel (2006). Prati and Tressel (2006) and Berg and others (2007) show in particular that countries' absorption of foreign aid inflows is affected by policy responses, often resulting in the accumulation of foreign exchange reserves.

[6]Gourinchas and Jeanne (2007) argue that the patterns of capital flows to developing countries do not coincide with the predictions of standard neoclassical theory, and suggest a theory based on frictions affecting saving and investment decisions. Many LICs initiated capital account liberalization during the analysis period, providing the possibility of testing these and other theoretical predictions.

[7]See, for instance, Loayza and others (2007).

the real exchange rate is uncertain, depending on the relative impact on the productivity of tradables versus nontradables (Torvik, 2001).

This paper estimates the relationship between the real effective exchange rate, the current account, and the net external assets position and a broad set of fundamentals in the medium to long term, with particular emphasis on LICs. Interestingly, the same broad set of economic fundamentals coherently explains the three external indicators in LICs. However, medium-term determinants of LICs' external balances are somewhat different from standard determinants found in the literature.

Several innovative and interesting results arise. First, regarding policy distortions, domestic financial reforms are associated with an improvement of the current account and of the net foreign assets position, suggesting a larger positive effect on saving than on investment. Capital account liberalization allows countries to borrow against disasters (lower current account) and allows LICs in general to borrow from higher-income countries. Consistent with this result, capital account liberalization is associated with a more appreciated real exchange rate in the long run, possibly resulting from the effect of capital inflows on absorption. Moreover, the quality of institutions is generally positively associated with larger external wealth in the long run.

Second, regarding shocks, a positive terms of trade shock tends to improve the current account and cause the real exchange rate to appreciate, but mainly if the shock arises from a change in the export price (which is consistent with the fact that import prices are associated with an additional substitution effect working in the opposite direction from the income effect common to both the export and import prices). Natural disasters tend to be associated with an improvement (respectively, deterioration) of the current account, in countries with closed (respectively, open) capital accounts, highlighting the importance of capital account frictions in shaping intertemporal consumption-smoothing decisions. Furthermore, preliminary evidence suggests the effect of income shocks on the current account may depend on the initial net foreign assets position.

Third, regarding external financing, an increase in aid arising from concessional loans or grants progressively results in higher imports, but the evidence suggests that some portion of aid flows is saved in the short run. In the long run, an increase in aid is associated with a depreciation of the real effective exchange rate. The latter result may be surprising in light of the standard Dutch disease argument, but is consistent with more general theories of Dutch disease with learning by doing in both tradable and nontradable sectors (Torvik, 2001). While aid may cause appreciation in the real exchange rate in the short run (as expenditure on nontradables increases relative to supply), it may also be associated with long-run depreciation if it is channeled to improving the productivity of nontradables relative to the productivity of tradables.

Another particularly important contribution of this work is its reliance on a large original database encompassing many countries across the spectrum of development, and the simultaneous and consistent employment of determinants for the three indicators of external performance. The analysis required an extensive data-gathering and cleanup exercise. The data set contains various indicators for 134 countries over the period 1980–2006. Countries used in the main analysis were classified on the basis of their income group. The LIC sample (see Appendix Table A1) comprises low-income and lower-middle-income economies according to the World Bank classification, and excludes emerging markets (China, Colombia, India, Indonesia, Pakistan, and Thailand) to make the sample as homogeneous as possible. High-income and higher-middle-income economies (in the World Bank classification), including the six emerging-market countries, were mainly used as a comparator group. The Appendix provides a description of all variables. Summary statistics for the main data are provided in Appendix Table A2. The number of LICs entering the regressions varies across specifications based on data availability for the specific indicators, but the largest LIC set (used in regressions with standard fundamentals as well as in the trading partner calculations) includes 59 low- and lower-middle-income countries.

The three methods offered in this paper can be used to assess external imbalances as the deviation of external indicators from the levels consistent

with fundamentals. In this respect it is important to note that consistency with fundamentals does not necessarily imply equilibrium. Consistency is equivalent to equilibrium only if fundamentals are also in equilibrium. For example, countries with unsustainable levels of fiscal deficit and public debt could experience both current account deficits and net foreign liability positions—which are consistent with those unsustainable fiscal fundamentals, but would not result in equilibrium.

With this caveat in mind, it may be interesting to compare imbalances resulting from the three different methods over the medium term, that is, when temporary fluctuations and possibly unsustainable situations have been eliminated. One interesting way to achieve this comparison requires first constructing measures for the imbalances and then converting them into a single metric. For each external indicator, imbalances can be constructed in three steps. The first is to project the fundamentals at sustainable levels over the medium term.[8] The second step is to calculate medium-term benchmark values (the "norms") for the respective external indicators by multiplying the vector of medium-term fundamentals by the coefficients estimated in the methodology described above for the respective external indicator. The third step is to derive the imbalance for each of the three external indicators as the difference between the medium-term projection for the external indicator and its benchmark value. A crude way of converting these imbalances into one metric—for example, exchange rate gaps—relies on trade elasticities.[9,10] Although a comprehensive external assessment is beyond the scope of this analysis, this paper discusses methodological issues related to the elasticities.

Chapters 6 and 7 of this paper offer a new methodology for calculating import demand and export supplies as well as for deriving resulting trade balance elasticities. The method does not rely on econometrics, but rather on standard results borrowed from production theory and a well-known model of international trade. Specifically, using an economy's GDP function, the derivative with respect to export prices gives the export supply function (assuming all production is exported) and the derivative with respect to the price of imported intermediates gives the import demand function. This approach isolates the determinants of both the export supply and the import demand functions using observable data, that is, cost and distributive shares. Using data for these determinants, this approach then permits the estimation of export supply and import demand elasticities. Econometric estimates of trade elasticities for LICs are particularly scarce, so one contribution of this paper is that it presents a set of elasticity values for these countries.

[8]Nonstationary variables can normally be expected to remain at their current values unless changes are expected, for example, because of planned policies. Regarding projections of net foreign assets and their components and determinants, deriving a medium-term assessment requires the consideration of additional issues in LICs. First, it is necessary to forecast the degree of concessionality of future debt and the extent of debt relief to obtain a proper measure of net foreign assets and of public and external debt. In doing so, an assessment of the sustainable level of debt must be made, because this level is likely to be an upper bound of the target level of debt of the donor community. Second, returns on assets and liabilities are likely to differ in general, and LICs are no exception; these countries may actually face a pattern opposite of that faced by advanced economies, that is, higher returns on their liabilities than on their assets (for a deeper discussion, see Lane and Milesi-Ferretti, 2003)

[9]The current account imbalance could be converted into an exchange rate gap using an elasticity of the trade balance with respect to the exchange rate, that is, it could be measured as the change in the exchange rate that would deliver the change in trade balance that equals the medium-term current account gap versus fundamentals. The net foreign assets position imbalance could be measured in terms of exchange rate gaps in three steps: First, derive the net foreign assets norm as the level that is consistent with fundamentals over the medium term. Second, derive the current account norm as the level that is consistent in steady state with the net foreign assets norm in steady state. Under certain assumptions—such as equal returns on assets and liabilities—the factor of proportionality between the current account ratio to GDP and the net foreign assets ratio to GDP is the growth rate of nominal GDP (see Lane and Milesi-Ferretti, 2007, for a more general treatment). Finally, convert the resulting current account gap into an exchange rate gap using trade elasticities, as described in the main text.

[10]Even though the elimination of current account or net foreign assets imbalances may arise not just from movements in the exchange rates but also in other variables affecting the saving-investment decision, it is useful for comparison purposes to measure the change in the exchange rate that would deliver such an adjustment.

Chapter 7 shows how the calculated elasticities could be used in gauging the trade balance elasticity with respect to the exchange rate. It also identifies the relevant condition that must hold for a real devaluation to improve the trade balance for a "small" country, and relates this condition to the one used in exchange rate assessments for large countries. A real devaluation always improves the trade balance for a small country as measured by foreign currency, but may not for a large country—one that is able to influence the international prices of its exports or imports.

While the authors hope to have provided a coherent and comprehensive analysis of the current account, the real exchange rate, and the net foreign assets position in LICs, there is certainly scope for further research. First, the extent of external imbalances and the relationships between the three measures should be studied in an empirically based dynamic model encompassing the various external indicators as well as their determinants (resulting in a framework with a nontrivial net foreign assets position in the long run) to properly assess the dynamic path of the variables of interest. Second, a crucial priority is to improve the quality and the extent of data coverage for LICs. Several key indicators (black market premiums, price distortions, trade restrictions, capital account restrictions, productivity in tradables and nontradables, and other structural and financing indicators) are generally missing for numerous countries, an issue that would impair a proper economic assessment of their external balances. Third, a deeper understanding of the nonlinearities underlying the relationship under investigation is critical. For example, the analysis of the interaction between capital account liberalization and income, and between each of these two factors and other determinants, lags behind the numerous theoretical hypotheses that have been put forward.