

Economic Growth Effects of IMF Programs

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Abstract

Using data for 110 countries and GMM estimations, we examine the effects of IMF programs on economic growth. In this context, we focus on the effects of program participation, program type, and the size of IMF loans on growth. Our empirical results indicate that IMF program participation and general conditionality do not have any significant growth effect. Consistent with expectations, inflation rate, government consumption, and fertility rate have negative and statistically significant effects on the growth rate. However, we obtain an interesting result when we divide IMF programs into two as concessional and non-concessional ones. Our results point out that that concessional programs do not have any significant effect, while non-concessional programs exert a negative impact on the growth rate. This finding clearly indicates the importance of making a distinction between program types. Finally, we find a positive effect of IMF credits (as a share of GDP) on economic growth.

1 Introduction

The IMF has important functions such as surveilling of the international monetary system, providing member countries with IMF resources when needed, and promoting macroeconomic, financial, and exchange rate stability. Toward this end, IMF programs typically aim to restore or maintain the balance of payments viability and macroeconomic stability, set the stage for sustained, high-quality growth, and reduce poverty (IMF, 2022). Despite a large number of studies on IMF programs, the literature is still inconclusive as to whether these programs achieve any of the IMF's objectives. Some studies suggest that these programs have more or less beneficial effects (Ul Haque and Khan, 1998; Bal-Gunduz, 2016; Bird and Rowlands, 2017; Balima and Sokolova, 2021; Kuruc, 2022) while others indicate that these programs have negative effects through channels such as creating moral hazard by delaying the introduction of much needed reforms, facilitating the sustainability of inconsistent policies and even corrupt governments and causing procyclical policies as a result of tight monetary and fiscal policies during program years (Przeworski and Vreeland, 2000; Rogoff, 2003; Stiglitz, 2003; Evrensel, 2005; Dreher, 2006; Marchesi and Sirtori, 2011).

IMF programs can be classified as concessional and non-concessional programs. Concessional programs last generally longer and are associated with lower interest rates compared to non-concessional programs. For example, the Standby Credit Facility (SCF), Extended Credit Facility (ECF), and Rapid Credit Facility (RCF) are financed by Poverty Reduction and Growth Trust (PRGT). They have the objective to help low-income countries reduce poverty and overcome structural and institutional barriers to development. Financed by General Resource Accounts, non-concessional programs such as Stand-By Arrangements (SBA) and the Extended Fund Facility (EFF) focus on solving balance of payments problems and stabilizing the economy of emerging or middle-income countries. Their duration is typically shorter, and the interest rate is higher.

Given the diversity of IMF programs, they are designed to address different problems, have different objectives, and suggest different conditions (Bal-Gunduz, 2016; Bird and Rowlands, 2017; Rickard and Caraway, 2018; Balima and Sokolova, 2021). Conditionality refers to the design of IMF-supported programs, i.e. macroeconomic and structural policies as well as the specific tools that are used to monitor the program country's progress toward agreed-upon program goals (IMF, 2022). Policy commitments under IMF programs can take different forms such as Quantitative Performance Criteria (QPC) and Structural Benchmarks (SB). QPC represent measurable or quantifiable conditions that are related to macroeconomic variables such as monetary and credit aggregates, reserves, fiscal balances, and external borrowing (IMF, 2022). On the other hand, SB contain some microeconomic reforms and afford governments less flexibility (Stubbs et al., 2020). Examples include social safety nets and public financial management. Moreover, conditions are not static in nature and evolve over time. Until the mid-1980s, conditions mainly focused on macroeconomic policies. However, after the increase in IMF's involvement in low-income and transition countries, conditions shifted more to structural as well as developmental problems.

Using the MONA and additional datasets as well as the sample period 1993-2019, this study aims to contribute to the literature in some important dimensions by re-examining the effects of IMF programs on economic growth. Besides overall IMF participation, we make a distinction between concessional and non-concessional programs. Moreover, in addition to program participation we also test whether the size of IMF credits affects the growth rate (Butkiewicz and Yanikkaya, 2005; Dreher, 2006). Our empirical results indicate that IMF program participation and general conditionality do not have any significant growth effect. On the other hand, we find a negative growth effect of non-concessional programs. Moreover, IMF credits positively and significantly affect the growth rate.

This study is structured as follows. We review the literature in Section 2, explain the empirical model and the data in Section 3, discuss the empirical results in Section 4, and finally conclude in Section 5.

2 Literature Review

A vast literature examines the effects of IMF programs on several macroeconomic indicators including but not limited to economic growth, fiscal balance, current account, debt, inflation rate, aid, and capital flows (Khan, 1990; Conway, 1994; Evrensel, 2002 and 2005; Barro and Lee, 2005; Easterly, 2005; Jorra, 2012; Gehring, and Lang, 2020; Balima and Sy, 2021). Because of this paper's focus on economic growth, the following literature review solely considers economic growth effects of IMF programs.

The existing literature cites direct and indirect channels through which IMF programs would exert a positive or negative effect on growth in program countries (Khan and Killick, 1985; Evrensel, 2002; Rogoff, 2003; Dreher, 2006; Bird, 2007; Kuruc, 2022). Among the arguments for a positive growth effect, first, these programs provide additional liquidity in the form of hard currency to program countries, where the size of the IMF funds has been increasing as a share of program countries' GDP. Following the global financial crisis of 2008, some programs accounted for 10 to 16 percent of GDP in recipient countries (Reinhart and Trebesch, 2016). Second, IMF programs would be helpful for countries to mitigate the impact of an economic crisis, stabilize the economy, improve resource allocation, reduce the uncertainty, restore the confidence in domestic and foreign investors by serving as a seal of approval, and implement politically unpopular but economically needed policies without taking full responsibility by using the IMF as a scapegoat (Khan, 1990; Ul Haque and Khan, 1998; Dreher, 2006; Bird and Rowlands, 2017; ECB, 2019; Gehring, and Lang, 2020; Atsebi and Wajnilower, 2021). All these channels indicate a possible positive impact of IMF programs on economic growth. Third, IMF conditions and policy advice associated with its programs are discussed with and reviewed by program countries, which is expected to promote program ownership. In theory, conditionality implies important benefits such as ensuring and encouraging commitment, reforms, and appropriate use of IMF funds, which is expected to limit the moral hazard problem in program countries (Dreher, 2009).

There are possible negative growth effects of IMF programs as well. First, there is the issue of whether the IMF's conditionality will work as designed (Bird, 2001; Dreher, 2009; Kentikelenis et al., 2016). Although conditions and policies vary among programs and countries, they frequently include contractionary monetary and fiscal policies (Stiglitz, 2003; Fischer, 1997; Easterly, 2003; Evrensel, 2004 and 2005; Broome, 2015). This is not surprising, because the underlying problem in many program countries is expansionary monetary and fiscal policies, which lead to internal and external imbalances. To restrain the aggregate demand, IMF programs typically put restrictions on monetary aggregates including credit creation. Consequently, an indispensable part of IMF programs, especially SBA, is to ensure fiscal discipline, requiring a rise in government revenue or a cut in government expenditures or a combination of them. Therefore, fiscal and monetary discipline may dampen economic growth in the short run.

Second, IMF programs may exert negative effects on growth through channels other than that of the aggregate demand. For example, as IMF-prescribed austerity measures aim to reduce government spending, including spending on social programs, they may have an adverse effect on poverty, which in turn may negatively affect growth (Easterly, 2003; Nooruddin and Simmons, 2006; Oberdabernig, 2013; Stubbs et al., 2017; Stubbs et al., 2020; Lang, 2021). Similarly, if IMF programs are considered as an indicator for weak economic fundamentals, they may discourage investment (Ito, 2012; Essers and Ide, 2019). Lastly, if program countries expect future availability of IMF programs when needed, it would create an incentive to engage in expansionary monetary and fiscal policies, when politics calls for them. This kind of an incentive not only creates moral hazard, but also introduces cycles of macroeconomic crises and austerity periods, which may adversely affect economic growth (Evrensel, 2005).

Some studies empirically investigate the effects of IMF programs and report some negative effects (Khan, 1990; Przeworski and Vreeland, 2000; Hutchinson, 2003; Joyce, 2004; Barro and Lee, 2005; Butkiewicz and Yanikkaya, 2005; Dreher, 2006 and 2009; Marchesi and Sirtori, 2011; Kutan et al., 2012; Breen and Egan, 2019). For example, Khan (1990) concludes that IMF-supported programs lead to a decline in the growth rate for 69 developing countries. Conway (1994) reports a negative contemporaneous growth effect of increased participation, while lagged effects of increased participation on growth are positive. Bordo and Schwartz (2000) report a negative effect of IMF programs in 11 Latin American and 13 Asian countries during the period of 1973-1978. Hutchinson (2003) focuses on the short-term stabilization programs (SBA and EFF) and finds a negative growth effect for the 1975-1997 period. Barro and Lee (2005) conclude that IMF lending has a negative impact on economic growth for SBA and EFF for the 1970-2000 period. Considering 100 countries and the 1970-1997 period, Butkiewicz and Yanikkaya (2005) suggest a negative impact of IMF credits on economic growth. Over the period 1970-2000, Dreher (2006) finds that IMF programs reduce growth rates. Ozturk (2008) reports a negative effect on GDP per capita for 21 Latin American countries over the period 1975-2004.

Some studies do not find a statistically significant effect of IMF programs on growth (Hardoy, 2003; Easterly, 2005; Evrensel, 2005; Eke and Kutan, 2009). Over the period 1970-1990, Hardoy (2003) suggests that IMF programs have no effect on the growth rate. This finding is confirmed by Evrensel (2005) for 19 emerging market economies for the 1971-1997 period. Similarly, Easterly (2005) fails to find any robust growth effects of structural

adjustment loans. Atoyan and Conway (2006) examine the impact of IMF programs during the period 1993–2002 and find little statistical evidence for contemporaneous economic growth rate. Eke and Kutun (2009) also indicate that IMF programs are ineffective in increasing the growth rate in Eastern European countries. Fidrmuc and Kostagianni (2015) report that the contemporaneous growth effect of the IMF involvement (SBA, EFF, and PRGT) is not significant, while the lagged effect is positive for 213 countries and the 1971–2009 period. Using a large panel of low- and middle-income countries over the period 1993–2019, Youssef and Zaki (2021) report that SBA loans have no effect on growth.

On the other hand, some studies report a positive growth impact (Evrensel, 2002; Mireaux et al., 2000; Mumssen et al., 2013; Bal-Gunduz, 2016; Kuruc, 2022). Using the 1971–1997 period, Evrensel (2002) finds that SAF/ESAF programs have a positive effect on growth during the program years relative to the pre-program year. Mireaux et al. (2000) find a positive impact of IMF lending through ESAF (Enhanced Structural Adjustment Facility) for low-income countries during the period 1986–1991. Atoyan and Conway (2006) present evidence for an improvement in economic growth in post-program years. Using the period 1986–2010, Mumssen et al. (2013) find that longer-term IMF support has a positive economic growth effect through IMF policy advice and institutional capacity building rather than the size of loans for 75 low-income countries. Bas and Stone (2014), using data for 104 countries and the 1970–2008 period, find that long-term users of fund resources should benefit more on average from program participation than short-term users, indicating the adverse selection. Fidrmuc and Kostagianni (2015) conclude that the lagged effect is positive for 213 countries and the 1971–2009 period. Similarly, Newiak and Willems (2017) report that non-financial IMF programs (Policy Support Instrument-PSI) have a positive growth effect and interpret this result as supporting evidence for IMF policy advice. Using propensity score matching methodology and data over the period 1989–2008 for low-income countries, Bird and Rowlands (2017) find a positive impact of concessional programs on economic growth up to 2 years. Bal-Gunduz (2016) concludes that the short-term IMF engagement is positively associated with a higher growth rate for low-income countries for the 1980–2010 period. Youssef and Zaki (2021) find that PRGF and EFF loans have a positive growth effect. Using data for 70 countries from 1980–2018 Siddique et al. (2021) conclude that IMF programs have a significantly positive impact on the growth rate for upper-middle income countries, but not for low-income countries. IEO (2021) indicates that IMF programs yield growth benefits in the 2008–2019 period for a large number of countries. In a recent study, using synthetic control methods Kuruc (2022) reports a positive recovery effect of IMF programs and cumulative output gain.

To summarize, there is no consensus about the impacts of IMF programs on economic growth, which is hardly surprising. There are important differences among the studies regarding many important aspects, including the samples, econometric methods, time periods, conditions, program types, income levels, institutional capacities, and compliance. However, it seems that studies focus on the more recent periods and specific country groups, such as Bal-Gunduz (2016), Bird and Rowlands (2017), and Kuruc (2022), tend to find more beneficial effects compared to the others. In a new and comprehensive meta-analysis, Balima and Sokolova (2021) conclude that more positive effects are found, when samples include higher levels of institutional and economic development and longer time periods.

3 Empirical Specification, Data, and Method

We employ an empirical growth model frequently utilized in the literature to examine the effects of IMF participation and compliance with the IMF's conditionality on economic growth. Our dynamic panel data model with two-step Arellano-Bond estimators is as follows:

$$y_{it} = \delta y_{i,t-1} + \mathbf{X}'_{it}\beta + \mu_i + v_{it} \quad (1)$$

where y_{it} is country i 's growth rate of real GDP per capita in period t , δ is a scalar, $y_{i,t-1}$ is the previous period's growth in GDP per capita, X represents control variables, \mathbf{X}'_{it} is $1 \times K$, β is $K \times 1$, and both μ and v are i.i.d. X consists of well-known growth controls including initial GDP per capita, fertility, physical capital stock per worker, human capital index, trade shares (the sum of exports and imports as percentage of GDP), inflation, government consumption (percentage of GDP), and the rule of law. All growth-related control variables except for lagged growth rate and human capital are in natural logarithm. X also includes the IMF-related variables, such as program participation, program types, IMF credits (percentage of GDP), and conditionality.

We use a dummy variable equals 1 if an IMF program (conditionality) exists in a given calendar year otherwise it equals 0 (Dreher 2006; Fidrmuc and Kostagianni, 2015; Mireaux et al., 2000). Similarly, a dummy variable takes the value of 1, if a concessional (non-concessional) IMF program exists in a given country and calendar year, otherwise it equals 0. Following the studies of Dreher and Walter (2010), Clements et al. (2013) we use the GMM to address the problems of autocorrelation and endogeneity.

Data for GDP per capita, capital stock per worker, and human capital are from Penn World Table 10 (Feenstra et al., 2015). Data for GDP per capita growth rates, fertility rates, inflation, trade shares, government consumption, IMF credits, and the rule of law are from the World Bank's World Development Indicators (WDI, 2022). IMF programs and conditionality data are compiled from the IMF's MONA database. Our data cover the 1993–2019

period for 110 countries, consisting of developing countries and four developed countries (Cyprus, Greece, Iceland, Ireland) which participated in IMF programs during or after the global financial crisis. To focus on long-term effects rather than business cycles, we use non-overlapping five-year averages, as suggested in Barro and Lee (2005), Butkiewicz and Yanikkaya (2005), and Dreher (2006). Descriptive statistics are presented in Table 1.

	All countries/program countries			Concessional program countries			Non-concessional program countries		
	Mean	Std dev	N	Mean	Std dev	N	Mean	Std dev	N
Growth rate (5-yr lag)	2.06	4.39	1073	2.13	5.55	186	2.11	4.12	176
		1.99	164		4.83	55		3.31	71
		3.94	6.54		4.05	3.38		3.06	2.48
Initial GDP per capita	8.69	1.06	958	7.61	0.65	179	9.24	0.65	173
		1.01	140		0.66	52		0.81	67
		0.32	6.84		0.19	3.44		0.19	2.58
Fertility	1.45	0.38	1118	1.74	0.28	187	1.22	0.31	180
		0.36	162		0.32	54		0.33	70
		0.14	6.90		0.08	3.46		0.07	2.57
Human capital index	2.19	0.64	804	1.77	0.54	152	2.53	0.48	158
		0.61	117		0.55	42		0.51	58
		0.22	687		0.11	3.62		0.15	2.72
Physical capital stock	11.04	1.35	941	9.72	1.12	175	11.76	0.79	171
		1.31	139		1.13	50		0.94	65
		0.31	6.77		0.17	3.5		0.13	2.63
Openness	4.25	0.59	981	4.16	0.45	165	4.27	0.47	172
		0.54	156		0.49	50		0.45	69
		0.30	6.29		0.16	3.3		0.14	2.49
Rule of law	-0.30	0.81	961	-0.75	0.47	188	-0.24	0.67	181
		0.78	161		0.49	55		0.76	71
		0.21	5.97		0.15	3.42		0.13	2.55
Inflation	0.14	0.31	1072	0.11	0.12	186	0.14	0.25	176
		0.16	164		0.08	55		0.16	71
		0.26	6.54		0.09	3.38		0.19	2.48
Government consumption	0.15	0.06	915	0.12	0.04	154	0.15	0.04	170
		0.06	149		0.05	47		0.05	68
		0.03	6.14		0.02	3.3		0.01	2.5
IMF credit as a share of GDP	2.99	4.47	765	4.73	5.32	186	2.55	2.62	136
		3.69	121		4.70	54		2.58	51
		2.82	6.32		2.95	3.44		1.36	2.67

Table 1: Descriptive Statistics

The data consist of 5-year averages in sample countries. The first nine variables are in logs. The numbers under mean are global means. Regarding standard deviation and the number of observations, the first, second, and third lines indicate the overall (the entire data), between (between countries), and within values (within a country), respectively. In terms of the number of observations, the first, second, and the third numbers imply the total number of country-years, the number of countries, and the average number of observations in years in countries, respectively.

4 Empirical Results and Discussion

We first examine the effects of IMF program participation and general conditionality on economic growth in Table 2. In Column 1, we present our baseline growth results without incorporating any of the IMF-related variables. Consistent with expectations, inflation rate, government consumption, and fertility rate have negative and statistically significant effects on the growth rate.

In Column 2, we add a dummy variable representing IMF program participation to our baseline growth model. We find that IMF program participation does not have any significant impact on economic growth. In general, this result can be interpreted as consistent with that of many studies that report an insignificant growth impact of IMF programs (Hardoy, 2003; Easterly, 2005; Evrensel, 2005; Eke and Kutan, 2009; Fidrmuc and Kostagianni, 2015). We also find that overall IMF program conditionality does not have any significant impact either, as reported in Column 3. However, we obtain an interesting result when we divide IMF programs into two as concessional and non-concessional ones. Our results in Columns 4 and 5 firmly indicate that concessional programs do not have any significant effect, while non-concessional programs exert a negative impact on the growth rate. This finding clearly

indicates the importance of making a distinction between program types, and further explains as to why some of the previous studies solely considering non-concessional programs report a negative growth effect. In a broader perspective, this result can be interpreted as non-concessional programs would have a more detrimental effect on economic growth (Balima and Sokolova, 2021).

Finally, we add IMF credits to our baseline model and summarize the result in Column 6. We find a positive effect of IMF credits (as a share of GDP) on economic growth. It seems that a 1 percent increase in IMF credits leads to a 0.18 percent increase in the growth rate. We should note that this positive effect differs from that of some previous studies such as Barro and Lee (2005), Dreher (2006), and Youssef and Zaki (2021). Our results highlight the fact that there exists a remarkable difference between the effects of program participation proxied by the dummy variable and IMF credits, emphasized in some of the previous studies such as Butkiewicz and Yanikkaya (2005). As discussed in Section 2, the size of the liquidity provided by the IMF could matter.

In terms of diagnostics, in most models, probabilities associated with AR2 and Hansen tests are not statistically significant, which indicates the absence of second-order autocorrelation and the use of valid instruments, respectively.

To test for the robustness of our results, we carried out additional regressions. First, we re-estimated our regressions excluding four developed countries (Cyprus, Greece, Iceland, Ireland), and used the data with only developing countries that participate in IMF programs at least once during the sample period. Second, we defined a dummy variable which equals 1, if an IMF program exists for at least five months in a calendar year, 0 otherwise. The results of these alternative specification were largely the same to those presented before.

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged growth rate	0.127** (2.192)	0.135** (2.554)	0.133*** (2.600)	0.136** (2.304)	0.108* (1.905)	0.124** (2.315)
Initial GDP per capita	-0.620 (-0.652)	-0.893 (-1.044)	-0.811 (-0.904)	-0.422 (-0.522)	-0.285 (-0.337)	-2.113 (-1.347)
Fertility	-5.987*** (-4.086)	-5.279*** (-3.860)	-5.361*** (-4.036)	-5.933*** (-4.004)	-5.362*** (-3.889)	-7.068*** (-5.025)
Human capital index	0.568 (0.771)	0.710 (0.942)	0.698 (0.947)	0.477 (0.574)	0.319 (0.462)	1.418 (1.064)
Physical capital stock	-0.405 (-0.507)	-0.151 (-0.199)	-0.223 (-0.301)	-0.296 (-0.449)	-0.230 (-0.284)	0.0940 (0.0799)
Openness	-0.302 (-0.226)	-0.465 (-0.383)	-0.488 (-0.412)	-0.358 (-0.270)	-0.596 (-0.546)	-0.437 (-0.323)
Rule of law	0.0917 (0.137)	0.338 (0.514)	0.333 (0.491)	0.0103 (0.0171)	0.0956 (0.170)	2.636** (2.555)
Inflation	-4.045*** (-2.974)	-4.187*** (-3.197)	-3.996*** (-2.712)	-4.180*** (-2.871)	-4.165*** (-2.625)	-3.335*** (-3.411)
Government consumption	-30.19*** (-3.808)	-31.21*** (-4.639)	-30.79*** (-4.532)	-27.36*** (-3.409)	-29.79*** (-3.765)	-25.97** (-2.242)
Program participation		0.241 (0.596)				
Conditionality			0.247 (0.478)			
Concessional program				1.094 (1.455)		
Non-concessional program					-1.192** (-2.517)	
IMF credit as a share of GDP						0.177** (2.061)
Observations	604	604	604	604	604	470
Number of countries	110	110	110	110	110	86
Number of instruments	103	114	114	114	114	74
AR2 test	0.136	0.127	0.121	0.143	0.125	0.361
Hansen test	0.317	0.409	0.437	0.508	0.474	0.244

Table 2: Effects of IMF Programs on Growth Rates

The table shows two-step system GMM results. Growth rates are the dependent variable. Initial GDP per capita implies GDP per capita in the initial year of each 5-year time period. Five-year averages of variables in IMF program countries are included in estimations. The first nine variables are in logs. The numbers in parentheses indicate z-statistics. ***, **, and * indicate 1, 5, and 10 percent significance level. AR2 is the probability of second-order serial correlation. Hansen indicates the probability associated with the test of overidentification restrictions.

5 Conclusion

Using data about 110 countries and system GMM estimations, we examine the effects of IMF programs on economic growth. Our empirical results indicate that IMF program participation and general conditionality do not have any significant growth effect. On the other hand, we find a difference between the growth effects of program types. Concessional programs do not have any significant effect, while non-concessional programs exert a negative impact. Moreover, it seems that contrary to the program participation measure, IMF credits positively and significantly affect the growth rate.

We would like to highlight some of the policy implications of this study. It seems that there is a difference between measuring the IMF involvement with the program participation dummy and the size of the IMF credit (as a share of GDP). Our results indicate that the size of the IMF credit matters. Finally, it would be a worthwhile effort, if future studies focus on the transmission mechanism between compliance with program conditions and economic growth rate and on compliance with specific conditions attached to IMF programs rather than overall conditionality.

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