

Motivations and Effects of IMF/WB interaction

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Abstract

In this paper we estimated the impact on growth of the joint participation of a country to both IMF and WB programs. More specifically, using panel data for 150 countries over the period 1982-05, and employing a 3SLS to control for the possible endogeneity of the participation to an IMF/WB program, we find that even if WB and IMF does not boost the growth when they operate by themselves, the interaction term between these two organization is positive and significant at conventional levels. This result is encouraging, because it suggests that stimulating the collaboration between these two organization could be a way to make more effective their intervention.

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1 Introduction

The empirical evidence evaluating the impact on growth of International Monetary Fund (IMF) and World Bank (WB) adjustment programs is disappointing (Joyce 2004; Steinwand and Stone, 2007; Killick et al., 1998). The results obtained are far from being conclusive suggesting positive, zero or negative effects of adjustment lending on growth for both IMF and WB programs.

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.¹

Under such circumstances it becomes crucial to define a “division of labour” between these two organizations. The collaboration between the Fund and the Bank has not been investigated, with few exceptions. For example, Fabricius (2007) has tried to identify the conditions that determine whether or not these organizations are actually collaborating addressing also whether such collaboration is always desirable. On that respect he proposes that the Bank and the Fund should pursue a case-specific approach in deciding whether they should take the same stance. The main advantage of a more flexible approach would be to increase the ownership of borrowing countries on their policy choice, improving their implementation.²

In this paper, we do not consider whether the IMF and the WB should or should not collaborate. Since it is virtually impossible to distinguish the case in which these two organizations do collaborate from the case in which they are simply involved with the same country at the same time without actually interacting, we simply investigate the impact on growth

¹In 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.

²Marchesi and Sabani (2009), using a cheap talk framework to model information transmission between a multilateral and a country, consider the role that multilateral institutions have in designing reform packages, focusing on how to improve the design and eventually the implementation of conditional reforms.

of a country which is contemporaneously involved with both the Fund and the Bank. We do believe that the only way to evaluate whether collaboration is really effective is through an empirical analysis, which compares GDP variation when there is a joined intervention by the WB and the IMF with the circumstance in which only one of the two institutions is involved with a country.

2 Related literature

There are many researches dealing with the impact of World Bank and International Monetary Fund programs on recipient countries, first of all economic growth.

The debate has been especially focused on evaluating the impact of IMF programs on growth, in reply to the critics of the Fund being ineffective in promoting stability and growth. The reduction of balance of payments deficits, public debt and inflation are the steps taken by the IMF in order to favour the economic recovery. Yet, such austerity, which implies cutting public expenditure and increasing taxes at times when the economy is already weak, in order to generate government revenue, is blamed to restrain GDP growth and to harm the poor.

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 a dummy for program approval, the size of the loan and the IMF loan participation rate, expressed as fraction of months during each 5-year period that a country operated under an IMF loan program. This variable shows the effect of participating to a program, independently from loan size.³ The independent variables chosen by Barro and Lee are 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. Their results show that larger loans and grater IMF program participation have a negative influence on economic growth.

Barro and Lee are within the first using political and institutional instrumental variables.

³Also Boockmann and Dreher (2002) study the impact of the number of WB and IMF programs, on one hand, and the amount of credit received, on the other: their dependent variable is economic freedom. They find that the number of projects increases economic freedom, while the volume of credits reduces it. This result, which at first sight could seem doubtful, have an explanation. The authors think that the number of project captures the effect of conditionality: a higher number of programs to the same country reflects his good will to implement the conditions, which would have a positive impact on economic freedom and program's outcome; moreover it increases the number of contacts between the international institutions and national politicians, which raises the transfer of knowledge. A larger size of credit, instead, does not necessarily lead to positive effects, because it could be wasted and because of the risk of attracting corruption.

They hypothesize that loans are more probable and larger when the beneficiary countries have larger quotas and more national staff at the IMF, and when they are more politically and economically connected to the United States and the major Western European countries. The country's political proximity is estimated by the fraction of votes that each country casts in the UN General Assembly along with the USA or to France, Germany and United Kingdom. The economic proximity is measured by the ratio of the country's bilateral trade with the USA (or France, Germany and UK) to the country's GDP. The instrumented 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-term, but also for the kind of instrumental variable used. 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 the same variables than Barro and Lee, confirms that IMF presence reduces economic growth, when endogeneity is considered, and he also points out that compliance with conditionality mitigates this negative effect.

Dreher, Sturm and Vreeland (2006, 2007) extend these conclusions to the World Bank. They use membership in the UN Security Council as a political variable. With a dataset of 157 countries between 1870 and 2004, holding effects of other economic factors fixed, the authors observe the distribution of seats in the UN Security Council and underline that whenever a country hold a seat as temporary member, during his office there is higher probability to sign an agreement with the IMF or the World Bank ⁴. To the contrary, the effect on the loan size is not significant.

Unfortunately, there are not as numerous studies on the effect of the WB programs as on the effect of the IMF's. However, the literature on aid effectiveness has, to some extent, evaluated the impact of WB programs including the WB among the donors.

Burnside and Dollar (2000) measure aid impact on GDP, with a panel of 56 countries between 1970 and 1993. Their model contains these variables: aid rate to GDP, per capita GDP at the start of the period, a Policy index combining budget surplus, inflation rate and trade openness, an index for institutional quality, ethno-linguistic fractionalization, an assassination variable, level of broad money over GDP, regional dummies and arms imports over the total of imports. It does not appear the existence of a strong relationship between

⁴To the results referred to the influence of political factors on program participation and loan size, we want to add Vreeland (2004) and Kilby (2008)'s contribution. They find that alignment with the USA determines also the number of conditions imposed and the degree of their enforcement.

growth and the amount of aid received, while the coefficient of the interaction term between aid and Policy is significant. Therefore, Burnside and Dollar recognize that both bilateral and multilateral aid can have a positive impact on growth, as income transfer, only with good fiscal, monetary and trade policies in the recipient country.

At this point, it would be interesting to complete this review describing some examples of collaboration between these two organizations. However, to our knowledge, there is no empirical work aiming at evaluating whether the collaboration between the Fund and the Bank is advantageous to recipient countries. Since the 60s, the World Bank and the International Monetary Fund have been worked to deepen collaboration, believing that it could bring two kinds of advantages: on one hand, a greater credibility of their intervention to promote growth, on the other one, a greater and better impact on the beneficiary, thanks to joined resources and competencies.

Dreher (2005), stressing that the IMF lacks a mandate in the long-term development cooperation, claims that entering in the WB influence sphere is harmful to the beneficiary country, because it may lead to duplication of conditions⁵. Moreover, the IMF programs, focused on fiscal and economic rigors, do not fit well with poor countries which are in structural and not in a temporary crisis. On the other side, Bordo and James (2000) think that joining competencies and efforts could increase the overall effectiveness of programs, but merging the two institutions would be wise, in order to avoid the risk of conditionality duplication and to reduce bureaucracy and operative costs.

Fabricius (2007), drawing on field research conducted in Ghana, Pakistan, Peru, and Vietnam, over the period 1980-96, finds that whether the Bank and the Fund cooperate mainly depends on two, highly correlated, conditions: similarity in their operational styles and agreement on the boundaries of each other's operations. Once these conditions are taken into consideration, none of the other variables listed in the study show any significant correlation with Bank-Fund cooperation.

Moreover, according to this study, the exchange of information between the Bank and the Fund is not institutionalized but subject to the decisions of individuals. The 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. For middle-income countries, the Bank and the IMF rely on their traditional lending instruments, and, as a result, they cooperate less formally dealing with middle-income countries than dealing with low-income countries.

Finally, an important implication emerging from the study is that Bank-Fund consistency may not always be desirable. In fact there is an emerging consensus that a partner-like

⁵This is confirmed also by Erika Gould, in "Money Talks (2006).

relationship needs to exist between IFOs and borrowing governments. This new kind of relationship requires that IFOs possess in-depth, country-specific knowledge and promote ownership and institution building in order to formulate sound policy recommendations. Therefore, while it is true that the Bank and the Fund have an impressive range of resources and assets on which they can draw (i.e., privileged access to member countries governments, a pool of experiences from across the globe, and a high concentration of expertise), other forms of knowledge and inputs are increasingly needed to formulate policy recommendations. As a result, current forms of collaboration that strive for consistency may actually undermine the Bank's and the Fund's ability to achieve their ultimate goals of equitable growth and economic stability. In sum, since both the IMF and the WB face a greater "risk of errors" in terms of policy advice and, second, they run the "risk of oversight" of key factors that need to be addressed to promote ownership and country-specific recommendations, there may be cases in which redundancy between the two organizations may be desirable. At the same time, redundancy can engage borrowing countries more effectively in the process of designing lending agreements.

To the contrary, there are circumstances in which close interaction on the country level is crucial to developing good policy recommendations and division of labor between the two organizations should be further strengthened. In this scenario, the Bank should be responsible for matters of middle to long-term lending operations to both low- and middle-income countries. 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.

3 Method and Data

The regression is a pooled time series cross section analysis. Following Burnside and Dollar (2000) and Collier and Dollar (2001) the data are averages over four years. The analysis cover the time period 1982-2005. and extends to 150 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.

The dependent variable is the average four-year growth rate of per capita GDP.⁶ 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 middle-term.

Our choice of control variables follows the literature on the effects of IMF and WB

⁶More specifically, the periods are: 1982-1985; 1986-1989; 1990-1993; 1994-1997; 1998-2001; 2002-2005.

programs and on aid effectiveness. We introduce in the regression other significant variables, selected by the literature and in particular by Barro and Lee (2005) and by Dreher (2006). Specifically, the log of GDP per capita at the start of each period, measures for human resources (life expectancy and fertility rate), lagged values of investment as a percentage of GDP, the rate of inflation, debt service (as a percentage of exports), a measure of openness (exports and imports over GDP) and a measure of democracy. A dummy for each time period and country is included in all regressions.

Both the IMF and the WB (and their interaction) may influence growth via their advice, conditionality and loans. The channel which can be measured more easily is through the money disbursed (as a percentage of GDP). Thus, our explanatory variables of interest are the amount of disbursements from the WB (loans both through IBRD and IDA) and amount of IMF disbursements (through Stand-By Agreements, Extended Fund Facility, Structural Adjustment Facility, Enhanced Structural Adjustment Facility and Poverty Reduction and Growth Facility). We finally built an interaction term between WB and IMF disbursement.

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 reason, the coefficient measuring the effect, of the program's adoption on growth can be downward biased as there may be a selection problem. The same is true for the amount of money disbursed which is probably correlated with the severity of the crisis. Obviously selection problems are also related to the interaction term between IMF and WB loans. To deal with the selection problem we follow an instrumental variables approach.⁷ The challenge with the instrumental variable approach is clearly finding variables that affect the loan's size without affecting economic growth other than through their impact on the disbursed loan.

Since political factors have been found to positively affect the probability that a country obtain either an IMF or a WB loan, in many recent papers (e.g., Barro and Lee, 2005; Dreher et al., 2007, 2008, 2009) political-economy variables have been used as instrumental variables for estimating the effects of adjustment programs on growth.⁸ More specifically, we instrumented WB loans with a variable reporting whether a country votes more or less in line with major European countries (i.e. France, UK and Germany) in the United Nations

⁷The 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).

⁸Given 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 have been presented as one of the main reasons accountable for the poor performance of IFI's programs in promoting growth and development.

General Assembly (UNGA).⁹ We instrumented IMF loans with a variable reporting whether a country votes more or less in line with the U.S. in the United Nations General Assembly (UNGA) Following Harrison (2008), among others, we finally instrumented the interaction term between IMF and WB loans using the product of the previous instruments, namely the product between voting in line with the US and voting in line with major Europe in the UNGA.

Table 1 contains descriptive statistics for our variables of interests while Table 2 presents definitions and sources of the variables we use.

TABLE 1 HERE: descriptive statistics

TABLE 2 HERE: sources and definition

4 Results

The regression is an unbalanced panel analysis, since some of the data are not available of all countries and periods. This Section will present two sets of regression results explaining economic growth. Table 3 presents the results when the growth equation is estimated employing OLS without taking into account the endogeneity of the IMF and WB variables. Then the analysis is replicated using instruments for the IMF and WB loans and for their interaction. We follow Barro and Lee (2005) and Dreher (2006) to account for the endogeneity of the IMF/WB variables and estimate 3SLS. Since the predicted values of the IMF variables are used instead of the actual data, 3SLS is fully adequate to account for potential simultaneity.

Table 3 presents results 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 4 of Table 3. In column 1 we report the coefficient of the WB loans (which is not significant); column 2 reports the coefficient of the IMF loan (which is negative and significant at 5%); column 3 reports simultaneously the two coefficients of both WB and IMF loans (not significant and significantly negative at 5%). We finally report, in column 4, the coefficient of WB, IMF loans and of their interaction. While all these results are reported for comparison, we largely restrict our discussion to the full model in column 4.¹⁰

As our variables of interest are concerned, we observe that the impact on growth of both IMF and WB loans is significantly negative, as suggested in the literature. To the contrary the coefficient of interaction term is significant and positive. This evidence seems to suggest

⁹Dreher et al. (2007), (2008) show that while United Nations Security Council (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.

¹⁰We can actually observe that the coefficients of all regressions are robust to the inclusion of our variables of interest, one at a time.

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 fertility rates and lower inflation. While GDP growth increases with higher investments, higher openness, and higher debt service, as expected..

The results reported in Table 3, however, are not conclusive because of the non-casual sample selection. Since both IMF and World Bank sign an agreement only when a country faces a temporarily or structural economic difficulties. This implies that the results in Table 3 could be possibly downwards biased, as some of the effects of a programme on growth could be affected by the economic troubles in the beneficiary country, and not by the programme itself.

Table 4 present results when IMF and WB loans and their interaction term are instrumented employing 3SLS. Note that the instrumental variables are jointly insignificant when included in the growth regressions directly. F-test show that the instruments are jointly significant in explaining the respective IMF/WB variables, conditioned on the full information set in the final (second stage) specification. In addition, the Sargan test, conducted to ensure that the instruments are not correlated with the error term of the growth regression accepts the specification.

The major problem was finding an instrument for the interaction term. It does not exist in the literature any suggestion on which factor, if it exist, not correlated with growth, explains the presence in a country of both the institutions. For this reason, we decided to use the interaction of the instruments for WB and IMF. And to further simplify the instruments, we interact only voting in line with the U.S with proximity to Europe, the former being the most significant in explaining IMF loans and the latter the most significant in explaining WB loans.

We think that the results are very interesting and innovative. GDP start, fertility, inflation, have a negative and significant coefficient, as in Table 3, openness and debt service still have positive and significant coefficients (while the value of investments is now insignificant).

Finally, their impact of our variable of interest on growth is still the same: while the impact of WB disbursements on growth is not significant, the larger the IMF loan size and the lower the GDP per capita growth rate. But the most relevant result is shown by the term of interaction: 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 a way to make more effective WB and IMF intervention: the collaboration.

TABLE 3 HERE: descriptive statistics

TABLE 4 HERE: sources and definition

5 Conclusions

In this paper we estimated the impact on growth of the joint participation of a country to IMF and WB programs. More specifically, employing a 3SLS to control for the possible endogeneity of the participation to an IMF/WB program, we find that even if WB and IMF does not boost the growth when they operate by themselves, the interaction term between these two organization is positive and significant at conventional levels. This result is encouraging, because it suggests that stimulating the collaboration between these two organization could be a way to make more effective their intervention.

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Table 3: Effects of the IMF loans, WB loans and their interaction on economic growth, OLS

VARIABLES	(1)	(2)	(3)	(4)
wbdisbgdp_av	-0.992 (-0.572)		-1.502 (-0.832)	-4.611** (-2.235)
imfdisbgdp_av		-63.390** (-2.500)	-61.281** (-2.440)	-166.776*** (-3.466)
wbdisbximfdisb_av				358.019*** (2.850)
loggdppc_start	-6.525*** (-5.411)	-6.850*** (-6.120)	-6.789*** (-5.737)	-7.027*** (-5.995)
loglife_av	-2.734 (-1.307)	-2.654 (-1.280)	-3.258 (-1.574)	-2.704 (-1.289)
logfertility_av	-7.554*** (-5.105)	-7.001*** (-4.969)	-7.204*** (-4.955)	-6.827*** (-4.847)
investment_lagged_av	0.109** (2.327)	0.125** (2.501)	0.103** (2.176)	0.085* (1.756)
debt_service_av	-0.001*** (-6.492)	0.027 (1.314)	0.035 (1.631)	0.037* (1.800)
inflation_av	-0.002*** (-3.881)	-0.002*** (-3.861)	-0.002*** (-3.960)	-0.002*** (-4.163)
openness_av	0.057*** (3.842)	0.056*** (3.796)	0.061*** (4.097)	0.062*** (4.220)
curaccount_av	-0.057 (-1.274)	-0.025 (-0.544)	-0.035 (-0.789)	-0.042 (-0.937)
polity2_av	-0.038 (-0.809)	-0.012 (-0.266)	-0.017 (-0.348)	-0.030 (-0.642)
Constant	60.916*** (4.874)	61.261*** (5.149)	63.971*** (5.195)	63.632*** (5.249)
Observations	496	518	493	493
R-squared	0.300	0.304	0.328	0.353
Number of id	105	106	104	104

Robust t-statistics in parentheses: *** p<0.01, **

All regressions include dummies for each time period and country

Table 4: Effects of the IMF loans, WB loans and their interaction on economic growth, 3SLS

VARIABLES	(1)	(2)	(3)	(4)
logdppc_start	-0.112 (-0.235)	-2.320** (-2.035)	-3.048*** (-3.081)	-2.627** (-2.014)
loglife_av	1.817 (1.064)	-3.859 (-0.888)	-5.217 (-1.609)	7.075 (1.464)
logfertility_av	-3.076*** (-5.572)	-4.519*** (-2.634)	-4.290*** (-4.643)	-4.384*** (-4.061)
investment_lagged_av	0.161*** (5.703)	-0.144 (-0.776)	-0.167** (-2.161)	-0.115 (-1.431)
inflation_av	-0.002*** (-3.469)	-0.003** (-2.291)	-0.004*** (-3.502)	-0.003** (-2.304)
openness_av	-0.004 (-0.674)	0.051 (1.459)	0.058*** (3.355)	0.027* (1.841)
debtservice_av	-0.000 (-0.963)	0.160 (1.397)	0.185*** (3.663)	0.124*** (2.673)
curaccount_av	0.007 (0.210)	-0.175 (-1.606)	-0.182*** (-2.727)	-0.173** (-2.009)
polity2_av	-0.035 (-0.890)	0.091 (1.075)	0.123* (1.731)	-0.000 (-0.00692)
wbdisbgdp_av	10.283 (1.610)		-9.007 (-0.957)	-21.825 (-0.979)
imfdisbgdp_av		-938.727 (-1.619)	-955.644*** (-5.714)	-1,660.434*** (-3.146)
wbdisbximfdisb_av				4,561.043* (1.942)
Constant	-5.274 (-0.593)	39.572 (1.609)	50.342*** (2.743)	0.602 (0.0378)
Observations	489	511	486	486
R-squared	0.127	-4.369	-4.773	-3.541

z-statistics in parentheses: *** p<

IMF loans are instrumented with voting in line with the U.S. in the UNGA

WB loans are instrumented with voting in line with France, UK and Germany in the UNGA

The interaction term between IMF and WB loans is instrumented with the product of voting in line with the U.S. in the UNGA and a variable describing proximity to Europe in UNGA voting (Harrison, 2008)

All regressions include dummies for each time period and country