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Is two better than one? Effects on growth of Bank-Fund interaction

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Abstract

We estimate the impact on economic growth of the joint participation in both IMF and WB programs. More specifically, using panel data for 128 developing countries over the period 1982-2005, and employing 2SLS to control for the possible endogeneity of participation in an IMF/WB program, we find that even if the WB and the IMF do not boost growth when they operate by themselves, the interaction term between these two organization is positive and significant at conventional levels. However, when we restrict the sample to low and lower middle income countries only (for which Bank-Fund cooperation is more “formalized”) the coefficient of the interaction term is not significant. Thus, so far, a trade-off emerges between a greater precision in the definition of Bank-Fund cooperation and the reliability of the estimates due to an insufficient number of observations.

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1 Introduction

The focus of this paper is the interaction between the two most important multilateral organizations, i.e., the International Monetary Fund and the World Bank. While the IMF and the WB were originally established at Bretton Woods to complement one another in promoting economic stability and growth, more recently the degree of overlap between the two has increased, leading to more room for both conflict and cooperation.

Despite a series of agreements aimed at strengthening Bank-Fund cooperation, little empirical evidence exists about how and under what circumstances these two organizations work together. It is therefore difficult to assess whether and when this interaction is efficient and decide if it should be encouraged and/or what should be improved.

The announcement of new principles for Bank-Fund collaboration in 1998 served as a departure from earlier practices specifically in addressing weaknesses of past mechanisms for Bank-Fund cooperation. However, the principles alone were hardly sufficient to lead to changes on the operational level. To trigger these changes, the two organizations introduced new processes and procedures which vary between different groups of countries. The Poverty Reduction Strategy Project (PRSP) approach is one example of a more formal mechanism aimed at enhancing cooperation.¹ The PRSP not only serves as the basis for all lending operations of the Bank and the Fund but also for other organizations. Dealings with middle-income countries, however, are not guided by any formal process. The Bank and the Fund rely on their traditional lending instruments and, as a result, they cooperate less formally with middle-income countries than with low-income countries.

In this paper, we assess the impact of the interaction between the IMF and the World Bank on economic growth. Since there are no data describing whether and under what circumstances the IMF and the WB work together, the only information we could get was whether or not they are lending to the same country at the same time. We are of course aware that lending simultaneously to the same country does not necessarily mean that these two organizations are actually working together, but we assume that, *ceteris paribus*, it will be more likely that these institutions are interacting when contemporaneously “involved” with the same country as compared to the case in which they are on their own. Thus, in order to evaluate whether collaboration is really effective we then perform an empirical analysis in which we compare the (4-year) GDP variation when a country is jointly involved with the World Bank and the IMF with the GDP variation of a country which is involved only with one of these two organizations.

¹It typically consists of four core elements, i.e., a description of the country’s participatory process; poverty diagnosis and targets; indicators and monitoring systems; and priority public actions.

We will first investigate the impact on growth of the amount of credit disbursed under *all* IMF and World Bank programs. Then, since in the case of low income countries there is more room for formal cooperation, we will also evaluate the impact on growth of the typical lending schemes designed for low income countries (i.e. concessional lending). Unfortunately, as the quota of IMF concessional loans represent only a very small fraction of its total disbursements, a trade off emerges between the degree of accuracy in the choice of the better proxy for Bank-Fund interaction and the degree of reliability of our estimates, due to a number of observations which is too low.

In what follows, Section 2 contains some institutional information regarding the overlap/cooperation between the IMF and the WB while Section 3 surveys the existing literature both on IMF/WB cooperation and on their (individual) impact on growth. Section 4 describes the empirical model and in Section 5 the estimation results are presented. Finally, Section 6 concludes.

2 Overlap and cooperation between the IMF and the World Bank

The World Bank and the International Monetary Fund were created with different specific roles but with the same final goal of bringing stability and development. The Fund was responsible for financial stability in the Bretton Woods system, while the Bank was in charge of coordinating the assistance to the European countries after the Second World War. Over time, their functions have expanded. On the one hand, the Bank started promoting economic development also in the poorest and most disadvantaged countries in the world. On the other, the Fund enlarged its field of intervention from financial to economic reconstruction, dealing with countries in temporary crisis as well as with those in structural difficulties.

Up to the 1980s, the division of labour between the Fund and the Bank had been relatively straightforward. While the Fund's orientation was towards short-run macroeconomic stability, the Bank was oriented towards long-run development programmes. During the 1980s, Fund's lending became more concessional and related to structural matters and increasingly focused on lower income countries, those typically "served" by the Bank. With the creation of both Structural Adjustment Facility (SAF) and Enhanced Structural Adjustment Facility (ESAF), later substituted by the Poverty Reduction and Growth Facility (PRGF), in terminology as well as in areas of involvement, structural adjustment had served to create an important area of overlap between the two. Such overlap between the Fund and the Bank is particularly relevant when these two organization are involved with the same countries.

The first steps toward formal collaboration between the World Bank and the IMF were made in 1974, when the Development Committee (DC) was established. The DC is a joint ministerial committee of the Boards of Governors of the Bank and the Fund and it is in charge of advising both institutions on critical development issues and on the financial resources required to promote economic growth in developing countries. The Committee assures a high-level coordination and it facilitates intergovernmental consensus-building on development issues.

In 1989 a Concordat was signed by the IMF and the World Bank in which the similarities as well as the differences among their responsibilities were recognized. According to such “agreement,” the Bank should be focused on the design of programs fostering economic growth and development by promoting sector investments, setting priorities on government spending, reforming the administrative system and restructuring public enterprises. While the Fund should guarantee financial stability by providing a forum for cooperation on international monetary problems, promoting exchange rate stability and helping countries addressing their balance of payments problems. These are the areas where each institution has official mandate and primary responsibility. But there is also a vast area that is subject to the interest of both: structure and management of financial institutions, access to capital market, countries’ savings and financial implication of development.

In this common area, collaboration should be pursued and strengthened as it allows a better awareness of the economic problems and of the policy options. The Concordat does define guidelines and terms of Bank-Fund interaction in order to ensure effective cooperation in the areas where their responsibilities actually overlap. Both institutions commit themselves to systemically exchange information concerning not only low income countries but also middle-income ones. Moreover, the Concordat encourages them to exchange countries’ information non only within their decision bodies, but also at the level of the operative staff. A more recent report (2007) underlines as well the importance of Bank-Fund cooperation, emphasizing, on the one hand, that duplicate functions represent a waste of resources for both institutions and, on the other, that uncoordinated policy prescriptions can make it harder for recipients dealing with these organizations’ adjustment programs.

Today the IMF and the World Bank collaborate regularly to assist member countries and they work together on several initiatives. Collaboration can be found at different levels and under many forms. For example, high-level coordination manifests itself both in the annual meeting of the IMF and WB’s Boards of Governors (when priorities and strategies for collaboration are actually set) and in the Development Committee meetings, where a selection of IMF and WB’s Governors participate. At the management level, the managing director of the IMF and the President of the World Bank meet regularly in Washington and

often visit together developing countries. Finally, at the operative level, the staff members of the two institutions regularly exchange information and conduct country missions together.

In late 1999, to enhance the contribution of their interventions to international poverty reduction efforts, the IMF and the WB adopted a new strategy for their assistance to low-income countries. The main aspects of this strategy were twofold: (i) both institutions base their concessional lending and debt relief to low-income countries on Poverty Reduction Strategy Papers (PRSPs) prepared by the countries themselves; and (ii) IMF concessional lending was to be provided through a revised lending facility, the Poverty Reduction and Growth Facility (PRGF), with a stronger poverty reduction focus. In particular, a PRSP aims at increasing the participation of the recipients to the design and the implementation of a poverty reduction program and it does represent a good example of collaboration between the two financial institutions, who should speak to the country with one voice. A PRSP sets out the strategy that a country should follow to promote growth and reduce poverty. This approach requires the Bank and the Fund to have the same time horizon and to share their experiences on financial and development programs. At the same time it requires a greater country's ownership and a broader based support from the public in order to succeed.

In the same year, the Heavily Indebted Poor Countries (HIPC) initiative was enhanced as a direct outcome of a comprehensive review carried out by IDA (the Bank's concessional arm for low-income countries) and the IMF, such initiative entails a coordinated commitment to reduce and forgive large volume of debts to the poorest and most indebted countries.² Finally, in 1999 as well, the Bank and the Fund launched the Financial Sector Assessment Program (FSAP), to reduce the vulnerabilities of member countries' financial system.

However, dealings with middle-income countries are not guided by any formal process, like the PRSP or the related facilities in the two organizations. As a result, the Bank and the Fund cooperate less formally with middle-income countries than with low-income countries and their cooperation hinges critically on effective communication at the staff level. Since Bank and Fund staffs are not required to prepare any joint document, ensuring consistency between them is even more challenging, as it requires Bank and Fund staff to make extra efforts in order to achieve the necessary level of communication.

²In 2005, the HIPC Initiative was supplemented by the Multilateral Debt Relief Initiative (MDRI), in order to help accelerate progress toward the United Nations Millennium Development Goals. The MDRI allows for 100 percent relief on eligible debts by three multilateral institutions (the IMF, the World Bank, and the African Development Fund) for countries completing the HIPC Initiative process.

3 Related literature

3.1 Coordination

To our knowledge there is almost no evidence on the circumstances and on the effects of IMF-WB collaboration. As a consequence it is virtually impossible to assess whether such collaboration should be pursued or not. In a recent survey, Dreher (2009), underlines the risk of a duplication of conditions (harmful to the borrowers) when the IMF enters the WB traditional sphere of influence in long-term development reforms.³ Moreover, IMF programs, which focus on fiscal and monetary discipline, may not fit well the poorest countries, which are more likely to face structural and temporary problems. Bordo and James (2000) argues that even if joining Bank-Fund competencies and efforts could increase the overall effectiveness of their programs, “merging” these two institutions could be wiser, in order to avoid the risk of duplication and to reduce bureaucracy and operative costs.

There is no empirical work, however, which tries to assess the effect of Bank-Fund interaction. One exception is Fabricius (2007) who, drawing on field research conducted in Ghana, Pakistan, Peru, and Vietnam, over the period 1980-96, has tried to identify the conditions that determine whether or not these organizations are actually collaborating, addressing as well whether such collaboration is necessarily a good thing. First of all, he provides a definition of cooperation between the Fund and the Bank introducing the notion of “consistency”, or agreement between these two institutions. Specifically, the Bank and the Fund are said to cooperate when they take consistent stances vis-a-vis third parties (e.g., recipient governments and other donors). For cooperation to be most effective that the two organizations should first adhere to a principle of division of labor. In particular, whenever one of the two organizations has a clear comparative advantage in a specific area, it should lead the design of the policy advice in that area. Typically, the Fund should rely on the Bank’s expertise in matters relating to development lending and focus its resources on its core responsibilities of macroeconomic and financial sector matters.

According to Fabricius’ results, Bank-Fund cooperation (or consistency) depends critically on the level of communication between the two organizations, where such exchange of information is not generally institutionalized but it has been subject to the decisions of individuals.⁴ In his paper, Fabricius found only a few instances in which the exchange of information between the Bank and the Fund could be characterized as institutionalized. Instead, Bank-Fund interaction mainly depends on the preferences and on the personal styles

³Such risk of duplication is also emphasized by Erika Gould (2003).

⁴The main exception being the Poverty Reduction Strategy Papers (PRSPs) which are prepared by the countries themselves together with the World Bank and the IMF but which apply only to low-income countries.

of the individuals (i.e., the staff members). In turn, whether or not the Bank and the Fund cooperate has been found to depend on two conditions, which are highly correlated. Namely, similarity in the Bank's and the Fund's organizational structures (which facilitates communication) and the so called "domain consensus" (i.e. the degree to which they consent to the domain of their respective activities in the division of labor). Furthermore, the evidence collected at the country level suggests that the most difficult factor that Bank and Fund staff must overcome to ensure domain consensus is the difference between the two organizations' operational styles (the Fund remains a highly centralized organization while the Bank has gradually decentralized its operations to the borrowing countries).

Finally, an important implication emerging from this study is that Bank-Fund consistency may not always be desirable. Since there is an emerging consensus that International Organizations should possess country-specific knowledge and promote "ownership" and institution building in order to formulate sound policy recommendations (e.g., see Dixit, 2009; Easterly, 2006, 2008; Rajan, 2008), Fabricius proposes that the Bank and the Fund pursue a case-specific approach in deciding whether they should take the same stance. A more flexible approach may not only increase the recipient countries' ownership but also the implementation and sustainability of their policy choices.

Furthermore, as far as aid is concerned, the so called "new rethoric on aid" (among other objectives such as increasing aid flows to achieve the Millennium Development Goals or promoting a greater donors' selectivity), has indeed emphasized the importance of promoting multiple donors coordination and encouraging reforms' ownership in recipient countries. Although it is clear that ownership could be improved by basing reform designs on context-specific knowledge, less is known, however, on the specific mechanisms and on the circumstances under which such information should be transferred by recipient countries to multilateral institutions. In fact, countries' local knowledge often consists of unverifiable information (or verifiable only at high costs). Hence, the quality of the reports crucially depends on the conflict of interest faced by the sender (the recipient) and the receiver (the multilateral).

For example, Marchesi et al. (2009), in a cheap talk framework, compare the performance of a "delegation-scheme" against a "centralization-scheme." They find that recipients' discretion in the choice of reforms (delegation) should be increased only when countries' local knowledge is strictly more important than the information of the multilateral. Conversely, a reduction in the conflict of interests may lead the multilateral to leave the recipient less freedom in designing reforms (centralization).

In a recent theoretical paper Hagen (2010) addresses the specific issue of how ownership could be affected by introducing more or less donors' coordination. In his model, increasing

delegation (ownership) in aid flows would be associated to giving money either with “no-conditions-attached” or with conditions to be only monitored on outcomes. More specifically, Hagen uses a signalling game in which countries’ governments reveal or conceal their private info about the state of the economy only through their policy-choice.⁵ He shows that real ownership may be a possibility, as a separating equilibrium exists for some parameter values, but conformity (i.e.. pooling equilibrium) in recipient decision-making is a definite possibility too. In fact, conformity leads to a loss, as the marginal aid impact decreases (government do not to make full use of their private information), but to a gain as well, since the total amount of aid flows increases (donors are more willing to donate to countries whose policy choices are more aligned with their preferences) and there are circumstances under which the latter effect dominates the former. As a consequence, in order to maximize aid flows, even under full delegation conformity in policy-choices with the donor (the “H-Street Waltz”) may be the equilibrium.

In the case of multiple (uncoordinated) donors other issues emerge. Donors coordination is indeed a critical matter involving pros and cons. More generally, one advantage of coordination would be to reduce the transaction costs of aid, with the possible risk, however, that a single donor might be “locked in” with a country. In other words there is a trade off between learning about a country over time and being locked-in, which perversely affect the incentives of the recipients in complying with the donor’s requests. More importantly: what are the impact of donors’ coordination on promoting countries’ ownership? According to Hagen, as far as ownership is concerned, donors coordination could have some indirect costs. In other words the reduced transaction costs must be weighed against potentially greater pressure for conformity which would emerge when there is a “lead donors” and a silent partnerships by the others. In conclusion, coordination, in the sense of sufficient convergence of donors’ views, is important as it may ensure separation. To be effective, however, it is crucial that such coordination emerges as the result of joint missions, reviews, analysis and/or broad/rapid dissemination of findings (exchange of information).

Applying Hagen’s result to the Fund-Bank relationship (which are multiple lenders), we could conclude that (in line with the case studies’ analysis carried out by Fabricius) Fund-Bank coordination is not necessarily “a good thing”. In fact, greater coordination (especially in the case of a “lead lender” and of a silent partner) could generate some pressure for conformity, which may contrast with the objective of enhancing recipients’ ownership. Then, to be effective, Bank-Fund coordination should require constructive engagement among the agents and not a leader/follower type of relationship.

⁵In his model, the donor acts like a “money machine”, in other words it is not at all involved in the design of conditionality.

3.2 Impact on growth of IMF-WB's programs

While there are many papers investigating the individual impact of both the IMF and WB' programs on recipient countries' growth, to our knowledge, there is no empirical work taking into account the impact of their "joint participation." The empirical evidence evaluating the impact on growth of the IMF and WB adjustment programs is definitely disappointing in the first case (e.g., Przeworski, Vreeland, 2000; Barro, Lee, 2005; Dreher, 2006; Easterly, 2005) and a little more optimistic in the second one (e.g., Burnside and Dollar, 2000; Mallick and Moore, 2005; Butkiewicz and Yanikkaya, 2004). In general, however, the results obtained are far from being conclusive as they suggest positive, zero or negative effects of adjustment lending and credit on growth for both IMF and World Bank programs.

Dicks-Mireaux, Mecagni, Schadler (2000) used a control-group methodology to measure the effect of IMF support on three key variables: output growth, inflation, and the external debt service ratio in a sample restricted to low-income countries during 1986–1991.⁶ Using this approach the sample reveals statistically significant beneficial effects of IMF support on output growth and the debt service ratio but no effects on inflation.⁷ Przeworski, Vreeland (2000), using a bivariate, dynamic version of the Heckman selection model, estimate the effect of participation in IMF programs on economic growth. They find evidence that governments enter into agreements with the IMF under the pressures of a foreign reserves crisis but they also bring in the Fund to shield themselves from the political costs of adjustment policies. Program participation lowers growth rates for as long as countries remain under a program. Once countries leave the program, they grow faster than if they had remained, but not faster than they would have without participation.

According to Easterly (2005), the analysis of multilateral adjustment loans has often overlooked their repetition to the same country (the so called "prolonged use" of multilateral lending). More specifically, he finds that, among the top 20 recipients of adjustments loans (from both the IMF and the World Bank), in the period 1980-99, the probability to get a new adjustment loan does not decrease with the number of loans already received (it actually seems to increase after ten cumulative loans). Moreover, none of these top 20 recipients were able to achieve reasonable growth and about half of them show severe macroeconomic distortions regardless of cumulative adjustment loans. An instrumental variables regression for estimating the causal effect of repeated adjustment lending on policies fails to show any positive effect on policies or growth.

⁶Under the "control group approach" a policy counterfactual (i.e., policies that would have been followed in the absence of IMF support against which to compare actual policies and resulting outcomes) is estimated.

⁷Diagnostic tests of these results, however, are shown to be critical in interpreting the validity of the results of assessments of adjustment lending.

Barro and Lee (2005) analyze the effects that IMF's short-term stabilization programs (Stand-By Agreements and Extended Fund Facility) have on per capita GDP, in a panel of 86 countries, during 5-year period from 1975-80 to 1995-2000. Their variables of interest are the IMF loan size and the program participation rate, expressed as fraction of months during each 5-year period that a country operated under an IMF loan program. They controls for the economic and institutional variables most commonly used in this literature, such as the log of per capita GDP at the start of each period, educational attainment, life expectancy, fertility rate, the ratio of investment to GDP, government consumption, inflation, trade openness, changes in the terms of trade, rule of law and an index for democracy.

Barro and Lee are among the first authors using political and institutional instrumental variables to instrument programs participation and loan size. They assume that both loans size and program participation are influenced by some institutional and political variable, such as a country's share of IMF quotas; share of a country's nationals among the IMF professional staff of economists;⁸ political proximity to the US and major Europe (i.e., fraction of votes that each country casts in the United Nations General Assembly (UNGA) along with the US or with major Europe, i.e., France, Germany, UK); economic proximity to the US and major Europe (i.e. ratio of a country's bilateral trade with the US /major Europe to a country's GDP). In particular, loans tend to be larger and more frequent when a country (a) has a bigger quota and more professional staff at the IMF (b) is more connected politically and economically to the United States and to major European countries

After instrumenting for programs participation as well as for loan size, their results prove a non-significant link between the loan size and GDP growth, and a negative influence of numbers of programs on GDP. Barro and Lee's research is extremely important, non only for their results, which are robust and attest that IMF programs are not effective in promoting growth (at least in the short/medium-term), but also for the kind of instrumental variable they used. The significance of the political variables prove that the IMF, in identifying the recipient countries, is driven by its major stakeholders interests, first of all those of the US. Dreher (2006), using similar variables to Barro and Lee, confirms that IMF programs reduces economic growth, when endogeneity is considered, and he also points out that compliance with conditionality mitigates such negative effect.

There are not as numerous studies on the effect of the World Bank programs as on those investigating the effect of the IMF ones. Butkiewicz and Yanikkan (2004) jointly studied the effects of IMF and World Bank lending on long-run economic growth on a sample of 100 countries for five-years periods between 1970 and 1999. The model includes the most

⁸Although own nationals cannot work directly as desk economists or mission team members of their home countries, they are often sought out for comments on country programs as they might have good information.

common variables: the initial level of real GDP per capita, lagged life expectancy as a proxy of human capital, a measure of democracy, lagged fertility rates, the extent of trade openness, government consumption, inflation, a dummy indicating if a war is taking place on the national territory and regional dummies. As instruments for the 3SLS model, the authors used different variables: female educational attainment, a dummy for IMF or WB previous programme, indicating recidivism, a dummy for countries having a British or French legal system and other economic variables.

Consistently with the literature, Butkiewicz and Yanikkan find that the IMF lending has a negative effect on GDP growth, although small. In particular, a 1% increase in lending appears to reduce growth by 0.1% per year. The Bank lending is estimated to have very little negative but not significant effect. This is confirmed by the 3SLS model. However, while the IMF lending reduces aggregate public investments, the Bank appears to increase it, generating a positive indirect effect. Butkiewicz and Yanikkan underline the difficulty in finding good instrumental variables.

The analysis of Mallick and Moore (2005) analysis is more optimistic. First of all they notice that the recent literature on the effectiveness of World Bank lending is either too general or too specific. In the first case, the impact of aid coming from all the multilateral institutions (such as World Bank, European Commission, Regional Development Banks) is considered. In the second case, the analysis is focused on the effects of single programmes of either the concessional loans provided by the International Development Association (IDA) or of the structural adjustment loans provided by the International Bank for Reconstruction and Development (IBRD). This approach prevents from identifying the overall effectiveness of World Bank interventions in the recipient countries.

They regress the variation of GDP over the WB lending, both concessional (IDA) and not concessional (IBRD), exchange rate, domestic credit and price level. The sample considers 30 countries over a period of 32 years, since 1970 to 2001. They find that the IDA has a robust positive impact on the GDP long-term growth. This is confirmed also after taking into account the possible endogeneity bias with a 2SLS model and different instrumental variables, such as the interaction between World Bank lending and GDP or the same policy index used in Burnside and Dollar (2000). Since the policy index is significant, the authors confirm that the World Bank positive impact depends on the existence of a good policy environment.

Burnside and Dollar (2000) measured multilateral and bilateral aid impact on GDP, with a panel of 56 countries between 1970 and 1993. While it does not appear the existence of a strong relationship between growth and the amount of aid received, when aid is interacted with a policy index (which takes into account inflation, budget surplus and openness) the

coefficient of this interaction term is positive and significant. These results however are not robust, when the time period is extended from 1993 to 1997 (Easterly et al. 2004), the coefficient of the interaction term between policy and aid becomes insignificant. Apart from the Burnside and Dollar’s study, the literature trying to explicate the aid-growth nexus is inconclusive (among all see Rajan Subramanian, 2008), showing in general a very weak relation.

Dollar and Svensson (2000) do not directly ask whether aid is affective but looks at other factors that may affect the probability of success of WB’ programs, given that there is financial support for the reform program.⁹ They find that success or failure of reforms is highly correlated with improvements in observed economic indicators, such as the rate of inflation or the extent of budget surplus, and it hugely depends on domestic political economy forces. A few donor effort variables are also highly correlated with the probability of success, however, once these effort variables are treated as endogenous, there is no more relationship between any of them and the success or failure of reform.

Given the overall disappointing evidence on the effects of adjustment programs on growth and the importance that political economy variables have in explaining program participation, political factors (i.e. poor selectivity) have been presented as one of the main reasons accountable for the poor performance of IFT’s programs in promoting growth and development. Dreher et al. (2010), for example, find evidence that World Bank project quality suffers as a consequence of political influence (such as those granted to governments holding a non-permanent seat on the UNSC or an Executive Directorship at the World Bank) but only when the recipient country is economically vulnerable in the first place.

4 Empirical model

The present paper contributes to the debate around the effects of the World Bank and IMF lending on recipients’ economic growth. Our main aim is to estimate the impact that the collaboration of these two financial institutions have on growth. It is acknowledged that the two institutions regularly talk and exchange information each other, but, despite some exceptions (like the PRSP) such interaction is not “institutionalized” and it depends on circumstances which cannot be empirically evaluated. Therefore, it is very difficult to assess empirically whether and under what circumstances such interaction can be beneficial or not.

In this paper we propose a first and tentative way to measure Bank-Fund collaboration that consists in using the interaction term between WB and IMF disbursements as a proxy

⁹Reform outcome measure used is a zero-one dummy reflecting failure or success of each reform program as determined by the Operations Evaluation Department (OED) of the World Bank.

for their cooperation. The underlying hypothesis is that, *ceteris paribus*, these institutions are more likely to cooperate when they are simultaneously involved with the same country at the same time. The model then tests the influence that all WB disbursements, all IMF disbursements and the interaction between WB and IMF loans have on per capita GDP growth. This specification then allows to compare the impact of the only WB or IMF intervention with the case of the simultaneous presence of the two organizations.

A positive and significant impact of the coefficient of the interacted term on growth would then imply that, if our proxy is correct, stimulating the collaboration between these two organizations could be a way to make their intervention more effective. Thus, enhancing and formalizing their cooperation would be an objective which deserves to be pursued.

4.1 Data

The **dependent variable** is the average four-year growth rate of per capita GDP. Our choice to use four-year averages, instead of annual data, depends on the assumption that programs' effects can be evaluated only after some years from the agreement, that is in only in the medium-term.

In Section 5.1, we start estimating the impact on growth of all IMF and WB disbursements and then we restrict the types of loans to concessional loans only. More specifically, as the World Bank is concerned, we start considering the sum of its concessional (IDA) and not-concessional (IBRD) disbursements, as a percentage of GDP. This variable includes the so-called Development Policy Lending, which provide untied direct budget support for policy and institutional reforms aimed at achieving a set of development results, among which growth and poverty reduction, and the Investment Loans, a more flexible instrument that provide specific and sectoral investments. In the case of the IMF, we include all disbursements, as a share of GDP, allocated in the form of Stand By Arrangements, Extended Fund Facility, Structural Adjustment Facility, Enhanced Structural Adjustment Facility /Poverty Reduction and Growth Facility.

In Section 5.2 we reduce the sample to low income and lower middle income countries, then considering only on IMF concessional net flows and on IDA net flows. The reason why we focused on poorer countries was trying to obtain a better proxy for Bank-Fund interaction. In fact, contrary to middle income countries, in the case of low income and lower-middle income countries, the Fund and the Bank are supposed to cooperate more formally. This greater "precision" in the definition of our proxy, however, came with the cost of reducing approximately by half our original sample.

Table 1 lists the 128 countries of our sample.¹⁰ These countries receive assistance pre-

¹⁰Among them there are some case in which no interaction occurred over the all 6 periods, implying that

dominately by the World Bank only. More precisely, there are only few cases in which only an IMF programme is active. This circumstance should not be surprising as our definition of WB is very broad: it included both investment operations and development policy operations. However, this will also be true after reducing the sample of countries to lower income countries.

Our choice of the control variables is standard, according to the literature analyzing the effects of both IMF/WB programs and of foreign aid. Our selection includes economic, institutional, and social variables. More specifically, we control for the log of GDP per capita at the start of each period, investments as a percentage of GDP, the rate of inflation, government consumption as a percentage of GDP, a measure of openness (exports and imports over GDP), M2 as a percentage of GDP (as a measure of financial development), "Corruption" and "Internal conflict" as a measure of "institutional capacity" and "socioeconomic complexity." These two variables are taken from the International Country Risk Guide's (ICRG) indicators: these (subjective) indices range from zero to 12, with higher values showing "better" environments (PRS Group 1998). "Corruption" is a measure of corruption within the political system. Such corruption is a threat to foreign investment for several reasons: it distorts the economic and financial environment, it reduces the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability, and, last but not least, introduces an inherent instability into the political process. The lowest rating is given to the least corrupted countries. "Internal conflict" is an assessment of political violence in the country and its actual or potential impact on governance. The highest rating is given to those countries where there is no armed opposition to the government and the government does not indulge in arbitrary violence, direct or indirect, against its own people. The lowest rating is given to a country embroiled in an on-going civil war.¹¹

When estimating the growth regression by OLS there might be the problem with the endogeneity of both the IMF and the WB variables as adjustment programs are usually concluded in periods of economic crisis. For this reasons, the coefficient measuring the effect, of the program's adoption on growth can be downward biased as there maybe a selection problem. The same is true for the amount of money disbursed which is probably

in not even one of the six considered periods the country received contemporary assistance by the Bank and the Fund.

¹¹We tried to control for some of the other ICRG indicators (such as investment profile, law and order, and ethnic tensions) and we also included an index of democracy (as defined in the Polity IV dataset) and our results are unchanged. We also tried to include some measures for human resources (life expectancy and fertility rate), and "education" but missing data reduced the sample substantially, so we do not report the results below. We have also included the KOF Index of Globalization and its subcomponent on economic restrictions (<http://globalization.kof.ethz.ch/>). Different specifications are available upon request.

correlated with the severity of the crisis. Obviously selection problems are also related to the interaction term between IMF programs and World Bank operations. To deal with the selection problem we follow an instrumental variables approach.¹² The challenge with the instrumental variable approach is clearly finding variables that affect the loan' size without affecting economic growth other than through their impact on the disbursed loan.

Our choice of the **instruments** is based on the literature describing the determinants of both multilateral lending and foreign aid. The factors affecting multilateral lending can be summarized as it follows. (1) Their main responsibility of both institutions is to assist countries in financial need, either to solve temporary crises or to solve more structural difficulties which prevent them from developing.¹³ (2) The second reason which may affect multilateral lending is to concede a preferential treatment to Western allies. There is substantial empirical evidence linking a country's geopolitical proximity to the Fund's Western shareholders with a variety of types of preferential treatment (e.g., Thacker, 1999; Barro and Lee, 2002; Dreher and Jensen, 2007; Dreher et al. 2008a; Dreher et al. 2008b, Stone, 2008).¹⁴ The influence on the World Bank of political aspects has been less investigated but there is still some evidence documenting their impact in credit allocation (e.g. Dreher, Sturm and Vreeland, 2009; Kaja and Werker, 2009; Kilby, 2009).

More specifically, Barro and Lee (2005) find that IMF loans tend to be larger and more frequent when a country is more connected politically and economically to the United States and major European countries. Dreher et al. (2008b, 2009) and Kuziemko and Werker (2006) use membership in the UN Security Council as a political variable.¹⁵ Dreher et al. (2008b), with a dataset of 157 countries between 1870 and 2004, holding effects of other economic factors fixed, find that whenever a country holds a seat as UNSC temporary member there is higher probability to sign an agreement with the IMF. Dreher et al. (2009) extend the conclusions derived for the IMF to the World Bank and they find that being a temporary member of the UNSC explains the probability to be under a WB program too.¹⁶ Kaja and

¹²The Heckman (1979) approach, for example, is best when the selection variable is dichotomous while instrumental variables is preferable when the selection variables are continuous, which is the case here (Dreher, 2006).

¹³In particular, the IMF should take into account moral hazard issues related to be a lender of last resort, the need to be repaid and the importance of inducing some catalytic effect (e.g., Mody, A. and D. Saravia, 2003; Morris and Shin, 2006; Marchesi, 2003).

¹⁴Such preferential treatment may also be induced by the systemic importance of a single country (the so called "too big to fail" argument).

¹⁵UNSC votes on UN military action against aggressors and investigating disputes. It holds 5 permanent members with veto power (China, Francia, Russia, US, UK) and 10 elected members (with 2 year term limits). As decisions require 9 votes temporary members can be pivotal in many decisions.

¹⁶Specifically, Dreher et al. (2008b, 2009) show that while UNSC membership significantly affect the probability to be under an IMF and a WB program, neither IMF nor WB loans are significantly affected by temporary UNSC membership.

Werker (2009) find that the World Bank Board of Executive Director explains well the IBRD allocation and level of funding, while this is not true for the IDA credit. The authors suggest that for IDA countries, which are the poorest and neediest one, the voting power is not as relevant as the actual economic and social problems.¹⁷

(3) Finally, the last motivation may be influenced by such institutions themselves being self interested agents, in other words their actions may be affected by their need to “survive” as institutions. For example, by their need to protect their own reputation as a lender (i.e., defensive lending or defensive granting) (e.g., see Ramcharan, 2003; Marchesi and Missale, 2007) or as a monitor/advisor (in the case of the IMF, Marchesi and Sabani, 2007a, 2007b).

In sum as instruments we use both political-economy variables (voting in-line with the US and major Europe in the UNGA and a dummy for being a temporary member of the UNSC) and economic variables referring to the so called "defensive lending" hypothesis (IMF debt service, WB debt service and cumulative years under IMF programs), as they are derived from the standard literature on the allocation of both IMF and WB loans (see (1) and (2) above). Additional instruments we use are LIBOR, IMF quota.

The major problem was finding an instrument for the interaction term. As the interaction between the IMF and the WB has been poorly investigated before, it is no clear what could be the specific determinants of such interaction, that is variables able to explain the presence in a country of both organizations without being correlated with a country’s growth. Thus, besides including (some of) the variables listed above we instrumented the interaction term with a dummy for a country having published at least one document concerning a PRSP.¹⁸ More specifically, we argue that since (for poorer countries) having a PRSP without a disbursement is indeed much rarer than the opposite case (i.e., a concessional loan without a PRSP) we argued that the impact of a PRSP on growth could only be indirect, namely it will not affect economic growth other than through its impact on the disbursed loan.¹⁹

Table 2 contains the details of the definitions and sources of the variables included in the regressions below. Descriptive statistics are provided in the Appendix.

TABLE 1 HERE: list of countries

TABLE 2 HERE: sources and definition

¹⁷Kuziemko and Werker (2006) Find that a country’s US aid increases by 54 percent and its UN aid by 7 percent when it rotates onto the council.”

¹⁸For example, see http://siteresources.worldbank.org/INTPRS1/Resources/prsp_progress_2004.pdf

¹⁹At least considering our sample which ends in 2005, only a few years after the creation of the PRSPs.

5 Estimation results

5.1 Full sample

The regression is a pooled time series cross section analysis. The dependent variable is averaged over four years as we want to measure the impact of multilateral programs on the medium term, we chose four-year averages in order to increase the number of observations (e.g., Burnside and Dollar, 2000; Collier and Dollar, 2001). The control variables, the instruments and our variables of interest are averaged over four years, too.

The analysis cover the years 1982-2005 (i.e., six time periods) and extends to 128 developing countries. Since some of the data are not available for all countries or periods, the panel data are unbalanced and the number of observations depends on the control variables we include.

Specifically, we test:

$$G_{it} = \alpha + \beta X_{it} + \gamma Z_{it} + \eta_i + u_{it} \quad (1)$$

where G_{it} represents per capita growth in country i at period t , X is a vector containing our variables of interest, and Z is a vector containing the control variables introduced above. Finally, η_i are country fixed effects.

The regression is an unbalanced panel analysis, since some of the data are not available of all countries and periods. This Section will present 3 sets of regression results explaining economic growth. Table 3 presents the results when the growth equation is estimated with OLS without taking into account the endogeneity of both IMF and WB loans (and of their interaction). Then the analysis is replicated using instruments for the IMF and WB loans and for their interaction. To account for the endogeneity of the IMF/WB variables we estimate 2SLS. Since the predicted values of the IMF/WB variables are used instead of the actual data, 2SLS is fully adequate to account for potential simultaneity.

Table 3 presents results obtained with simple OLS regressions not taking into account the endogeneity of the IMF/WB variables. The results of the full model are presented in column 3 of Table 3. In column 1 the variable of interest is the coefficient of the IMF loans, column 2 reports the coefficient of the WB loan and column 3 reports simultaneously the coefficients of both IMF and WB loans and of their interaction. While all these results are reported for comparison, we largely restrict our discussion to the full model in column 3. We can actually observe that the coefficients of all regressions are robust to the inclusion of our variables of interest, one at the time.

As our variables of interest are concerned, we observe that the impact on growth of IMF loans is negative and significant at 1% while the coefficient of WB loans is not significant, To the contrary the coefficient of the interaction term is significant and positive at 5%. This

evidence seems to suggest that when these two institutions are jointly involved in a country they are more efficient in promoting growth respect to the case in which they work “on their own.”

As can be seen most explanatory variables have the expected impact on growth. Growth rates significantly increases with lower initial GDP, lower inflation, lower government consumption. While GDP growth increases with higher investments, higher openness, higher financial development, higher debt service, as expected..As the institutional variable are concerned we find that lower internal conflict increase growth at 1% (as expected) while the coefficient of corruption is negative and highly significant, which seems to suggest that higher corruption is good for growth. The results reported in Table 3, however, are not conclusive because of the non-casual sample selection.

Table 4 present results when IMF and WB loans and their interaction term are instrumented employing 2SLS. First of all, the reported diagnostic tests assure that our choice of instruments is good as they are correlated with the endogenous regressors (conditioned on the full information set in the second stage specification) and not correlated with the error term of the growth regression (Hansen test). Moreover, as reported in the diagnostic tests in the appendix we also observe that the coefficients of our endogenous regressors in the growth equation are jointly significant (Anderson and Rubin test).

The results of the full model are presented in column 3 of Table 4. In column 1 the variable of interest is the coefficient of the IMF loans, column 2 reports the coefficient of the WB loan and column 3 reports simultaneously the coefficients of both IMF and WB loans and of their interaction .As in the previous case, while all these results are reported for comparison, we largely restrict our discussion to the full model in column 3.²⁰

As our variables of interests are concerned we observe that 2SLS results qualitatively confirm those of the OLS specification: the coefficient of the IMF loans is negative and significant at 1%, the coefficient of the WB disbursements is not significant, while the coefficient of the interaction term is positive and significant at 1%. The sign and significance of the control variables are also confirmed with the only difference that the coefficient of the investments is now insignificant at conventional levels. Thus, the most relevant result is shown by the term of the interaction term (when instrumented). Specifically, even if WB and IMF does not boost the growth when they operate by themselves, the term of the interaction coefficient is positive and significant at conventional level. This is encouraging, because it suggests that enhancing Bank-Fund cooperation could be a way to make more effective their intervention.

²⁰We can actually observe that the coefficients of all regressions are robust to the inclusion of our variables of interest, one at the time.

Moreover, in order to disentangle the specific effect (on growth) of each lender in their interacted term, we calculated the marginal effects of this interaction (as displayed in Figure 1). The results show that the marginal effect of IMF loans on growth is significant only for extremely high levels of WB loans (about 80% of a country’s GDP). To the contrary, the critical amount of IMF loans above which the marginal effect of WB loans on growth are positive and significant is much lower (about 40%). The first (marginal) impact, however, is the more interesting one: in our sample it is never the case that a country is under an IMF programme only (i.e. without the involvement of the WB). Thus, the interesting case is to see what changes when our “benchmark” case (i.e., WB only) is changed by the intervention of the IMF.

5.2 Low and lower middle income countries

Table 5 presents the results when we restrict the types of IMF and WB loans to concessional (net) loans only in order to obtain a better proxy for their interaction.²¹ In fact, contrary to middle income countries, in the case of low income countries (i.e., the recipients of concessional loans) the Fund and the Bank cooperate more formally. We estimated the same specification as in (1) (where X now refers to a vector of net IMF concessional loans and IDA flows) both considering the full sample and restricting it to only low and lower middle income countries.²² Even in this case the growth equation is first estimated employing OLS and then 2SLS.²³

As above, we start by estimating the growth equation employing OLS. The signs and the significance of the coefficients of our control variables are not substantially changed, as compared to the other specifications, with the only exception of the investments which are now positive and significant throughout. The coefficients are also basically unchanged along the different columns

Regarding our variables of interest, we can observe that both the coefficients of IMF and WB net concessional loans are not significant when estimated individually (column 1 and 2, respectively). In the last column of Table 5, however, the coefficient of the IMF concessional net loans becomes, quite surprisingly, positive and significant, while the coefficient of the WB remains not significant. Finally, the coefficient of the interaction term is negative and highly significant.

²¹In the GDF (2009) we were able to find data only relative to concessional (IMF and IDA) net flows. The concessional gross disbursements in the GDF dataset are not reported.

²²The reduced sample now consists of 86 countries. Among those 19 have received no assistance by neither organization.

²³We have also estimated equation (1) using the “modified” variables of interests without reducing the sample of countries. Results do not change substantially and they are available on request.

Table 6 contains the results obtained with 2SLS. In the last column, the results of the full model are presented. As our control variables are concerned, we can observe that both government consumption and openness are no significant anymore.²⁴ Most importantly, quite differently from the results obtained in the last column of Table 4, we can now conclude that the IMF and the WB concessional net loans do not significantly affect growth: neither individually nor jointly.

The reliability of these results is however much weaker as compared to those described in Table 4 as the quota of IMF concessional loans now represent only a very small fraction of its total disbursements and this circumstance is going to influence the impact of the interaction term as well, since the vector of the IDA net flow is multiplied by a vector containing many zeros. Moreover, the total number of observation is drastically reduced as the countries sample is restricted to only low income and lower middle income countries (86 countries in total as compared to the original sample of 128 countries).

TABLE 3 HERE:

TABLE 4 HERE:

FIGURE 1 HERE

FIGURE 2 HERE

TABLE 5 HERE

TABLE 6: HERE

6 Conclusions

In this paper we estimated the impact on growth of the joint participation of a country to an IMF and a WB program, where such simultaneous involvement of a country with both the IMF and the World Bank works as a proxy for Bank-Fund cooperation. *Ceteris paribus*, we assume that it is easier, and hence more likely, that the IMF and the WB exchange information and cooperate more when their staff member are on a mission in the same country at the same time, as compared to the case in which each of them is “involved” individually.

Estimating a full sample of 128 developing countries by 2SLS we find that even if WB and IMF does not boost the growth when they operate by themselves, the term of the interaction coefficient is positive and significant at conventional level. This result is encouraging as it suggests that enhancing Bank-Fund cooperation could be a way to make more effective their intervention.

We have then reduced the sample of countries to low income and lower middle income

²⁴The coefficient of government consumption is negative and significant at the 10% level only in column 2.

countries after restricting the type of loans to IMF and WB concessional (net) loans only. We believe that in this case the interaction term could be a better proxy for their actual cooperation as for lower income countries Bank-Fund cooperation has been more formalized. Unfortunately the greater the degree of accuracy in the choice of the proxy for Bank-Fund interaction, the lower the number of observation and thus the reliability of our estimates.

In order to avoid such trade off we plan to extend our analysis by increasing the number of observations. More specifically we plan to consider a different dependent variables. As Dollar Svensson (2000) show, at least in the case of the World Bank, reform programs are measured to be successful when they are (on average) associated with a reduction in the inflation rate or with an improvement in the budget balance.²⁵ We then plan to substitute the *four-year averages* of real GDP per capita with the *annual change* in the inflation rate or in the budget surplus as the “outcome variable” to measure the effects of Bank.Fund cooperation. This would allow us, at the same time, to focus on the reduced sample of low income and lower middle income countries (for which the interaction term works as better proxy for Bank-Fund collaboration) and to increase the number of observation by using annual data rather than 4-year averages.

²⁵Where such an impact is actually lower the shorter the lag between the outcome year and the end of the reform period.

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Table 1: List of countries

1	Albania	45	Georgia	89	Papua New Guinea
2	Algeria	46	Ghana	90	Paraguay *
3	Angola **	47	Grenada **	91	Peru
4	Argentina	48	Guatemala	92	Philippines
5	Armenia	49	Guinea	93	Poland *
6	Azerbaijan	50	Guinea-Bissau	94	Romania
7	Bangladesh	51	Guyana	95	Russian Federation *
8	Belarus	52	Haiti	96	Rwanda
9	Belize *	53	Honduras	97	Samoa *
10	Benin	54	Hungary	98	Sao Tome and Principe
11	Bhutan **	55	India *	99	Senegal
12	Bosnia and Herzegovina *	56	Indonesia*	100	Seychelles **
13	Botswana **	57	Iran, Islamic Rep. **	101	Sierra Leone
14	Brazil	58	Jamaica	102	Slovak Republic *
15	Bulgaria	59	Jordan	103	Solomon Islands *
16	Burkina Faso	60	Kazakhstan *	104	South Africa *
17	Burundi	61	Kenya	105	Sri Lanka
18	Cameroon	62	Kyrgyz Republic	106	St. Kitts and Nevis **
19	Cape Verde	63	Lao PDR	107	St. Lucia **
20	Central African Republic	64	Latria	108	St. Vincent and the Grenadines **
21	Chad	65	Lebanon **	109	Sudan *
22	Chile	66	Lesotho	110	Swaziland **
23	China *	67	Liberia *	111	Syrian Arab Republic **
24	Colombia *	68	Lithuania	112	Tajikistan
25	Comoros	69	Macedonia, FYR	113	Tanzania
26	Congo, Dem. Rep.	70	Madagascar	114	Thailand
27	Congo, Rep.	71	Malati	115	Togo
28	Costa Rica	72	Malaysia **	116	Tonga **
29	Croatia	73	Maldives **	117	Tunisia *
30	Cote d'Ivoire	74	Mali	118	Turkey
31	Croatia	75	Mauritania	119	Uganda
32	Djibouti	76	Mauritius *	120	Ukraine
33	Dominica	77	Mexico	121	Uruguay
34	Dominican Republic	78	Moldova *	122	Uzbekistan *
35	Ecuador	79	Mongolia	123	Vanuatu **
36	Egypt, Arab Rep.	80	Morocco	124	Venezuela, RB
37	El Salvador	81	Mozambique	125	Vietnam *
38	Equatorial Guinea	82	Nepal	126	Yemen, Rep *

39	Eritrea **	83	Nicaragua	127	Zambia
40	Estonia	84	Niger	128	Zimbabwe
41	Ethiopia	85	Nigeria		
42	Fiji **	86	Oman **		
43	Gabon	87	Pakistan		
44	Gambia, The	88	Panama		

Notes

- ** indicates countries where no interaction occurred over the 6 periods
- * indicates countries where no interaction occurred in at least 4 periods

Table 2: Sources and definition of selected variables

Variable	Definition	Unit	Source
GDPGROWTH	Per capita GDP (constant 2000 US\$)	Annual Rate of change	WDI
WBDISB	Disbursements IBRD and IDA	Ratio to GDP	GDF
IMFDISB	Disbursements IMF (all programmes)	Ratio to GDP	GDF
INTER_WBDISB	Interaction wbdisb and imfdisb		GDF
LOGGDPPC_START	Log of per capita GDP at the beginning of the period	Constant 2000 US \$	WDI
INVESTMENT	Gross fixed capital formation	Ratio to GDP	WDI)
GOVCONS	General Government Final Consumption Expenditure	Ratio to GDP	WDI
INFLATION	Inflation, consumer price	Annual Rate of change	WDI
OPENNESS	Export + Import of goods and services	Ratio to GDP	WDI
M2	Money and quasi money supply	Ratio to GDP	WDI
CORRUPTION	Corruption, annual averages	Index	ICRG Political Risk Data
INT_CONF	Internal conflicts, annual averages	Index	ICRG Political Risk Data
LIBOR	3 month US Dep. London Offer	Percentage index	IFS
IMFQUOTA	Subscribed quota at IMF	Million SDR	IFS
CUMIMF	Cumulative years under an IMF programme	Unit	GDF
CUMWB	Cumulative years under WB programme	Unit	GDF
IMFTDS	IMF debt service	Unit	GDF
WBTDS	IBRD and IDA debt service	Ratio to GDP	GDF

DEBTSERVICE	Total debt service	Ratio to exports	WDI
INLINE_USA	Voting in line with USA in the UNGA	Ratio	Dreher, Sturm, Vreeland (2008b, 2009)
PROX_EUROPE	Voting in line with France, Germany and UK in the UNGA	Ratio	Dreher, Sturm, Vreeland (2008b, 2009)
UNSC	Being a temporary member of the UNSC	Dummy	Dreher, Sturm, Vreeland (2008b, 2009)
PRSPpapers	Having published at least one document concerning a PRSP.	Dummy	WB web site

Table 3: Impact of IMF&WB loans on growth, OLS estimation

	(1)	(2)	(3)
IMF loans	-3.314*** (-3.314)		-8.066*** (-3.075)
WB loans		-2.503 (-1.255)	-2.002 (-0.985)
IMF loans* WB loans			12.524** (2.287)
Initial per cap. GDP (log)	-13.086*** (-5.501)	-13.210*** (-5.117)	-13.725*** (-5.293)
Investment/GDP	0.153*** (3.232)	0.177*** (3.891)	0.153*** (3.277)
Government consumption/GDP	-0.144*** (-2.746)	-0.148*** (-2.947)	-0.142*** (-2.764)
Inflation	-4.288*** (-3.575)	-4.203*** (-3.351)	-4.278*** (-3.724)
Openness	0.037*** (3.307)	0.037*** (3.240)	0.037*** (3.216)
M2/GDP	0.005*** (3.737)	0.004*** (3.140)	0.004*** (3.347)
Corruption	-0.333*** (-4.013)	-0.339*** (-4.093)	-0.345*** (-4.158)
Internal conflict	0.270*** (3.798)	0.268*** (3.769)	0.265*** (3.663)
Constant	37.094*** (5.422)	37.189*** (5.026)	39.429*** (5.335)
Observations	435	435	435
R-squared	0.336	0.327	0.345
Number of id	88	88	88

Absolute value of z statistics in parentheses: (*) sign. at 10%; (**) sign. at 5%; (***) sign. at 1%

Notes: The dependent variable is the average of the per capita GDP growth over the 4-year periods: 1982–85, 1986–90, ..., 2002–05; The regressions include dummies for each country; Higher values for internal conflict and corruption indicate "better values".

Table 4: Impact of IMF&WB loans on growth, 2SLS estimation

	(1)	(2)	(3)
IMF loans	-1.658 (-1.127)		-33.280*** (-2.634)
WB loans		-3.621 (-0.786)	0.687 (0.103)
IMF loans* WB loans			62.716** (2.530)
Initial per cap. GDP (log)	-13.551*** (-5.476)	-14.384*** (-4.649)	-15.218*** (-4.392)
Investment/GDP	0.162*** (4.036)	0.183*** (4.234)	0.085 (1.400)
Government consumption/GDP	-0.140*** (-3.194)	-0.142*** (-3.405)	-0.116** (-1.965)
Inflation	-3.938*** (-4.074)	-3.961*** (-4.080)	-4.012*** (-4.041)
Openness	0.036*** (3.449)	0.038*** (3.402)	0.031*** (2.594)
M2/GDP	0.004*** (2.863)	0.004* (1.786)	0.005** (2.055)
Corruption	-0.333*** (-3.636)	-0.327*** (-3.496)	-0.403*** (-4.054)
Internal conflict	0.285*** (3.840)	0.282*** (3.817)	0.274*** (3.376)
Joint significance of instruments	P-val= 0.0047	P-val=0.0009	P-val=0.0059
Hansen J statistic	P-val=0.0886	P-val=0.2017	P-val= 0.1679
Observations	420	420	420
R-squared	0.336	0.330	0.182
Number of id	84	84	84

Absolute value of z statistics in parentheses: (*) sign. at 10%; (**) sign. at 5%; (***) sign. at 1%

Notes: The dependent variable is the average of the per capita GDP growth over the 4-year periods: 1982–85, 1986–90, ..., 2002–05; The regressions include dummies for each country; Higher values for internal conflict and corruption indicate "better values".

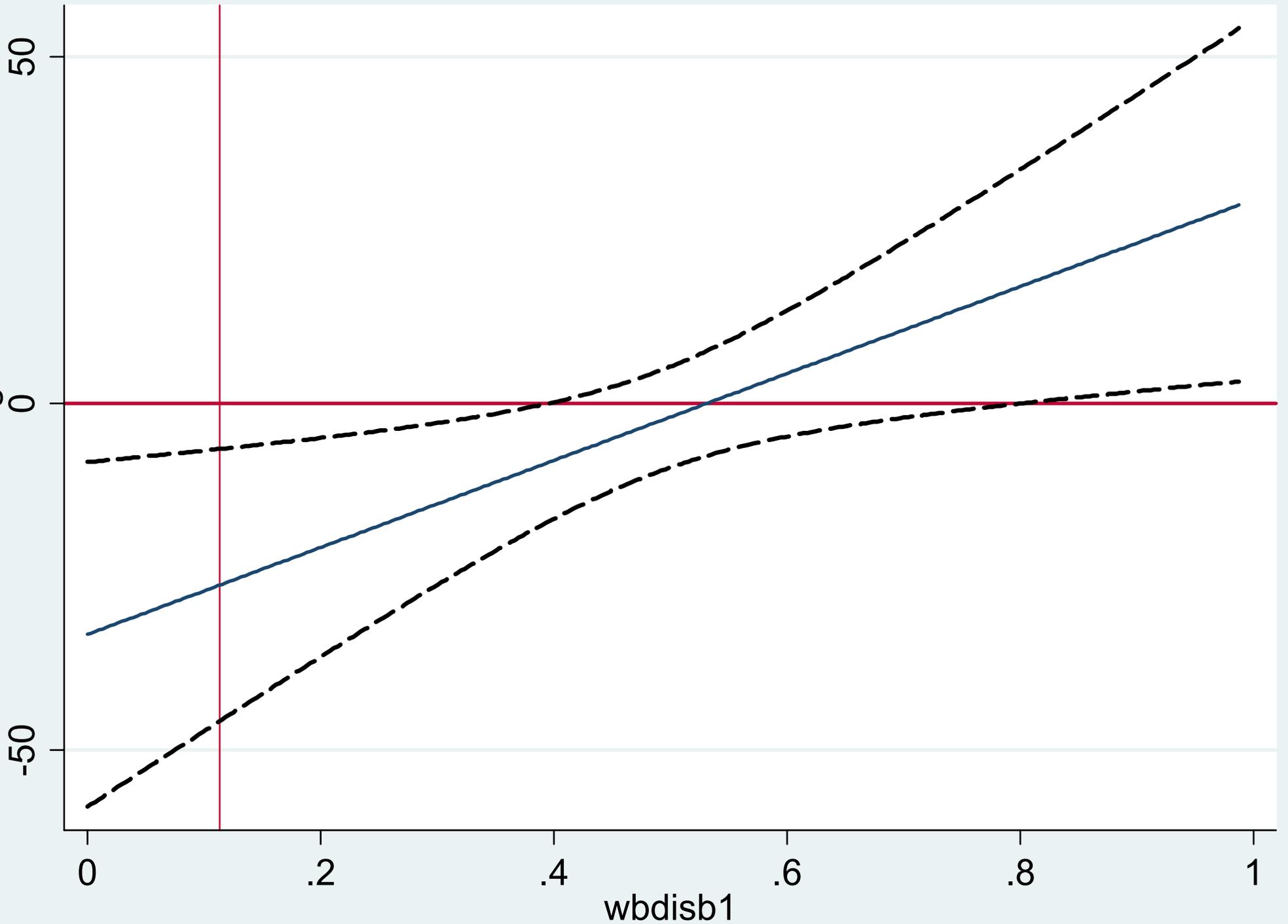
Last column:

IMF loans are instrumented with IMF debt service, LIBOR, IMF quota and with voting inline with the US and major Europe in the UN General Assembly

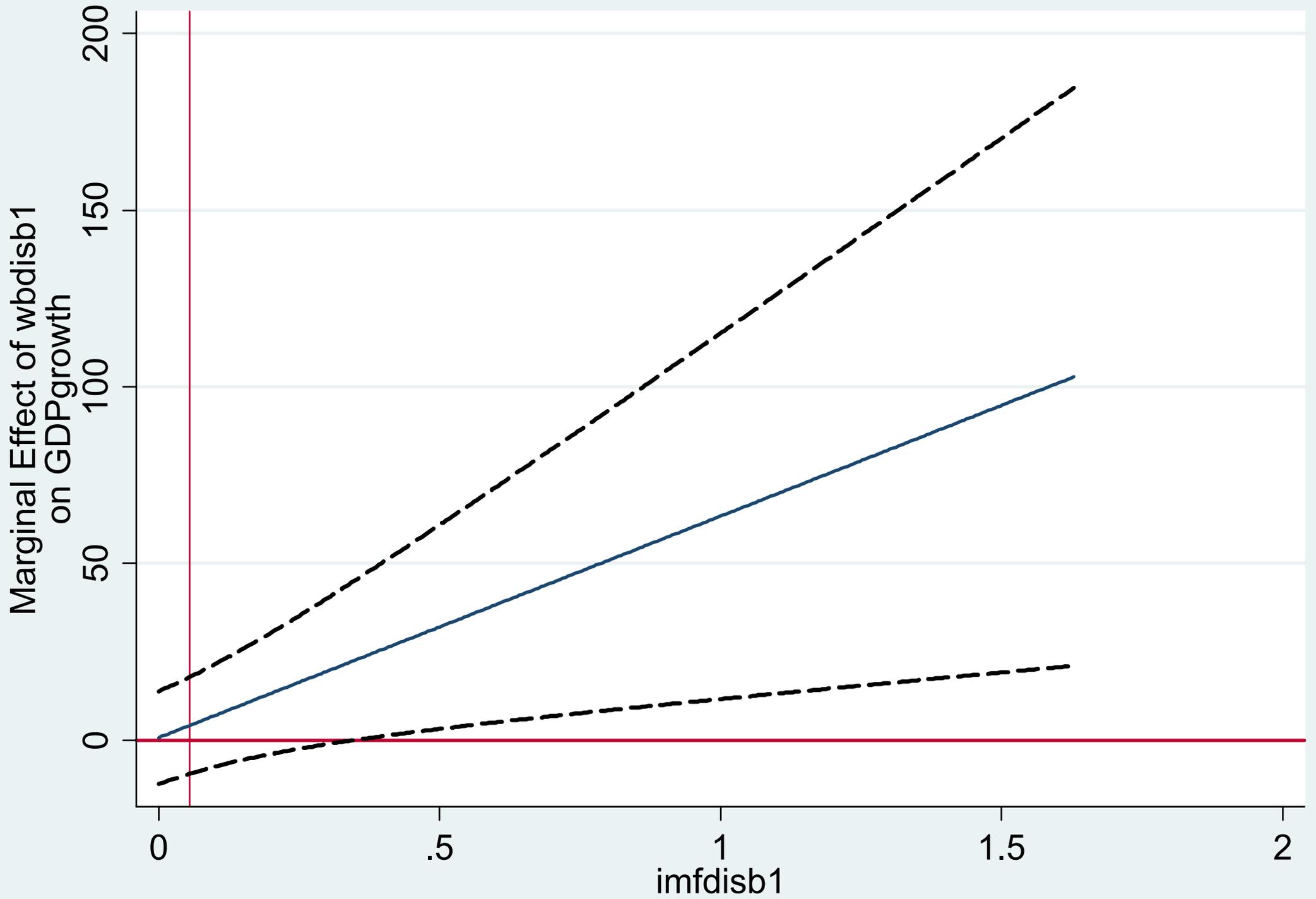
WB loans are instrumented with IMF and WB debt service, IMF quota and with voting in line with major Europe in the UN General Assembly

Interaction variable is instrumented with IMF debt service, cumulative years under IMF programs, imfquota and with a country having a PRSP

Marginal Effect of imfdisb1
on GDPgrowth



Dashed lines give 95% confidence interval.



Dashed lines give 95% confidence interval.

Table 5: Impact of IMF&WB conc net loans on growth, OLS estimation

	(1)	(2)	(3)
IMF conc net loans	0.456 (0.161)		11.730** (2.233)
WB IDA net loans		0.101 (0.0562)	0.702 (0.364)
IMF conc net loans* WB IDA net lo			-28.392** (-2.259)
Initial per cap. GDP (log)	-10.543*** (-4.643)	-10.819*** (-4.332)	-9.957*** (-4.159)
Investment/GDP	0.206*** (4.626)	0.203*** (4.770)	0.207*** (4.704)
Government consumption/GDP	-0.078 (-1.571)	-0.085* (-1.681)	-0.083 (-1.651)
Inflation	-4.643*** (-3.743)	-4.670*** (-3.778)	-4.385*** (-3.450)
Openness	0.011 (0.963)	0.013 (1.073)	0.010 (0.781)
M2/GDP	0.006*** (7.498)	0.006*** (5.985)	0.006*** (6.009)
Corruption	-0.261*** (-2.840)	-0.242*** (-2.738)	-0.254*** (-2.772)
Internal conflict	0.341*** (4.727)	0.343*** (4.846)	0.332*** (4.829)
Constant	25.448*** (4.104)	26.121*** (3.887)	23.825*** (3.659)
Observations	287	293	287
R-squared	0.357	0.359	0.370
Number of id	57	58	57

Absolute value of z statistics in parentheses: (*) sign. at 10%; (**) sign. at 5%; (***) sign. at 1%
Notes: The dependent variable is the average of the per capita GDP growth over the 4-year periods: 1982–85, 1986–90, ..., 2002–05; The regressions include dummies for each country; Higher values for internal conflict and corruption indicate "better values".

Table 6: Impact of IMF&WB conc net loans on growth, 2SLS estimation

	(1)	(2)	(3)
IMF conc net loans	-4.240* (-1.759)		-24.054 (-0.915)
WB IDA net loans		-4.159 (-0.841)	7.623 (0.850)
IMF net loans* WB IDA loans			32.316 (0.650)
Initial per cap. GDP (log)	-11.922*** (-4.570)	-11.915*** (-4.398)	-10.153*** (-3.299)
Investment/GDP	0.202*** (4.721)	0.227*** (4.405)	0.156** (2.313)
Government consumption/GDP	-0.075 (-1.623)	-0.085* (-1.959)	-0.065 (-1.148)
Inflation	-4.938*** (-4.131)	-4.851*** (-3.942)	-5.325*** (-3.742)
Openness	0.012 (0.950)	0.016 (1.196)	0.005 (0.321)
M2/GDP	0.005*** (4.100)	0.004** (2.410)	0.007*** (2.599)
Corruption	-0.251** (-2.431)	-0.228** (-2.218)	-0.293*** (-2.743)
Internal conflict	0.348*** (4.386)	0.338*** (4.313)	0.373*** (4.376)
Joint significance of instruments	P-val= 0.0168	P-val=0.0020	P-val=0.0786
Hansen J statistic	P-val=0.4315	P-val=0.1836	P-val= 0.5122
Observations	277	288	282
R-squared	0.348	0.345	0.210
Number of id	54	56	55

Absolute value of z statistics in parentheses: (*) sign. at 10%; (**) sign. at 5%; (***) sign. at 1%

Notes: The dependent variable is the average of the per capita GDP growth over the 4-year periods: 1982–85, 1986–90, ..., 2002–05; The regressions include dummies for each country; Higher values for internal conflict and corruption indicate "better values".

Last column:

IMF loans are instrumented with IMF debt service, IMF quota and with voting inline with the US in the UN General Assembly

WB loans are instrumented with IMF debt service, with WB debt service and IMF quota

Interaction variable is instrumented with IMF debt service, MF quota and with a country having a PRSP

Appendix (a): Diagnostic tests (results of Table 4)

Variable	Partial Rsq	Test of excluded instruments:
IMFLOANS	0.6037	P-value = 0.0000
WBLOANS	0.1768	P-value = 0.0000
INTERACTION	0.7066	P-value = 0.0025
Kleibergen-Paap*	P-val=0.0017	
Anderson-Rubin**	P-val=0.0040	

(*) Underidentification test (Wald test)

(**) Tests of joint significance of endogenous regressors in the main equation (Wald test)

Appendix (b): Diagnostic tests (results of Table 6)

Variable	Partial Rsq	Test of excluded instruments:
IMFLOANS	0.4473	P-value = 0.0003
WBLOANS	0.1401	P-value = 0.0017
INTERACTION	0.5903	P-value = 0.0011
Kleibergen-Paap*	P-val=0.0754	
Anderson-Rubin**	P-val=0.2747	

(*) Underidentification test (Wald test)

(**) Tests of joint significance of endogenous regressors in the main equation (Wald test)

Appendix (c): Descriptive Statistics (Estimation sample of column 3, Table 4)

Variable	Mean	St.Dev.	Min	Max
GDP growth	1.57	3.38	-7.46	13.59
Initial per cap. GDP	2.98	0.47	2.03	3.94
Investment/GDP	20.44	6.03	5.92	44.03
Government consumption/GDP	13.75	5.09	2.71	40.09
Inflation	0.15	0.18	-0.04	0.98
Openness	67.86	35.74	13.62	217.59
M2/GDP	37.44	52.13	7.46	992.31
Corruption	5.42	1.8	0.17	10
Internal conflict	8.07	2.48	0.54	12
IMF loans	0.05	0.11	0	1.63
WB loans	0.11	0.13	-0.002	0.99
IMF loans* WB loans	0.01	0.05	0	0.87
LIBOR	5.79	2.5	2.05	10.59
IMF quota	0.65	0.22	0.0698	0.98
Cumulative years under IMF	1.45	1.63	0	6
Debt service	20.75	12.96	1.28	91.74
IMF debt service	0.006	0.01	0	0.17
WB debt service	0.006	0.006	0	0.05
Voting in line with the US in the UNGA	0.31	0.09	0.16	0.6
Proximity to Europe in the UNGA	0.63	0.08	0.49	0.86
Temporary member of the UNSC	0.08	0.17	0.00	0.50