

Hajro, Zlata; Joyce, Joseph P.

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A True Test: Do IMF Programs Hurt the Poor?

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WORKING PAPER

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**Department of Economics
Wellesley College
Wellesley, Massachusetts 02481-8203**

A TRUE TEST: DO IMF PROGRAMS HURT THE POOR?

By

Zlata Hajro and Joseph P. Joyce*

Department of Economics

Wellesley College

Wellesley, MA 02481

781-283-2160

jjjoyce@wellesley.edu

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Abstract

This paper uses a fixed-effects model to analyze the effect of IMF programs on poverty with data from 82 countries during 1985 to 2000. Two indicators of poverty, infant mortality rates and the Human Development Index (HDI), are utilized, and the effects of the IMF's concessionary and nonconcessionary programs are investigated, as well as economic and governance factors. The results show that the IMF's programs have no significant direct impact on poverty. Growth and good governance, however, both have significant impacts, lowering infant mortality and increasing the HDI. The Fund's concessionary programs increase the impact of growth on lowering infant mortality, while the nonconcessionary programs lower the impact of growth on the HDI. We also test for the impact of IMF programs on growth. Concessionary programs have a significant contemporaneous positive effect, while nonconcessionary programs have a significant lagged positive effect.

JEL: F33, O19

Key words: IMF programs; poverty; openness; governance

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A TRUE TEST: DO IMF PROGRAMS HURT THE POOR?

“Where a great proportion of the people are suffered to languish in helpless misery,
that country must be ill policed, and wretchedly governed;
a decent provision for the poor is the true test of civilization.”

--Samuel Johnson, 1791

“...once a country was in crisis, IMF funds and programs not only failed to stabilize the situation
but in many cases actually made things worse, especially for the poor.”

--Joseph Stiglitz, 2002

1. Introduction

During the Bretton Woods era, the International Monetary Fund provided short-term credit to its members for the purpose of restoring external sector equilibrium. In the 1980s, as the IMF's lending became concentrated on developing nations, growth also became a goal of the Fund's lending programs. The IMF initiated special lending facilities at concessionary terms with new policies to encourage growth in low-income countries.

In 1999, the IMF's concessionary facility was renamed the Poverty Reduction and Growth Facility. The new name reflected an emphasis by the Fund on poverty reduction as well as growth as objectives for the programs financed by this special facility. The prominence of poverty as an objective represents a departure for the IMF from its traditional emphasis on macroeconomic goals and policies. However, little is known about the impact of Fund-supported programs on poverty, which limits the IMF's ability to design new programs that could best achieve this target. Critics of the Fund have criticized it for devising contractionary policies that impose unjustifiable burdens on the poor.¹

This paper provides an empirical analysis of the impact of the IMF's concessionary and nonconcessionary programs on poverty during the period of 1985 to 2000. Two indicators of

poverty, infant mortality rates and the Human Development Index (HDI), are utilized, and the direct effect of the Fund's programs, as well as macroeconomic and governance factors that have been the focus of IMF programs, are investigated. Evidence of the impact of the IMF's programs on growth is also presented. A fixed-effects model, which avoids many of the problems associated with other econometric methods, is utilized to assess the effect of the IMF's programs on poverty and growth.

The next section provides a description of the IMF's lending arrangements and a review of the literature on the IMF's programs and poverty. This is followed by an explanation of the methodology and data used in the analysis. Section 4 presents the results of the empirical analysis for poverty, while Section 5 deals with the results for growth. The last section summarizes our conclusions and provides some implications for future policies and research.

2. IMF and Poverty Reduction

2.1 IMF Programs

The IMF has several administrative arrangements, known as facilities, which are utilized to make credit available to member nations. The Stand-By Arrangement (SBA) is the oldest and most widely used facility, and these programs usually last one to two years. The Extended Fund Facility (EFF) is designed for countries with external deficits due to structural problems, and offers assistance over a medium-term period (three years).

The actual provision of credit is tied to the implementation of policies that are specified in a "Letter of Intent." When the SBA was instituted during the 1950s, the goal of these policies was to reestablish internal and external balance. The stabilization policies specified in the Letters included both expenditure-reduction policies (contractionary monetary and fiscal policies) as

well as expenditure-switching measures (devaluations). Evaluations of the efficacy of IMF programs were based on changes in inflation rates and the balance of payments.

IMF credit was extended to member countries of all income classes during the Fund's first decades. In the 1980s, however, the industrial economies were able to access private capital flows, and the IMF came to deal exclusively with developing economies. These countries were as concerned with long-term growth as they were with short-run stabilization, and criticized the Fund's preoccupation with the latter.

In 1986, the IMF established the Structural Adjustment Facility (SAF) to provide resources over a three-year period to low-income countries for the purpose of facilitating growth. It was succeeded by the Enhanced Structural Adjustment Facility (ESAF) in 1989. The interest rate on the loans was 0.5 percent, and repayments were to be made after a five year period.

These programs included structural measures to foster growth through increased efficiency. The policies were designed to remove distortions in the allocation of resources, and included the elimination of trade barriers, deregulation of the financial sector and reform of the public sector, including privatization.² Structural adjustment provisions also began to appear in the non-concessionary programs.

The ESAF was renamed the Poverty Reduction and Growth Facility (PRGF) in 1999 to demonstrate a new emphasis on reducing poverty. The facility's two goals were seen as consistent, since persistent poverty can hamper growth.³ There was also a change in the design and planning of the program. An evaluation by the IMF of ESAF programs (IMF 1997a) found that many programs were interrupted and abandoned due to a lack of government commitment to the program. Under the new facility, Poverty Reduction Strategy Papers (PRSPs) are prepared with the collaboration of all sectors of society in order to raise the level of domestic involvement

with the program and enhance its credibility. The Fund and the World Bank review the PRSPs, and use them as the basis of new loans.

2.2 IMF Program Policies and Poverty

The stabilization and structural adjustment policies specified in IMF programs can affect the poor through a wide range of channels. Cashin et al. (2001) present a review of the linkages between macroeconomic policies and poverty. Garuda (2000) provides a summary of the impact of the main elements present in most IMF programs: currency devaluation; a reduction in the fiscal deficit; a change in the economy's growth rate; and a change in the inflation rate.

An increase in the relative price of tradable goods vis-à-vis nontradable goods benefits those whose income is based on exports, which in developing economies often includes rural farmers. On the other hand, those who pay the higher relative price, such as urban consumers, and those who produce nontraded goods, are disadvantaged. The net impact of a currency devaluation on the poor, therefore, is *a priori* ambiguous.

A contractionary fiscal policy lowers domestic absorption and in the short-run the level of economic activity may drop. In addition, a decrease in the government's budget may include reductions in social programs, such as public health services. However, Alesina (1998) has pointed out that the contractionary effects of fiscal adjustment may be offset by gains in the credibility of the government and consequently lower real interest rates. He also demonstrates that fiscal cutbacks in many countries often fall mainly on public investment rather than social spending; moreover, social expenditures are targeted towards the middle classes, who are better equipped than the poor at forming vocal interest groups to protect their interests.

An increase in the economy's real growth rate indirectly benefits the poor if the distribution of income does not significantly worsen at the same time. Even an increase in the aggregate growth rate, however, may have negative consequences for those in sectors adversely affected by the program's measures. The increase in jobs in the sectors that expand and the accompanying decline in poverty may require time to be realized.

IMF programs often seek to lower the inflation rate, and there is evidence that a reduction in inflation is accompanied by a decline in poverty.⁴ The real minimum wage is strengthened as a consequence of the fall in inflation. Moreover, the poor are generally less able to make adjustments to changes in the inflation rate, and therefore benefit from its slowdown.

A review of the impact on poverty of all possible structural measures is beyond the scope of this paper. However, there are several relevant to the empirical analysis presented in this paper. Berg and Krueger (2003) report that the weight of evidence supports the proposition that trade openness reduces poverty indirectly through its effect on growth. They also suggest that trade reform may lead to the implementation of other policies that further reduces poverty.

Structural policies have also come to include the quality of governance. Inferior administration and corruption are likely to impede the allocation of funds into socially desirable projects such as health care and education. The IMF as well as the World Bank has incorporated measures to improve the quality of governance into their programs.

2.3 Assessments of Impact of IMF Programs

While the assessment of the impact of IMF programs has been an active area of research, most of this work has focused on the effects of Fund programs on the balance of payments, growth and inflation. There is some consensus that the policies associated with IMF programs

benefit the balance of payments and have a weak effect on inflation; however, there is little agreement regarding the impact on growth.⁵ There have been fewer studies of the effect that these programs have on the poor.

Johnson and Salop (1980) presented an analysis of the distributional effects of the policies associated with Fund programs in four countries. They pointed out that stabilization programs will necessarily have distributional effects due to the changes in prices and factor returns. The actual impact depends on the structure of the economy, including the relative size of the rural and urban sectors. Moreover, domestic political considerations have a significant influence over where the brunt of the adjustment occurs.

Heller et al. (1988) studied the impact of SBA and EFF programs that were initiated in 1983 in seven developing countries. They pointed out that the poor benefit in the long-run from stabilization measures. However, they also found that the policies associated with these programs had adverse short-run effects, such as the lower prices received by the producers of nontradable goods and cuts in health and education expenditures. The latter could be offset through supply-side policies and compensatory measures.

Schadler et al. (1993) reviewed the experience of 19 countries that entered ESAF programs between 1986 and mid-1992, and reported positive results as measured on a range of criteria. They pointed out that the most important outcome of these programs for the poor were rising GDP growth rates and falling inflation. The authors also claimed that specific efforts to improve the situation of the poor through social programs, public works employment and transfer payments were successful, albeit modest in scale.⁶

Another study of the ESAF programs was done by the Fund in 1997 (IMF 1997a). This report was based on a data base of 36 countries that had begun ESAF programs by the end of

1994. While the report's authors reported progress had been made in implementing stabilization and reform measures, the overall performance record was uneven. This report did not specifically deal with the conditions of the poor in these countries.

The ESAF programs were also studied by an external group of evaluators (IMF (1998)). While the report found no overall deterioration in the situation of the poor as a result of ESAF program, the authors reported that there were subgroups of the poor that did not share in the benefits of growth.⁷ Two of these evaluators, Collier and Gunning (1999), expanded on some of the points raised in that report. They pointed out the quantity of social services provided to the poor could decline as a result of a rise in their relative price, as well as a change in their share of government expenditures or the amount of government spending.

Garuda (2000) used data on 58 programs in 39 countries from 1975-91 to analyze the impact of IMF programs on Gini coefficients, the income share of the poorest quintile and the average income of the poorest quintile. He computed the relative changes in these indicators between program and nonprogram countries, which were grouped by their economic conditions. He found that the income share of the poorest quintile in those program countries with the most severe pre-program economic conditions fell relative to the shares in countries in similar economic circumstances that did not adopt IMF programs. The differences over four and five year horizons were statistically significant at the 10 percent level. However, the actual change in average income for this quintile was higher in the program group of countries than the non-program group, although the difference was not statistically significant.

Easterly (2003) investigated the impact of both IMF and World Bank lending on the population below a poverty line of \$2 per day, using data for 65 developing countries during the period of 1990-98. He reported that there was no direct impact, but that the presence of these

programs lowered the response of the poor to changes in national income. The poor did not benefit as much as other sectors of the economy during periods of growth, but they suffered less in periods of decline. He attributed this result to the dependence of the poor on the informal sector, which is not as affected as the formal sector by structural adjustment policies.

Pastor (1987) investigated a related issue, the impact of IMF programs on labor's share of income in 18 Latin American countries during 1965-81. He compared the income share of labor in the year before a program with that observed during the program, and reported a decline in income share. Vreeland (2001) also studied the response of the labor share of income to IMF programs, with observations from 110 countries during the period of 1961-93. His results confirmed those of Pastor, i.e., labor's share of income declined during a period when a Fund program is implemented.

3. Methodology and Data

3.1 Methodology

Studies that seek to assess the impact of IMF programs must deal with the issue of selection bias. Goldstein and Montiel (1986) pointed out that program participation is not decided by a random process, but rather through self-selection by countries that choose to enter these programs. Consequently, economic performance in the program countries will reflect their characteristics as well as the impact of the program, and this can distort a comparison with performance in nonprogram countries. A more accurate comparison would compare economic performance in the program countries with what would have occurred in the absence of a program, an unobserved outcome known as the "counterfactual."

Goldstein and Montiel (1986) also introduced an econometric tool to deal with this problem: the Generalized Evaluation Estimator (GEE). The technique assumes the existence of a stable policy reaction function that links indicators of macroeconomic policies, such as changes in domestic credit, to the gap between the goals of the authorities, such as target levels of national income, and their actual values. This allows a specification of the policies that would have been observed in the absence of an IMF program. A dummy variable indicating the presence of a Fund program picks up any divergence between the predicted and historical values of the goal variables. The GEE technique has been widely used, most recently by Hutchison (2003) and Hutchison and Noy (2003).

The properties of the GEE have been thoroughly investigated by Dicks-Mireaux, Mecagni and Schadler (2000) in their study of the impact of ESAF programs. In their empirical analysis they found that a number of the assumptions underlying the GEE did not stand up under scrutiny. For example, they showed that the type of policy reaction function that the GEE incorporates does not perform well in explaining actual changes in policy variables. This raises doubts about the overall results of this estimation technique in evaluating Fund programs.

Recently, a number of other econometric methods have been used for the purpose of program evaluation. Vreeland (2001), for example, used the two-stage Heckman (1979) technique in his analysis of the impact of IMF programs on labor's share of income. In the first stage, the determinants of the adoption of a program are specified and tested; these results are then used to control for selection bias in the analysis of the outcome of the program. One limitation of this method is the need to use variables that influence the adoption of a program but not its outcome. Since the economic and political variables that induce a country to enter a

program will most likely affect the outcome as well, the use of this method may not be appropriate in this context.

Easterly (2003) utilized the two-stages least squares (2SLS) method in his study of the impact of World Bank and IMF programs on poverty, with geographic dummies and other variables as instruments. This method is also dependent on the choice of instruments that adequately explain program selection but not outcomes. Garuda (2000) used propensity scores as a tool to pair program countries with non-program countries with similar characteristics and compare outcomes in the two groups.

Our study uses another method suitable for dealing with selection bias in panel data that has been widely used in other fields which deal with policy analysis: the fixed-effects estimator. This estimation method assumes that there exist time-invariant and country-specific unobservable characteristics that differentiate program from non-program countries. The observation for outcome y in the i th country in period t is a function of the unobservable time invariant factors α_i , a vector of observed time-varying factors x_{it} and their parameters β , and an error ε_{it} :

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it} \quad (1)$$

Averaging the observations on each country over the time periods yields:

$$\bar{y}_i = \alpha_i + \beta \bar{x}_i + \bar{\varepsilon}_i \quad (2)$$

where bars over variables denotes averages. If we subtract equation 2 from equation 1 we obtain:

$$y_{it} - \bar{y}_i = \beta(x_{it} - \bar{x}_i) + (\varepsilon_{it} - \bar{\varepsilon}_i) \quad (3)$$

Estimation of equation 3 with OLS provides the least squares estimator.⁸ We included time dummies to account for time-specific effects.

3.2 Data

This study uses panel data for 82 developing countries during the period 1985 to 2000. This period includes the years when the IMF had both concessionary and nonconcessionary lending facilities. The sample includes both program and non-program years, as well as countries with no programs. The Appendix lists the countries used in the study.

Direct measurements of poverty, such as the head-count index (the proportion of the population line below a poverty reference line) or the poverty gap ratio (the ratio of the average of income needed to eliminate poverty divided by mean income) are not available for many of the program countries. Data on income shares were also not available for many of the countries in our sample.

Therefore, we used two alternative measurements: infant mortality (MORT) and the Human Development Index (HDI) of the United Nations Development Project. The infant mortality rate, measured on an annual basis, is one of the most reliably measured social indicators. The HDI is an index, measured on a scale of zero to one at five-year intervals that is based on life expectancy at birth, the adult literacy rate, primary, secondary and tertiary school enrolments, and per capita income.⁹ Table 1 reports the cross-country averages of these two poverty measures over five-year intervals. The infant mortality rate shows a marked decline while there is a smaller decrease in the HDI. The standard deviations of both variables are quite large due to the enormous variation across countries.

Data on the dates of IMF programs comes from the IMF's *Annual Reports*. Precautionary programs and programs that were cancelled before their termination date were excluded from the sample. Precautionary programs are not designed to be enacted, and if they are initiated, the government may not draw down all the credit. The macroeconomic data

(growth, openness and inflation) are taken from the *World Development Indicators*. The data on governance (bureaucratic quality, corruption) are taken from the IRIS-3 file of the *International Country Risk Guide (ICRG)*. The definitions of the variables and their sources also appear in the Appendix.

4. Empirical Results: Poverty

The results of the estimations using infant mortality as the dependent variable appear in Table 2. We differentiate between the impact of the IMF's concessional programs (SAF, ESAF, PRGF) and that of nonconcessional programs (SBA, EFF) in order to allow for the programs to have separate effects. We also used several different indicators of the incidence of Fund programs.

First, we used dummy variables for the concessional (PROGC) and nonconcessional (PROGNC) programs during the years when they were in place. These results are reported in Equation 2.1, and show no statistically significant effect of either type of program upon infant mortality. Equation 2.2 adds growth (GROW), defined as the annual percentage growth of GDP per capita, as a regressor. The IMF's concessional programs have historically sought to foster growth. Growth has a negative impact on infant mortality and is significant at the one percent level, while the adjusted R^2 rises from 0.52 in Equation 2.1 to 0.56 in Equation 2.2. A one percentage point rise in growth lowers the infant mortality rate by approximately .2 of a percentage. Our result is consistent with evidence presented by Pritchett and Summers (1995) and Easterly (1999), who also found that a rise in income leads to a decline in infant mortality.¹⁰

We next interacted the two program variables with growth (GRPRC, GRPRNC), and the results appear in Equation 2.3. The interactive term for growth and the concessional programs

is negative and significant, while growth is significant at the ten percent level. Growth which occurs under a Fund program has an additional impact on infant mortality, .4 of a percentage point, and may reflect the safety net provisions of concessionary programs.¹¹ However, the interaction term for the nonconcessionary programs is not significant. Concessionary programs, therefore, do have a different impact on the poor than do other IMF lending programs, and merit separate consideration. This result differs from Easterly's (2003) finding that World Bank and IMF programs lowered the response of poverty to growth.

The IMF program indicator variables were then lagged by one year (PROGC1, PROGNC1) to allow for a delayed response in the mortality rate to the programs. The results for Equation 2.4 show no statistically significant impact from the lagged program variables, while growth continues to be significant. We interacted the lagged program variables with lagged growth, but the results were not significant. We also used a three-year lag, and again found no statistically significant impact.¹²

We investigated the impact of a program over time as it is implemented. In Equation 2.5 we replaced the binary program variables with trends that took the value of one in the first year of a program, two in the second, etc. (DURC, DURNC). Again there are no statistical significant effects from the programs, while growth continues to be significant.

We then examined whether indicators of the extent of implementation of a program would yield different results from dummy or trend variables. We used the ratio of the actual amount of credit disbursed in a program vis-à-vis the original amount committed as a proxy for the degree of program completion (COMPC, COMPNC). Garuda (2000) also utilized this measure in his analysis of the distributional effects of IMF programs, and it has been used in

analyses of program implementation.¹³ The results of Equation 2.6 do not show any statistically significant response in infant mortality to this measure, while growth retained its significance.

Once we had established that growth lowered the rate of infant mortality, we investigated the impact of two other macroeconomic variables, trade openness and inflation, which have also frequently been the focus of Fund-supported programs. Trade (TRAD1) is the sum of exports and imports as a share of GDP, and inflation (LINFL1) is a logarithmic transformation of the change in the consumer price index (logarithm of one plus the change in the price index). The values of both variables in the year prior to a program's inception were utilized. These results appear in Table 3.

The three macroeconomic variables—GROW, TRAD1 and LINFL1—appear simultaneously on the right-hand side of Equation 3.1 with the contemporaneous program variables, and only growth is significant. The significance of the openness and inflation variables does not change when growth is dropped from the estimation, as we show in Equation 3.2. In Equation 3.3, however, when inflation is dropped and growth retained, the trade variable appears with a positive coefficient, which is significant at the ten percent level. When trade is dropped and growth retained with inflation, the latter continues to be insignificant. There is some evidence here that trade may have an independent positive effect on infant mortality, but it is not robust to alternative specifications.¹⁴

We then estimated the effects of the IMF programs and macroeconomic variables on the HDI rescaled by 100, as shown in Table 4. We again differentiated between concessionary programs and non-concessionary programs; the binary variable PROGNC indicates whether a concessionary IMF program had been utilized in the five-year interval, while PROGNC shows

whether a nonconcessionary program took place. The estimated coefficients for these variables in Equation 4.1 have negative coefficients that are not significant.

The average growth rate during the year when the HDI was measured and the preceding four years (GROWAV) is introduced in Equation 4.2. The variable has a positive coefficient that is significant at the one percent level, while the adjusted R^2 rises from .53 to .56. This result is similar to that reported in Table 2 when we added growth. Other studies, such as those of Ravallion (1995), Dollar and Kraay (2002), and Adams (2003) have used other indicators of poverty and also found evidence of a linkage between growth and a reduction in poverty.

We then interacted the growth average and the program variables (GRAVCON, GRAVNCON). The coefficient for the interactive term for the nonconcessionary programs is negative and significant, and offsets the positive impact that growth has on the HDI. This result is consistent with Easterly's (2003) finding that World Bank and Fund programs have no direct impact on poverty, but that they do lower the impact of changes in growth rates. Easterly combined all IMF and World Bank programs in his analysis; we show that in the case of IMF programs, this effect is confined to the nonconcessionary programs. Moreover, we saw in Table 2 that concessionary programs have the opposite effect on infant mortality. This distinction is plausible in light of the different goals of the programs. The nonconcessionary programs are developed to stabilize an economy with a balance of payments disequilibrium, while the concessionary programs are focused on structural adjustment and growth.

The five-year average trade openness (TRADAV) and inflation (LINFV) variables are added in Equation 4.4. Trade appears with a positive coefficient that is significant at the five percent level, whereas the coefficient on inflation is not significant. When growth is dropped from the estimation in Equation 4.5, the trade variable is significant again while inflation is not.

When growth is reintroduced in Equation 4.6 and the inflation variable excluded, the trade variable remains significant at the five percent level.¹⁵ These results show that trade does have a direct positive impact on the HDI in addition to any effect that takes place through GDP growth. The difference between the impact of trade on infant mortality and the HDI may be due to the broader coverage of the latter variable.

Berg and Krueger (2003) surveyed the evidence on the linkages between growth and poverty, and found no evidence of a systematic relationship between openness and poverty, beside the effect of openness on growth. However, they suggest that trade liberalization can have spillover effects that benefit the poor. They point out that trade is often linked to reform measures, and Islam and Montenegro (2002) confirm that openness in trade is significantly correlated with measures of institutional quality.

The role of governance in the determination of economic performance has become an important focus of research, and the IMF (1997b) has adopted guidelines that incorporate governance issues into Fund-supported programs. We used two variables from the *International Country Risk Guide*: the quality of bureaucracy and corruption, which are available on an annual basis through 1998. Both are measured on a scale of zero to six. A higher ranking for bureaucracy reflects autonomy from political pressure in governing and providing services to the public. Higher scores for the corruption variable indicate that illegal payments to government officials are not as common as in countries with lower scores. A number of the poorest countries in our sample, such as Benin, Central African Republic, Mauritius, Nepal and Rwanda, do not have ratings, which limits our sample of concessionary programs.

The results for the impact of these variables on infant mortality are reported in Table 5. In Equation 5.1, both variables are added on a lagged basis (BUR1, COR1) to an equation which

includes the two contemporaneous program variables and growth. The coefficient on the bureaucracy variable is negative and significant at the ten percent level, while the corruption variable is also negative but not significant. When the growth variable is dropped, neither governance variable is significant. However, collinearity between these two variables is high, so we drop each in turn. The bureaucracy variable is significant at the one percent level in Equation 5.3, while the corruption variable remains insignificant in equation 5.4.

Chong and Calderón (2000b) also used the *ICRG* data to examine the link between institutional development and poverty, and reported that the quality of bureaucracy (but not corruption) has a negative and robust relationship with poverty. Gupta, Davoodi and Tiongson (2002), however, presented evidence that corruption leads to a significant increase on infant mortality. Burnside and Dollar (2002) demonstrated that foreign aid leads to a decline in infant mortality only if there is effective governmental management. Filmer and Pritchett (1997) found a gap between the potential of public spending to improve health status in developing countries and actual performance, and attributed this disparity in part to inefficient governments. Good governance, therefore, does have a direct impact on infant mortality. A competent government can direct resources to health providers, which will directly improve infant care.

These variables are also used in Table 6 for the HDI. In this case, since the number of observations with concessionary programs fell due to the absence of country risk ratings, we used a single indicator of whether or not a country had an IMF program in the previous five years. The governance variables are averaged over the five-year period (BURAV, CORAV). The results are similar to those reported in Table 5. When growth, bureaucracy and corruption appear on the right-hand side of Equation 6.1, growth and bureaucracy are significant. When growth is excluded as in Equation 6.2, the bureaucracy variable is again significant, as it is when

corruption is excluded in Equation 6.3. On the other hand, corruption is significant at the ten percent level when the bureaucracy variable is excluded in Equation 6.4. The implication is that effective and honest public servants can lower the incidence of poverty.

5. Empirical Results: Growth

We utilized our fixed-effects model to investigate the effect of IMF programs, as well as the macroeconomic and governance variables, on growth itself. These results appear in Table 7.

In Equation 7.1, the contemporaneous program variables were used. The concessionary programs have a positive impact on growth that is significant at the five percent level, while the nonconcessionary programs have a positive impact that is significant at the ten percent level. When the one-year lagged values of these variables are introduced in Equation 7.2, the concessionary programs no longer have a significant impact but the nonconcessionary programs are significant at the five percent level.

One possible reason for the discrepancy in the results may be the difference in the lengths of various programs. The concessionary programs take place over a three-year (and in some cases four-year) period, while the SBAs usually are scheduled for a one-year period. Therefore, the positive impact of the shorter nonconcessionary programs may appear as the program progresses and then continue after the program has ended.

This explanation receives indirect confirmation when the program duration variables are used in Equation 7.3. These results show that the positive impact of the nonconcessionary programs increases each year. These positive effects are absent by three years after the programs take place, as the results of the estimation of equation 7.4 indicate. The completion rates of the programs, which appear in Equation 7.5, show no significant impact on growth.

Our results differ from those of other studies that have found no effect or a negative impact of IMF programs on growth. The discrepancy may be due in part to the distinction we draw between the impact of concessionary and nonconcessionary programs, since most studies only analyze the impact of the Fund's nonconcessionary programs. However, Dicks-Mireaux, Mecagni and Schadler (2000), who used the GEE estimator to investigate the effect of ESAF programs, found that they had a significant positive impact on growth. Garuda (2000) found that the average income of the poorest quintile in his sample rose vis-à-vis nonprogram countries, despite a deterioration in relative income share, which he attributed to a positive growth effect from IMF programs.

In Table 8 we add the macroeconomic and governance variables, while retaining the current concessionary program and lagged nonconcessionary program variables. Both the trade openness and inflation variables are significant with positive and negative signs respectively in Equation 8.1. Our results, therefore, are consistent with those studies that show that increasing openness is associated with higher growth rates,¹⁶ as well as those that demonstrate that inflation lowers growth.¹⁷

The two macroeconomic variables are retained and the two governance variables are added in Equation 8.2. Neither the bureaucracy nor corruption variable is significant. The two macroeconomic variables are dropped from Equation 8.3, but again neither governance variable is significant. The governance variables are then entered separately in Equations 8.4 and 8.5, but neither appears with a significant coefficient.

Our results indicate that neither bureaucratic autonomy nor corruption has a direct, significant impact on growth. These findings are consistent with those reported by Chong and Calderón (2000a), who also used the *ICRG's* corruption and bureaucratic quality variables. They

reported that corruption had no impact on growth, while bureaucratic quality was significant only at the 10% level. They suggest that any impact of these variables on economic growth may require considerable time.

5. Summary

Our results provide a mixed assessment of IMF programs and poverty. On the one hand, we find no support for the charge that IMF programs directly hurt the poor. There is no direct linkage between the incidence of IMF programs and poverty, as measured by infant mortality or the HDI. The Fund's concessionary programs actually increase the impact of growth on poverty, as measured by the incidence of infant mortality.

The IMF also indirectly contributes to lowering poverty through its impact on growth. The Fund's programs lead to increased growth; the timing depends on the type of program. The other variables that are targeted by the IMF, trade openness, macroeconomic stabilization, and good governance, affect poverty as well. Trade liberalization has long been a goal of IMF-supported policies, and the evidence presented here demonstrates that trade openness has both direct and indirect impacts on poverty. The Fund's recently adopted guidelines on governance (IMF 1997b) allow a more comprehensive treatment of such issues, including advocating policies to eliminate the opportunities for corruption.

On the other hand, the impact of growth on poverty as measured by the HDI is diminished when it takes place in the context of the Fund's main lending facilities, the nonconcessionary programs. Moreover, the IMF's concessionary programs have not directly contributed to an improvement in the prospects of the poorest members of society. The IMF

needs to incorporate measures that directly affect the poor if they are to share in the benefits of such programs.

This represents a challenge for the IMF's Poverty Reduction and Growth Facility, which specifically targets the poor.¹⁸ If the PRGF programs are to do a better job in this regard than their SAF and ESAF predecessors, then they must formulate new measures designed specifically for this purpose. Whether the IMF has the technical expertise to devise such policies, and whether the PRGF can achieve its goals, are empirical issues that will undoubtedly be addressed at a later date.

NOTES

¹ The quotations at the beginning of the paper appear in Boswell's *Life of Samuel Johnson* and Stiglitz (2002), p. 15. Similar opinions of the impact of the IMF and World Bank's policies can be found at the web sites of the organizations "50 Years Is Enough" and the "Bretton Woods Project."

² Corbo and Fischer (1995) provide a comprehensive survey of structural adjustment policies.

³ See Bruno, Ravallion and Squire (1998).

⁴ See, for example, Easterly and Fischer (2001).

⁵ For reviews of this literature see Haque and Khan (1998) and Bird (2001).

⁶ See Schadler et al. (1993), p. 40. Killick (1995) criticized the report's evaluation methods.

⁷ IMF (1998), p. 19.

⁸ See Greene (2003), Ch. 13, on the fixed effects model.

⁹ The empirical analysis of the HDI uses the observations from 1990, 1995 and 2000.

¹⁰ We also followed Pritchett and Summers (1996) in instrumenting for growth with the ratio of investment to GDP to account for the possibility of joint causality between mortality and growth. The IV results were similar, indicating that there is a causal relationship from growth to mortality.

¹¹ See Gupta et al. (2000) on public spending for health care in IMF programs.

¹² Results available from authors.

¹³ See, for example, Joyce (2003).

¹⁴ Wei and Wu (2003) reported evidence that trade openness lowered infant mortality. However, the coefficient of the trade openness variable was not significant when year dummies were included in the empirical analysis.

¹⁵ Dropping the trade variable from the equation does not change the significance of the coefficient on inflation.

¹⁶ See, for example, Sachs and Warner (1995), Edwards (1998) and Frankel and Romer (1999). However, Rodríguez and Rodrik (2000) have criticized the methodology and policy implications of such studies. Baldwin (2003) provides a survey of the evidence.

¹⁷ See, for example, Fischer (1993).

¹⁸ For a review of the record of the PRGF to date, see Gupta et al. (2002).

Table 1
Cross-Country Average Values of Poverty Variables over Time

<i>Variable</i>	<i>1985</i>	<i>1990</i>	<i>1995</i>	<i>2000</i>
MORT	81.20 (40.95)	73.05 (42.51)	65.56 (39.50)	59.61 (37.09)
HDI	0.55 (0.16)	0.57 (0.16)	0.58 (0.17)	0.59 (0.17)

Note: Standard deviations in parentheses.

Table 2

Impact of IMF Programs on Infant Mortality

	Eq. 2.1	Eq. 2.2	Eq. 2.3	Eq. 2.4	Eq. 2.5	Eq. 2.6
PROGC	-0.27 (0.98)	-0.07 (0.92)	0.08 (0.92)	-	-	-
PROGNC	-0.52 (0.76)	-0.13 (0.71)	-0.12 (0.72)	-	-	-
GRPRC	-	-	-0.39 (0.18)	-	-	-
GRPRNC	-	-	0.02 (0.14)	-	-	-
PROGC1	-	-	-	0.36 (0.87)	-	-
PROGNC1	-	-	-	-0.02 (0.69)	-	-
DURC	-	-	-	-	-0.02 (0.34)	-
DURNC	-	-	-	-	0.19 (0.41)	-
COMPC	-	-	-	-	-	-0.34 (1.57)
COMPNC	-	-	-	-	-	0.97 (1.04)
GROW	-	-0.19 (0.06)	<i>-0.14</i> (0.08)	-0.15 (0.06)	-0.19 (0.06)	-0.19 (0.06)
R ²	0.52	0.56	0.57	0.53	0.56	0.56
F statistic	37.26	40.54	36.93	31.92	40.56	40.65
Obs	686	668	668	589	668	668

Note: Standard errors in parentheses. Bold indicates significance at 5 percent level; italics indicate significance at 10 percent.

Table 3

Impact of IMF Programs and Macroeconomic Variables on Infant Mortality

	Eq. 3.1	Eq. 3.2	Eq. 3.3	Eq. 3.4
PROGC	-0.02 (0.94)	0.00 (0.95)	-0.09 (0.92)	0.04 (0.94)
PROGNC	-0.52 (0.70)	-0.57 (0.71)	-0.19 (0.72)	-0.53 (0.70)
GROW	-0.18 (0.07)	-	-0.20 (0.07)	-0.17 (0.07)
TRAD1	0.02 (0.02)	0.01 (0.02)	<i>0.04</i> (0.02)	-
LINFL1	0.88 (0.68)	1.08 (0.68)	-	0.93 (0.68)
R ²	0.57	0.57	0.56	0.58
F-statistic	35.60	36.68	37.49	38.40
Obs	629	629	661	634

Note: Standard errors in parentheses. Bold indicates significance at 5 percent level; italics indicate significance at 10 percent.

Table 4

Impact of IMF Programs and Macroeconomic Variables on HDI

	Eq. 4.1	Eq. 4.2	Eq. 4.3	Eq. 4.4	Eq. 4.5	Eq. 4.6
PROGC	-0.38 (0.48)	-0.62 (0.47)	-0.49 (0.45)	-0.73 (0.47)	-0.53 (0.48)	-0.72 (0.47)
PROGNC	-0.24 (0.32)	-0.11 (0.31)	0.25 (0.32)	-0.16 (0.32)	-0.28 (0.32)	-0.17 (0.31)
GRAVCON	-	-	0.15 (0.13)	-	-	-
GRAVNCON	-	-	-0.35 (0.10)	-	-	-
GROWAV	-	0.20 (0.06)	0.31 (0.08)	0.18 (0.06)	-	0.19 (0.06)
TRADAV	-	-	-	0.03 (0.01)	0.03 (0.01)	0.03 (0.01)
LINFLAV	-	-	-	-0.27 (0.33)	-0.37 (0.33)	-
R ²	0.53	0.56	0.61	0.57	0.55	0.58
F-statistic	41.97	36.96	31.08	26.76	28.64	32.06
Obs	230	229	229	225	225	227

Note: Standard errors in parentheses. Bold indicates significance at 5 percent level; italics indicate significance at 10 percent. The HDI data is rescaled by 100.

Table 5

Impact of IMF Programs and Governance Variables on Infant Mortality

	Eq. 5.1	Eq. 5.2	Eq. 5.3	Eq. 5.4
PROGC	-0.58 (1.10)	-0.92 (1.20)	-0.47 (1.10)	-0.46 (1.09)
PROGNC	0.29 (0.77)	-0.35 (0.85)	0.13 (0.78)	0.21 (0.77)
GROW	-0.17 (0.07)	-	-0.19 (0.07)	-0.17 (0.07)
BUR1	<i>-1.34</i> (0.75)	-1.05 (0.78)	-1.44 (0.68)	-
COR1	0.26 (0.62)	0.06 (0.65)	-	-0.19 (0.56)
R ²	0.56	0.49	0.56	0.56
F-statistic	27.98	23.20	30.07	27.78
Obs	502	518	508	504

Note: Standard errors in parentheses. Bold indicates significance at 5 percent level; italics indicate significance at 10 percent.

Table 6

Impact of IMF Programs and Governance Variables on HDI

	Eq. 6.1	Eq. 6.2	Eq. 6.3	Eq. 6.4
PROG	-0.31 (0.36)	-0.43 (0.36)	-0.33 (0.35)	-0.29 (0.37)
GROWAVG	0.15 (0.06)	-	0.15 (0.06)	0.14 (0.06)
BURAVG	1.03 (0.38)	0.82 (0.36)	1.07 (0.32)	-
CORAVG	0.06 (0.32)	0.04 (0.32)	-	<i>0.54</i> (0.27)
R ²	0.63	0.61	0.63	0.61
F-statistic	34.64	38.92	41.88	38.11
Obs	199	200	199	199

Note: Standard errors in parentheses. Bold indicates significance at 5 percent level; italics indicate significance at 10 percent. The HDI is rescaled by 100.

Table 7
Impact of IMF Programs on Growth

	Eq. 7.1	Eq. 7.2	Eq. 7.3	Eq. 7.4	Eq. 7. 5
PROGC	1.32 (0.42)	-	-	-	-
PROGNC	<i>0.61</i> (0.36)	-	-	-	-
PROGC1	-	0.37 (0.43)	-	-	-
PROGNC1	-	0.92 (0.37)	-	-	-
DURC	-	-	0.18 (0.15)	-	-
DURNC	-	-	0.42 (0.22)	-	-
PROGC3	-	-	-	-0.78 (0.48)	-
PROGNC3	-	-	-	0.14 (0.40)	-
COMPC	-	-	-	-	-0.48 (0.68)
COMPNC	-	-	-	-	0.85 (0.55)
R ²	0.03	0.03	0.03	0.03	0.03
F statistic	2.47	2.23	2.05	2.13	1.91
Obs	1277	1198	1277	1039	1277

Note: Standard errors in parentheses. Bold indicates significance at 5 percent level; italics indicate significance at 10 percent.

Table 8

Impact of Economic and Governance Variables on Growth

	Eq. 8.1	Eq. 8.2	Eq. 8.3	Eq. 8.4	Eq. 8.5
PROGC	1.28 (0.44)	1.14 (0.55)	1.60 (0.53)	1.14 (0.55)	1.15 (0.55)
PROGNC1	0.93 (0.37)	0.96 (0.42)	1.03 (0.41)	0.96 (0.42)	0.97 (0.42)
TRAD1	0.03 (0.01)	0.04 (0.02)	-	0.04 (0.02)	0.04 (0.02)
LINFL1	-0.83 (0.33)	-0.81 (0.35)	-	-0.80 (0.35)	-0.80 (0.35)
BUR1	-	-0.22 (0.41)	0.03 (0.40)	-0.31 (0.36)	-
COR1	-	-0.13 (0.33)	-0.20 (0.32)	-	-0.20 (0.29)
R ²	0.05	0.06	0.05	0.06	0.06
F statistic	2.97	2.60	2.36	2.74	2.56
Obs	1130	860	903	860	862

Note: Standard errors in parentheses. Bold indicates significance at 5 percent level; italics indicate significance at 10 percent.

Data

<i>Variable</i>	<i>Definition</i>	<i>Source</i>
BUR1, BURAV	Quality of bureaucracy on 0-6 scale (higher value indicates better quality); Lagged by one year, five year average	IRIS-3 File, <i>International Country Risk Guide</i>
COMPC, COMPNC	Ratio of actual credit disbursed by IMF to committed amount by last year for concessionary, nonconcessionary programs	IMF <i>Annual Reports</i>
COR1, CORAV	Incidence of corruption on 0-6 scale (higher score indicates less corruption); Lagged one month, five year average	IRIS-3 File, <i>International Country Risk Guide</i>
DURC, DURNC	Program trends; take value of one in first year, two in second, three in third	IMF <i>Annual Reports</i>
GROW, GROW1, GROWAV	Percentage growth of GDP per capita; current, lagged by one year, five year average	<i>World Development Indicators, 2002</i>
HDI	Human Development Index on 0-1 scale; higher value indicates higher level of development	UNDP <i>Human Development Report 2002</i>
LINFL1, LINFLAV	Logarithm of one plus percentage change in Cost of Living Index; lagged by one year, five year average	<i>World Development Indicators, 2002</i>
PROGC, PROGNC; PROG1, PROGNC1; PROG3, PROGNC3	Dummy variables for concessionary, nonconcessionary programs; take value of unity if program in place for at least six months; current, lagged by one year, lagged by three years	IMF <i>Annual Reports</i>
MORT	Number of infants dying before reaching age one per 1,000 live births	
TRAD1, TRADAV	Exports and imports/GDP; lagged by one year, five year average	<i>World Development Indicators, 2002</i>

Appendix

Countries

Algeria	Guinea	Pakistan
Argentina	Guinea-Bissau	Panama
Bangladesh	Haiti	Papua new Guinea
Benin	Honduras	Paraguay
Bolivia	Hungary	Peru
Botswana	India	Philippines
Brazil	Indonesia	Poland
Bulgaria	Iran	Rwanda
Burkina Faso	Jamaica	Senegal
Burundi	Jordan	Sierra Leone
Cameroon	Kenya	Somalia
Central African Republic	Korea, Republic of	South Africa
Chad	Lesotho	Sri Lanka
Chile	Liberia	Sudan
Colombia	Madagascar	Syrian Arab Republic
Congo, Dem. Republic of	Malawi	Tanzania
Congo, Republic of	Malaysia	Thailand
Costa Rica	Mali	Togo
Cote d'Ivoire	Mauritania	Trinidad and Tobago
Dominican Republic	Mauritius	Tunisia
Ecuador	Mexico	Turkey
Egypt	Morocco	Uganda
El Salvador	Mozambique	Uruguay
Ethiopia	Namibia	Venezuela
Gabon	Nepal	Zambia
Gambia, The	Nicaragua	Zimbabwe
Ghana	Niger	
Guatemala	Nigeria	

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