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Effects of IMF programs on school enrollment in developing countries

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Abstract

The IMF is one of the most heavily criticized international financial institutions in the world and has been accused of having a negative effect on education. By using multi-level analyses, this paper estimates the effects of IMF supported programs on the growth in school enrollment in developing countries at the district level for girls and boys aged 9-11 and 12-14. Using data on 44 countries, containing 431 districts between 1997-2007, effects of IMF programs are measured in three ways. Effects are estimated for whether or not a country has an IMF program, followed by a comparison between short and long-term programs. The effects of different program characteristics are also estimated. Results indicate that short-term IMF programs have significant positive effects on the growth in school enrollment for girls and boys aged 9-11. These effects are more positive in more rural areas and in less developed regions. Labor market reforms are found to have strong negative significant effects for girls and boys in both age groups, with stronger effects in more urban and more developed districts. Policies to decrease the level of corruption, the level of public debt and increases in net international reserves have positive effects on the growth in schooling, with stronger effects for different interactions.

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1. Introduction

The International Monetary Fund (IMF) provides loans to members in order to shorten the duration and lessen the disequilibrium in the members' balance of payments. The resulting stability is expected to increase growth and per capita income. Since the Fund's resources are limited, the standard loans have a maturity of 3 to 4 years and conditions are attached to them. Originally these conditions were general in the sense that they require the government to devalue the currency and to reduce government deficits. No directives were given with respect to the way the rulers had to reduce expenses or increase taxes. Conditions became more specific at the time an increasing number of less developed countries became borrowers from the Fund. The rulers in these countries cut expenses benefiting the poor, such as expenditure on education and health care, while at the same time other expenses, such as those for military equipment were not reduced. As a reaction Non Governmental Organizations (NGOs) criticized the IMF and plead for an exception of expenditures for sectors such as education and health care from the requirements to reduce the budget deficit.

As a reaction on this critique, in 1997 the IMF has introduced guidelines on social expenditures. According to these guidelines "IMF staff should continue to monitor developments in basic social indicators, such as poverty rates, infant mortality, life expectancy, illiteracy, school enrollment, and access to basic social services. In countries where such indicators are worsening or failing to improve in line with other developing countries, IMF staff should seek World Bank advice, and, if necessary, raise this issue with the authorities" (IMF, 2003, p.55). The Fund should also take these considerations into account when approving the letters of intent, which should promote educational spending and efficiency in the education sector in order to raise school enrollment rates.

Nevertheless, many NGO's and academics, still consider the IMF conditions to be too harsh and to have too many negative effects. Fund programs have been called 'anti-growth', are said to force countries to lower government spending leading to lower public spending on education and health and are suspected to hurt the poor most (Action Aid, 2007; Chossudovsky, 1997; Garuda, 2000). Moreover, the IMF has been accused of 'doing too much'. That is, it not only focuses on its core activities (i.e. macroeconomic and exchange rate policies), but also more and more on structural policy in other areas

such as corporate governance, trade policy, privatization, poverty reduction and the environment (Ilón, 1994; Bird, 1996; Bordo & James, 2000; Feldstein, 1998; Butkiewicz & Yanikkaya, 2005).

Empirical studies on the effects of IMF programs do not help in judging who is right or wrong. The results are ambiguous, whether one makes use of case studies or cross-country regression techniques. Much of this research focuses on the impact of IMF programs on economic growth (see e.g. Atoyan & Conway, 2005; Dreher, 2006 and Easterly, 2005), the inflow of capital and thus the elevation of balance of payments problems (Bird & Rowlands, 2008; Mody & Saravia, 2003), and inflation (Dicks-Mireaux et. al, 2000; Haque & Khan, 1998). The literature is scarce on the effects on education and health care – the focus of much of the critique on the IMF programs. The few papers on this topic also come with different results. Martin & Segura-Obiergo (2004) claim that IMF programs tend to maintain or even increase spending in health care and education measured as either a share of GDP, total expenditures or in real per capita terms. The effect of the IMF program is relatively small and short-lived and particularly significant for countries which are continuing (but not necessarily chronic) clients of the IMF. On the other hand, Nouruddin & Simmons (2006) provide evidence that IMF programs cause a reduction in spending on education and health care. NGOs, such as Action Aid (2007) and Bretton Woods Project (2007), argue that IMF policies led to excessively low wage bill ceilings and promote a decline in public spending on education. There are also a few case studies suggesting that IMF policies led to lower opportunities for schooling and a decrease in public spending in Tanzania and Ghana (Konadu-Agyemang (2000) and Vavrus (2005)). As far as we know, no systematic cross-country investigation of the impact of IMF programs on schooling has been made.

This paper intends to fill this gap. It investigates the effects of IMF programs and their characteristics on the change in school enrollment in 44 developing countries. School enrollment is measured at the district level, which results in 431 districts within these 44 countries. We study the effects for boys and girls separately. Moreover we make a distinction between primary school aged children and those in lower secondary school. This set-up allows us to investigate the gender effects and the effects on primary and secondary education separately. Since these districts are clustered in countries, we apply

a multilevel technique. The dataset includes both countries which signed and those which did not sign an IMF program. Moreover, we have collected data on the conditions included in the letters of intent, in particular whether agreements are made with respect to education and labor market reforms.

We start with an investigation of the effects on school enrollment of IMF programs as such, without making any distinction between the type of program. We find no significant effects. Subsequently we make a distinction between short-term and long-term programs. It appears that long-term programs do not have any effect, whereas short-term programs *enhance* school enrollment at the district level. This result is opposite to that suggested by the IMF's critics. Finally, we ask ourselves whether the type of conditions in the letters of intent matter. Here we distinguish between conditions referring to the stabilization of the economy (public debt reduction, increase or stabilize the level of international monetary reserves, and fighting corruption) and specific conditions, such as labor market reforms, wage bill ceilings and shielding the educational expenditures from budget cuts. We find that conditions referring to the stabilization of the economy enhance school enrollment, whereas the specific conditions reduce school enrollment. In the latter cases negative results are found for all types of measures; labor market reform, wage bill ceilings, and increases in educational spending. This last affect is very surprising and contrary to the expectations of many involved in enhancing the position of the poor in the developing world. The finding that measures aimed at stabilizing the economy have more positive effects for the poor than conditions targeted at a specific goal (such as educational expenditures) is in accordance with the results of Dollar and Kraay (2002), who did not find any effect of public spending on health and education on the income share of the poor. Some weak but positive effects on the income share of the poor were found for smaller government size and stabilization from high inflation. Since in developing countries, governments are known to be corrupt, the smaller government size can stand for anti-corruption measures in our paper.

The setup of the rest of the paper is as follows. In the next section we present the theoretical framework used to distinguish the channels by which IMF programs influence school enrollment. Thereafter, we present the way we have measured the level and change in school enrollment and describe its characteristics across countries. Section 4

discusses the IMF programs and the forms of its conditionality. The motivation and description of the control variables are presented in Section 5. Section 6 is devoted to results, whereas Section 7 concludes.

2. Theoretical Framework

The IMF

A member country (rich or poor) can turn to the IMF for financial assistance when it faces balance of payments problems and cannot find sufficient financing on affordable terms in the capital markets to make its international payments and maintain an appropriate level of reserves. The main objective of IMF loans is to help members to overcome the balance of payments problems, stabilize their economies and restore sustainable economic growth. Both the IMF and the government then agree on a program including policies which are aimed at achieving specific, quantified goals. To make sure member countries implement the specific programs, loans are provided periodically, conditional on the targets and goals met.

The Fund offers several types of loans and conditions attached to them. The Standby Arrangement (SBA) is the standard IMF loan aimed at providing relieve for short-term balance of payments problems. The duration of a SBA is typically between 12 and 18 months and the loan should be repaid within 2,5 to 4 years. If the country is confronted with protracted balance of payments problems it can make use of the Extended Fund Facility (EFF). The typical duration of an EFF-loan is 3 years and the amount obtained should be repaid within 7 years maximum. The conditions attached to an EFF-loan are more severe than those of an SBA and are directed at structural reforms. For an SBA or EFF the country has to pay market-related interest rates and service charges plus a refundable commitment fee.[1]

Besides of these traditional loans the IMF provides concessional loans for low-income countries. Concessional lending services aimed at the long-term were at first

[1] In cases, a surcharge can be levied above a certain threshold. This is to discourage countries from borrowing large amounts (IMF, 2006).

provided by the Structural Adjustment Facility (ESAF), which was replaced in 1999 by the Poverty Reduction and Growth Facility (PRGF). Broad public participation and country ownership are central to the PRGF and are aimed at structurally adjusting the economy by reducing poverty, ensuring macroeconomic stability and adjusting fiscal targets to redirect spending more to the poor. Interest rates are 0.5% and repayments are scheduled after 5-10 years after a 5-year grace period.

The model

Figure 1 summarizes the theoretical framework of this study. We investigate the influence of IMF programs on the growth in educational enrollment of boys and girls. As the figure illustrates, a better education is supposed to lead to economic growth and help the poor to improve their life. Children's educational participation is determined by the supply of education - both private and public - and the demand for education. The supply of public education is determined by governmental policies with regard to the provision of schools, teachers, and user fees. This provision depends upon the financial resources available. The demand for schooling is influenced by characteristics of the child's household and of the labor market. The labor market forms an alternative for schooling and thus can be regarded as an opportunity cost for school enrollment. In many developing countries children – in particular boys – end up in the same occupation as their parents (father). In these situations work is regarded as 'learning by doing' and less value is attached to formal education, in particular secondary schooling.

Figure 1 about here

In order to study the effects of IMF programs on school enrollment of children, we categorize the explanatory factors of school enrollment into three groups: measures aimed at stabilizing the economy (top part of Figure 1), measures to enhance competition and the working of markets and measures which are directly aimed at the educational sector. Because of the critique on the IMF and lack of conclusive empirical evidence in favor of positive IMF effects, we expect IMF programs to have a negative effect on the

growth in school enrollment for girls and boys in both age groups, with more negative effects for girls. We also expect short-term programs –more aimed at stabilizing the economy-, to be less negative than long-term IMF programs, which also include measures to increase market competitiveness and measures aimed directly at the educational sector.

Stabilizing the economy

The first group consists of measures aimed at a reduction or stabilization of the current account deficit, increase or stabilization of net international monetary reserves, reduction or stabilization of inflation, a reduction in corruption and finally measures aimed at a reorganization and stabilization of public finance - such as reduction in budget deficits, government expenditures, public debt, public and social spending, and reorganizing the tax system. Many of these proposals reduce the amount of money available for public and social expenditures and thus for expenses for education (see also Konadu-Agemang, (2000) and Vavrus (2005)). We expect these measures to negatively influence the children's enrollment rates in school (see Table 1). A reform of the tax system is often aimed at a more efficient collection of taxes. It will decrease spending on education as far as these tax reforms reduce disposable income for the children's parents. It will increase educational expenses as the higher tax revenues are being spend on education. On the other hand the increase in taxes reduce income and thus parents' ability for paying educational expenses. Hence the net effect is ambiguous (Table 1).

The measures aimed at stabilizing the socio-economic environment and increasing transparency, such as fighting corruption, and reducing inflation are expected to positively affect the children's chance to go to school. From previous research it is known that in developing countries, corruption often takes the form of buying votes during election periods and appointing relatives and political favorites at several positions in the civil service. Hence the size of government consumption (which includes salaries) is then correlated with corruption. This implies that reducing civil sector employment could act as a form of fighting corruption. In that case, we expect a positive effect in children's school enrollment.

High inflation is a proxy for uncertainty and unstable government policies (see in De Jong 2002 for references). Moreover it tends to lower the share of the bottom quintile and decreases the minimum wage, while increasing poverty (Easterly & Fischer, 2001). These detrimental effects are found if inflation is higher than a threshold. Khan & Senhadji (2001) find a threshold is 11-12% for developing countries. Therefore, lowering or stabilizing inflation rates below 12 percent are expected to have a positive effect on the growth in school enrollment.

Table 1 about here

Increase market competitiveness

The second group consists of measures intended to enhance competition and the working of markets. Examples are: trade liberalization, privatization and labor market reforms. It is believed that in the long run these measures will enhance the country's competitiveness and thus will be favorable for income per capita and thus for school enrollment. During the transition period, however, the negative effects on income and employment often dominate. SAPRIN (2002), for example, finds that privatization has increased unemployment and job insecurity. We hypothesize that the countries concerned are still in this transition period and therefore expect a negative effect of these measures on school enrollment. It should be noted that these measures are relevant in cases where official markets operate. In many regions in developing countries the majority of economic activities is of an informal nature, such as activities in the family business and on the family farm. Then no relation between these measures and educational participation are expected.

Educational sector

The third group concerns measures directly aimed at the educational sector. They include increases in education spending, education sector reforms – decentralization and replacing non-qualified teachers by qualified ones - , wage bill ceilings or reductions and user fees for education. The first two measures are expected to enhance educational

participation as they increase the amount of money available for education or make the system more efficient and bring its quality to a higher level. Moreover, quite often these reforms also contain food programs (such as a free lunch at school) and better transportation systems, which reinforce the expected positive effects. Wage bill ceilings make it more difficult to hire new teachers or to increase teachers' salaries, affecting both the quantity and quality of education (Actionaid, 2007). Since fewer resources are available for teaching we expect a negative influence on school enrollment. User fees make it more expensive for parents to send their children to school and thus are supposed to reduce school enrollment. The expected signs of all these measures are summarized in Table 1.

Other factors

Other factors which have proven to influence school enrollment at the district level are the level of development and the level of urbanization. Higher levels of development (such as better infrastructure, more job opportunities and better health care) increase the quality of living in a district, which in turn affects school enrollment positively (Filmer & Pritchett, 2001). This higher level of development is more likely to be found in urban districts, which often have better road and transport infrastructure, stronger state influence and better educational opportunities (Buchmann & Brakewood, 2000; Fafchamps & Wahba, 2006). Previous research shows that growth in school enrollment at the district level is also expected to depend the average household size, the average number of children under 5 per household, and the average educational level of adults at the district level. (Buchmann & Hannum, 2001, Emerson & Portela Souza, 2008, Pong, 1997).

Control factors at the national level are Gross Domestic Product (GDP) and GDP per capita, inflation, public spending on education, the level of education, the level of corruption, the level of public debt and military spending. Higher levels of GDP and GDP per capita imply that people can spend more and thus are better able to send their children to school. However, as in ordinary growth studies initial GDP values are expected to negatively affect the growth in school enrollment rate due to the so-called 'convergence' hypothesis. Increases in public spending on education as a percentage of GDP will lead to

increases in gross enrollment rates, economic growth, lower poverty headcount and a reduction in child mortality rates (Baldacci, Clements, Gupta, and Cui, 2004; Baldacci, Guin-Siu and De Mello, 2003). Other aspects which might affect school enrollment could be the level of corruption, debt, and military expenditure as a share of GDP. These aspects are expected to have a negative influence on the growth in school enrollment (Schleifer & Vishny, 1993; Ehrlich and Lui, 1999; Johnson, Kaufmann, and Zoido-Lobatón, 1999; Baldacci et. al, 2004; Pattillo, Poirson, and Ricci, 2003; Deger, 1985).

3. Method

Dependent variable

The change in school enrollment forms the dependent variable of this study. Data on school enrollment are obtained from various household surveys.[2] These surveys provide information on the households, such as the number of children in the household, and on its individual members. In this study we use data on the child's age and sex and whether he or she is still in school. In order to study the effects of an IMF program we need data for different moments in time. We therefore restrict our analysis to countries in which household surveys are held more than once. The sampling of each consecutive survey is independent from that of the first. Consequently, we cannot claim that the data are longitudinal at the household level.

However at the district level they are longitudinal. Hence, we study the change in the percentage of children going to school at the district level. The district level data are obtained by aggregating the household level data. The percentage of children in the survey who are going to school is available for the first wave, the second wave and in a few countries even for the third wave.[3] The change in schooling, is calculated as the percentage change in the percentage of children in the district going to school between wave 1 and wave 2, that is $100^* (S_1 - S_2)/S_1$, where S_1 (S_2) is the percentage of children in the district going to school in wave 1 (2) respectively. After checking the data for

[2] The surveys used are the Demographic and Health Surveys (DHS, www.measuredhs.com), International Labor Organization (ILO, www.ilo.org), Integrated Public Use Microdata Series (IPUMS, www.ipums.org), Multiple Indicator Cluster Surveys (MICS, www.childinfo.org), and the Pan Arab Population and Family Health Project (PAPFAM, www.childinfo.org).

[3] Table II. in the Appendix provides information on the years in which the surveys were held.

outliers and special cases, Bolivia, Cote d'Ivoire and Guinea-Bissau are removed from the dataset. Data for Bolivia proved to be unreliable and both Cote d'Ivoire and Guinea-Bissau experienced coups at the time of the surveys which resulted in civil war and large social unrest. Data is used for 44 countries containing 431 districts in the period between 1997-2007.

The explanatory variables are from two levels of aggregation: district-level and national-level. We therefore use multi-level regression models so that explanatory variables at both levels can be included simultaneously and we can study interactions between the two levels (Hox, 2002; Snijders & Bosker, 1999). Analyses are performed separately for boys and girls in two age groups (children aged 9-11 and 12-14), because it is likely that outcomes differ by sex and age. The dichotomy of age groups is chosen because there might be different effects for children who are in primary school (9-11) and children who are in secondary school (12-14) (Huisman & Smits, 2009).

IMF variables

We have collected information of all IMF programs in which countries participated for which we have data on schooling at the district level. This resulted in 73 programs. For all types of programs, the program details are written down in the 'letters of intent' from the Managing Director of the IMF, and can be adapted if needed (IMF, 2006). We have read these letters of intent for all 73 programs included in this research, and categorized the measures suggested. In order to estimate the impact of an IMF program we have created the following variables. First, a dummy which indicates whether (1) or not (0) during the survey interval - the years between the two waves - the country has at least one IMF program. The coefficient of this dummy is regarded as the indicator of the program's effect. The program's influence is expected to depend upon the fraction of the survey interval the program is implemented. We therefore created a second variable which is the percentage of the survey interval during which one or more programs were in place.[4] It is well-known (Baldacci et. al, 2004 and Martin & Segura-Obiergo, 2004) that a program can have persistent effects, so that previous programs can still influence

[4] For example: a country with surveys in 2000 and 2005 which has a program from 2001 until 2005 has a program 80% of the time.

school enrollment rates during the survey interval. In order to take this into account we created a dummy variable measuring whether (1) or not (0) a country had an IMF program which ended five years at most before the first survey was held[5].

The effects of short-term programs might differ from long-term programs. We therefore constructed a dummy variable indicating whether (1) or not (0) a country has a short-term program and another one for whether (1) or not (0) a country has a long-term program during the surveys. Four different categories are made to make a distinction between IMF programs: program vs. no program, short-term vs. long-term, program type (SBA, EFF, ESAF and PRGF) and a set of specific characteristics which are found in all programs. Four different IMF programs are found during the sample period of 1997-2007. However, it became clear that it is very difficult to estimate the effects of these programs separately. In the majority of cases (24 out of 36), countries had several different programs during the survey interval. Typically, a short-term (long-term) program is followed by another short-term (long-term) program. The only exception is Yemen, where a short-term program (EFF) was followed by a long-term program (ESAF). This means it is impossible to estimate the effects of all different program types separately, so we refrained from such an analysis. Except for reductions in social spending and user fees, which are almost absent[6], dummy variables are created for all program characteristics presented in Table 1.

The size of an IMF program might also matter. Therefore, several variables are created yielding the total amount of SDRs (Special Drawing Rights) approved and total amount of SDRs approved per capita. The relative size of Fund programs in calculated by covernting the total amount of SDRs into dollars by multiplying it with the exchange rate at the date of the start of the program and divided by GDP.

On average the number of years between two consecutive waves is 5.4 years. This enables us to study the effect of IMF programs after 3 to 9 years[7]. This a reasonable time frame if we take the results of previous studies into account. Martin & Segura-

[5] Baldacci et. al (2004) find that two-thirds of the direct effects of education spending are found in the first five years, the remaining one third in the next five years. Martin & Segura-Obiergo (2004) show that education spending as a result of the implementation of an IMF program start to increase in the first year, increase further in the second year, with residual effects in the remaining years.

[6] Reductions in social spending were not found at all and user fees were only encountered in 1 case (Turkey).
[7] The minimum number of years is 3, the maximum is 9 years.

Obiergo (2004), for example, show that the effect of an IMF program are largest in the first two years of the program, while there is still a residual effect in the third year, which declines geometrically with 40% a year. Baldacci et. al (2004) find that two-thirds of the direct effects of educational spending are found in the first five years, and the remaining one-third to be realized in the next five years.

Control variables

The level of development at the district level is measured by constructing a wealth index. This index is the mean of the percentage of households in the district that own a tv, car, flush toilet, fridge and have access to electricity and running (tap) water. The level of urbanization at the district level is measured as the percentage of people living in an urban area, ranging from 0 to 100. Next to the average household size and the average number of children under the age of 5 in the district, educational attainment for men and women at the district-level was measured by calculating the percentage of women and men aged 30-49 without any education.

Control factors at the nation level are Gross Domestic Product (GDP) and GDP per capita (in constant $US 2000), inflation (measured as the change in price index), public spending on education as a percentage of GDP, the level of corruption, the level of public debt, military spending as a percentage of GDP and foreign direct investment as net inflows as a percentage of GDP. Corruption is measured by the control for corruption variable constructed as the average of six governance indicators 1996-2008 from the World Bank (www.govindicators.org), which contain information on six indicators[8]. Higher values correspond to better governance and thus less corruption.

The level of debt is calculated by dividing the external debt stocks, public and publicly guaranteed (current US$) by GDP (in constant 2000 $US and current $US) and debt service on external debt, public and publicly guaranteed (current US$).

[8] These governance indicators include measures in the areas of voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption.

4. Results

Table 2 shows that there are large differences in school enrollment *between* countries for boys and girls in both age groups. Striking is that countries with low initial school enrollment rates exhibit larger growth rates than countries with high initial rates, supporting the so-called 'convergence' or 'catching up' hypothesis. This means countries with relatively low starting positions exhibit higher growth in school enrollment rates than countries with relatively high starting positions, so it is easier to 'catch up'. There are also large differences *between* specific regions. Especially African countries show low initial school enrollment rates compared to Latin-American and Caribbean countries, but the growth in school enrollment is higher in these countries. Girls show larger increases in enrollment than boys, which can also be explained by the convergence hypothesis. Countries *with* IMF-programs seem to show larger increases in the growth in school enrollment than countries *without* programs, which could imply positive IMF-effects. This seems to hold for both boys and girls.

Insert table 2 about here

At first sight, one would expect systematic differences in conditions between short-term programs (SBA and EFF) and long-term programs (ESAF and PRGF). However, the SBA's letters of intent also contain far reaching structural policy measures. For several policy measures, Table 1 provides the number of programs (last column) and the percentage of programs (semi last column) containing each of the policy measures distinguished. The table illustrates that the letters of intent contain various types of policy measures ranging from measures aimed at stabilizing the economy and public finance to specific measures targeted at the educational sector. Many measures are found regularly (such as reductions in the budget deficit/ lower government expenditure), others are less frequently included in the list of conditions. Striking is that reductions in social spending are not found at all, user fees on education are only found in one case, namely Turkey,

and wage bill ceilings or reductions are found in 20% of the programs. Surprisingly, in 55% of the programs educational spending was increased or protected from cuts. This might explain countries' policies to allocate more spending towards priority sectors[9]. In some cases (10%), both the government and the IMF agreed to increase the budget deficit and raise government expenditure and in 14% education sector reforms were introduced. The majority of the programs are 'extended' or long-term programs. Data on IMF programs was kindly provided by the IMF. Data, sources and detailed descriptions on the IMF program characteristics can be found in the Appendix in Table III and IV.

Descriptive statistics with respect to IMF variables are presented in Table 1. Using this dataset ranging from 1997-2007, there are 37 countries with IMF programs, and 7 countries without a program, which results in 348 districts with Fund programs and 83 districts without programs (bottom part of Table 2). Out of the 73 programs, 18 of them are short-term and 54 long-term programs. The average length of programs is 3,3 years. In 25 out of 36 countries with a program at the time of the first survey, a new program was started before the second survey was held. On average it took 1,9 years between the end of a program and the start of a new program. Hence, most countries are prolonged users of Fund-supported programs.

Insert table 3 about here

Bivariate analyses

A first impression is obtained by the bivariate coefficients resulting from multilevel regressions, each of which explains school enrollment by one characteristic of an IMF program and an intercept. All IMF programs show positive signs, although only the coefficients of long-term IMF programs on girls' enrollment are significant (Table 3). Significant positive effects are found for the following conditions in the letters of intent: current account deficit reductions, increases in education spending, higher government expenditure, reduction in inflation, labor market reforms, trade liberalization and wage

[9] It is found that governments want to reallocate spending from non-social sectors towards social sectors such as education. It is therefore often found that programs are going to lower overall government expenditure but in the meantime increase social spending.

bill ceilings. The sign of the last three conditions are opposite to the ones expected. Moreover, it seems that the significant effects are larger for girls than for boys.

Multivariate analyses

The bivariate analyses provide a first impression, but do not take into account the possible effects of other variables, such as the initial level of schooling, the level of urbanization and development, household size, etc. To gain more insight into the underlying causes of the growth in schooling, these factors are controlled for in the multivariate analyses. We started the regressions with as many explanatory variables as possible and consecutively dropped the most insignificant one. This process stopped when all explanatory variables had significant effects. Subsequently, we augmented the regression with one of the following variables: the governance indicator, educational spending as a percentage of GDP, the change in consumer price index, and military spending as a percentage of GDP. Except for the change in consumer price index, in each regression the corresponding coefficient appeared to be insignificant. These variables are therefore not included in the final regressions. We made an exception to GDP, although its coefficient is often insignificant, it is included in the regressions. As a robustness check, we also started the process the other way around by running regressions with as little explanatory variables. Adding one variable at a time did not change our results in any way.

(a) The effects of IMF programs in general

Many of the economic factors at the national-level proved to be insignificant, such as spending on education as a percentage of GDP, the governance index, the level of debt as a percentage of GDP and military expenditure as a share of GDP. In addition an IMF program which ended 5 years or less before the first survey was held proved not to have any significant effect. These variables are not included in further regressions.

The first analysis examines the effects of IMF programs in general and uses two models. The first contains the level of urbanization at the district level and an interaction term of this variable with the IMF program. The second model contains the development index at the district level with an interaction term with the IMF program instead of the

level of urbanization. IMF programs tend to have negative effects for boys and girls in both age groups (Table 4, first row). The coefficients are, however, insignificant. As expected, the level of school enrollment at the time of the first survey has a negative influence on the growth in the subsequent period. This confirms the convergence hypothesis.

Insert Table 4 about here

An explanation for the insignificant effects of Fund supported programs might be that these programs include many different characteristics and measures which can have both negative and positive effects on school enrollment, so that the different effects are cancelled out. This might especially be true for long-term programs (ESAF and PRGF) which last longer and can have more characteristics that have a large impact on developing countries' economies. On average short-term programs have almost 6 characteristics per program, whereas long-term programs include almost 9 characteristics per program.

b) Short-term versus long-term IMF programs

To obtain more conclusive results, we study short-term and long-term IMF programs separately. Similar analyses as for all IMF programs are performed here as well and are presented in Table 5 and 6. Significant coefficients are expressed in bold, with asterisks representing the degree of significance. Complete models are shown in the tables.

Table 5 and 6 about here

Table 5 shows that short-term IMF programs have a *positive* effect on the growth in enrollment at the district level for girls in both age groups and boys aged 9-11.

Coefficients of the IMF stabilization program are highly significant and are 7.00 for girls and 6.13 for boys when the urbanization level interaction is included and 4.75 for girls and 4.98 for boys when the development index interaction is included. With the urbanization level interaction, this means districts with short-term IMF-program(s) between survey 1 and 2 show a positive growth in school enrollment for girls which is on average 7.00 percentage points higher than districts without short-term programs. When the development index interaction is included in the model, the growth in enrollment is 4.75 percentage points higher. For boys aged 9-11, these numbers are 6.13 percentage points higher with the urbanization interaction, and 4.98 percentage points higher with the development index interaction

Another important finding is that the urbanization level interaction term turns negative and significant for girls in both age groups, with a coefficient of -0.06 for girls aged 9-11. Hence, the effects of short-term programs are 0.06 percentage points less positive in more urban areas. Since the level of urbanization is measured as a percentage ranging from 0 to 100, this implies the effects of short-term programs are 6 percentage points less positive in the most urban areas. When including the development index interaction, the coefficient is again negative and significant for girls aged 9-11, but larger with a value of -3.02, which confirms that the positive effects are clearly less positive in urban areas. Therefore, more rural areas benefit most from the positive effects of short-term IMF programs. For boys aged 9-11, the interactions are insignificant.

Among the other explanatory variables, the initial level of school enrollment clearly has a negative (significant) effect on the difference in school enrollment as expected. Districts with low initial school enrollment rates show higher growth in schooling, supporting the convergence hypothesis. The level of urbanization and development index show expected signs and are highly significant. The number of children under 5 in the household and the percentage of women without education prove to be negative and significant as expected. The household size has a positive significant effect on the growth in enrollment, which is not expected. The coefficient of national GDP is significant, but has virtually no effect at all on the growth in schooling. The change in price index is positive and significant for girls 9-11 only when the development index is included.

The effects of short-term IMF-programs for girls and boys aged 12-14 are shown in the right hand side of Table 5. When including both the urbanization level and development index interaction terms in the models, the effects of short-term programs are positive and significant for girls, but insignificant for boys. Also both interaction effects are insignificant. It has to be noted that the IMF program coefficient for girls 12-14 is only significant when including the household size and the change in price index. When either the number of children under 5 or the percentage of women without education is added to the regression separately, the IMF program coefficient turns insignificant. Other explanatory variables behave according to expectation, with negative significant coefficients for the number of children under 5; household size is also significant but has a positive effect. Again, GDP is strangely enough of no relevance next to education expenditure as a share of GDP, and the change in price index has a positive significant effect, which is not according to our expectations..

To summarize: short-term IMF programs have positive significant effects on the growth in school enrollment for both girls and boys aged 9-11. Effects are more positive in rural areas and in districts with lower levels of development. These effects are even more positive for girls. For girls and boys aged 12-14, the effects of short-term programs are again positive and significant, but with some conditions. The interactions with the level of urbanization and the level of development prove to be insignificant.

What are the effects of long-term programs? Table 6 shows that long-term IMF programs are negative for children in all age groups. However, all coefficients for the IMF structural program (long-term) are *insignificant*. Interactions with the level of urbanization and development also proved to be insignificant for girls and boys in both age groups.

Table 7 about here

The differences in effects between short-term and long-term programs are remarkable. As we noted before generally countries do not switch between the two types of programs. Hence, the differences in results could be attributed to differences in country characteristics. We therefore investigate in which sense the characteristics of countries with short term programs differ significantly from those with long-term programs. It appears that in countries with short-term programs, the household size and the percentage of men and women without education are significantly lower and the degree of urbanization and the development are significantly higher than in countries with long-term programs (see Table 7). The number of children under five, the national inflation rate and GNP per capita differ less between these two groups of countries.

(c) Effects of IMF program characteristics

Besides of the question whether a program has a positive or negative effect, it is also interesting to know, which measures deliver any effect. That is why we study the effect of various specific conditions included in each program. All measures which proved to be significant are shown in Table 7. Again, analyses are performed for girls and boys with different models and with both the urbanization level and development index interaction terms.[10]

Table 8 about here

It appears that policies aimed at decreasing the level of corruption have significant positive effects on the growth in enrollment for children in the age group 9-11, with more positive effects for girls. These positive effects for both girls and boys are slightly less positive in more urban areas, therefore children in more rural areas benefit most from this measure. An explanation might be that policies to decrease corruption make sure more

[10] Education sector reforms for girls 9-11 are only significant in Model 1. Increases in or stabilise net international reserves is only significant for girls 12-14 in Model 1. Both increases in or stabilise net international reserves and wage bill ceilings are only significant in model 1 for boys 12-14.

money from the original amount can be spend on education, without money being lost to all kinds of corrupt government officials or organizations.

Public debt reduction or stabilization proves to have a very strong significant positive effect on the growth in school enrollment for both girls and boys in both age groups. This positive effect is slightly less positive in more urban and more developed areas for girls 9-11. For boys aged 12-14, the positive effect is slightly less positive in more developed districts. Although lowering or at least stabilizing a country's public debt might bring about some costs in the short-run (for example through cuts in public spending), in the long-run this will definitely be beneficial for the possibilities of sending children to school at the district level.

Increases in or stabilization of net international reserves has a significant positive effect for girls in both age groups and boys aged 9-11. Interaction effects are negative but remain insignificant.

Labor market reforms have very strong negative effects on the growth in school enrollment for both girls and boys in both age groups. For girls aged 9-11, this effect is significantly stronger in more urban areas, but not in more developed districts. For boys aged 12-14, the strong significantly negative effect of labor market reforms are more negative in more urban areas.

Increases in education spending have negative significant effects for girls and boys aged 12-14. For boys, this negative effect is even more negative in more urban areas. This finding is remarkable because many papers find a positive relation between the level of education spending (both in absolute terms and as a share of GDP), such as Baldacci, Clements, Gupta, and Cui (2004).

Another striking finding is that education sector reforms prove to have significant negative effects on the growth in school enrollment for boys in the primary school age group, with stronger effects in more urban and developed districts. An explanation might be that the letters of intent often state that education sectors will be decentralized further to provide local authorities together with other organizations the power to implement different measures.

5. Conclusions

Many NGOs and academics criticize the IMF for many reasons. Much has been written on the effects of IMF programs on key macroeconomic variables, but not on the effects of these programs on education. As far as the authors of this paper know, only a few case studies have been performed, but there has not yet been large scale cross-section research studying the effects of IMF programs on educational participation.

In this paper, the effects of IMF programs on the growth in schooling are estimated using the growth in school enrollment at the district level as the dependent variable. Using a sample of 44 countries, containing 431 districts in total between 1997-2007, the effects of IMF programs are estimated using three distinctions concerning IMF programs. First, the effects of IMF programs in general are estimated, followed by a subdivision of short and long-term programs. The final distinction– and perhaps the most important one when it comes to policy recommendations- is to estimate the effects of specific program characteristics,

Bivariate analyses showed IMF programs have a positive effect on the growth in school enrollment for both boys and girls in both age groups, but these effects are insignificant. Using multi-level regression analyses including different variables at both the district level and at the nation-level, it is found that IMF programs in general have both negative and positive effects depending on the sex of the child, the age group and the model used, but these effects are all *insignificant*.

Significant effects are found, however, if we distinguish between short-term programs and long-term programs. Results indicate that short-term IMF programs have *significant positive* effects on the growth in school enrollment for girls and boys aged 9-11, with more positive effects for girls aged 9-11 in more rural areas and in less developed districts. For children aged 12-14, effects of short-term IMF programs are positive and significant, but only when including a specific combination of explanatory variables. Long-term IMF programs are positive for children aged 9-11, but negative for children aged 12-14. However, all coefficients for the IMF structural program (long-term) are *insignificant*.

Finally, the effects of different program characteristics are estimated. All general (macro) economic conditions prove to have positive effects on the growth in enrollment.

Policies to decrease the level of corruption have a positive effect for girls and boys in the primary school age group. These effects are even more beneficial for children in more rural districts. Reductions in public debt have strong significant positive effects for girls and boys in both age groups, which are less positive in more urban and developed areas for girls aged 9-11. For boys aged 9-11, the effect is only significantly less positive in more developed districts. Increases in net international reserves prove to have significant effects on the growth in schooling for girls in both age groups and for boys aged 9-11, but there are no significant interaction effects.

The more specific program characteristics show less positive results. Labor market reforms have strong negative effects on the growth in school enrollment for girls and boys in both age groups. This effect is even stronger in more urban districts for girls 9-11. This also holds for boys aged 12-14, where the effect is also more negative in districts with a higher level of development. Increases in education spending are found to have negative effects for girls an boys aged 12-14 and education sector reforms have negative effects for boys 9-11, possibly due to decentralization, changing wage structures and replacing teachers with more qualified teachers.

(a) Discussion and policy recommendations

What policy recommendations can be deduced from this study? Our findings that short-term programs have a positive effect on the growth in schooling for children aged 9-11, indicate that having an IMF program can be a good thing. These effects are even more positive in more rural districts. Still, programs include different measures or characteristics that can have both positive and negative effects. It is therefore especially important to see which effect every program characteristic has on the growth in schooling.

It is found that the more general economic program characteristics have a positive effect on the growth in schooling. Results indicate that decreasing the level of corruption has a positive impact for children in the primary age group, especially for those living in more rural areas. This is in line with the results found by Schleifer & Vishny (1993). Anti-corruption policies should be implemented throughout the whole country and have even larger positive effects in more rural areas, also when taking decentralization of the

education system into consideration. Besides adopting clear laws and regulations and well-designed institutions in the fight against corruption, people do still actively have to demand accountability from their governments and institutions (Transparency International, 2004).

Agreements to reduce a country's public debt are beneficial for all children in both age groups. Paying off debt might be a bit painful in the short-run because valuable resources cannot be spend elsewhere, e.g. in the education sector. However, when total debt levels and interest payments fall, more money can be spend in the education sector, leading the growth in enrollment to increase. Agreements to reduce public debt should therefore be complied and encouraged without putting too much pressure on government finances.

Countries agreeing to increase levels of net international reserves are also found to have a higher growth in school enrollment. By increasing the reserves, imports are limited and exports are promoted. Although increasing net international reserves has a purely economic reason, it promotes exports; people working in the export sector can see an increase in their income, therefore parents are more able to pay for their children's education resulting in higher enrollment.

The more specific program characteristics are found to be less positive. Agreements to reform the labor market have negative effects for girls and boys in both age groups with larger negative effects in more urban and more developed districts. Because of these reforms, workers can be laid off more easily or can get paid less when the labor market is made more flexible. Designing and implementing better social protection and providing people with opportunities to educate and train themselves should perhaps be accompanied by labor market reforms, thereby mitigating the effect of workers losing (a part of) their income (Pagés, 2004).

Finally, policies to increase spending on education and to reform the education sector might be revised. Decentralization, changing wage structures, replacing teachers with more qualified teachers and future job opportunities can influence both the quantity and quality of schooling negatively. Parents can then decide it has little use to send their children to school resulting in a decrease in the growth in school enrollment.

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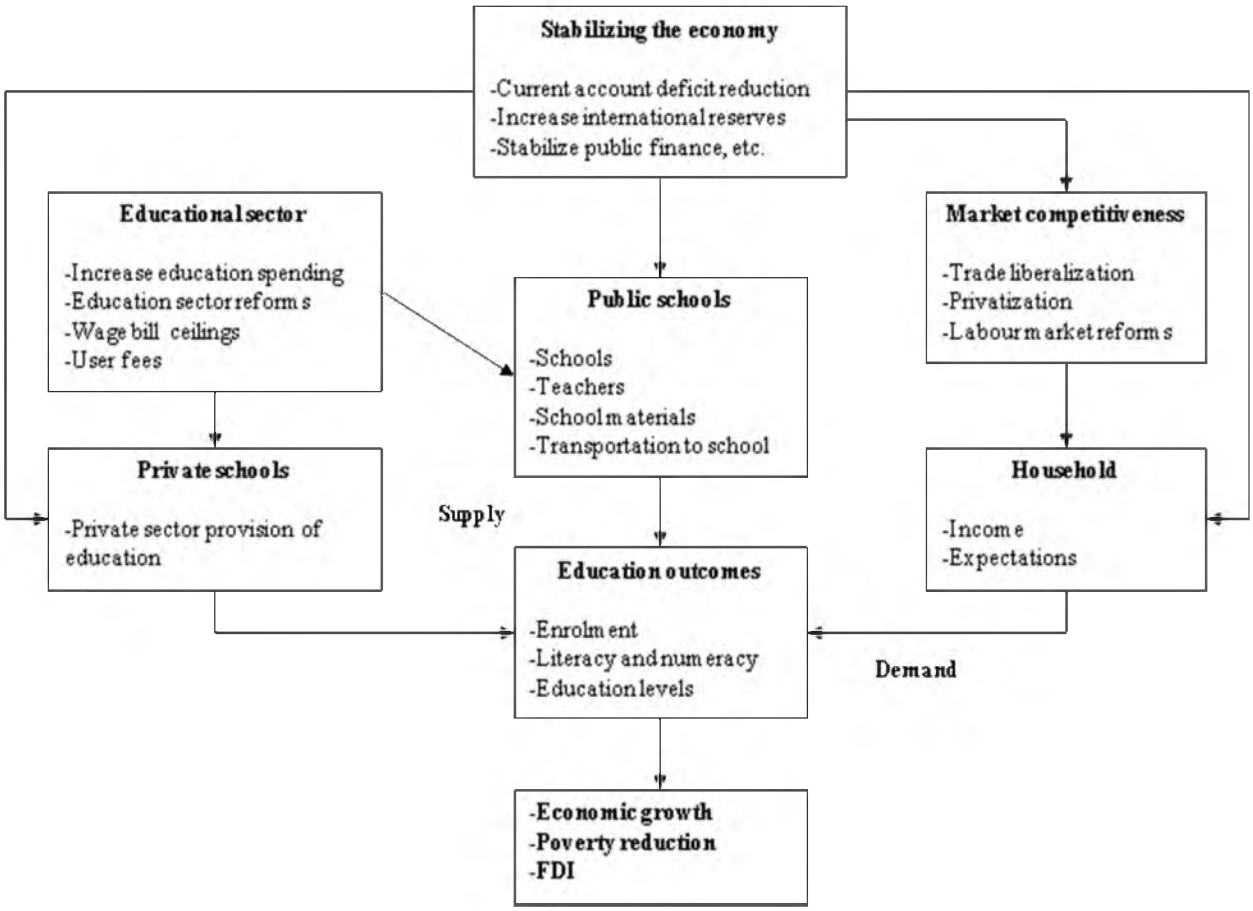
Figure 1 Effects of IMF structural adjustment on education and growth.



The figure used here is partly based on Grootaert (1994), which is in turn based on World Bank (1990a).

Table 1 Expected effects of IMF program characteristics.

IMF program characteristic/measure	Girls	Boys	% of all programs	N
Stabilization				
Current account deficit reduction or stabilization	⇧	⇧	32	23
Increase or stabilize net international reserves	⇧	⇧	29	21
Decrease or stabilize inflation	⇧	⇧	48	35
Decrease or stabilize inflation below 12 percent	⇧	⇧	38	28
Policies to decrease the level of corruption	⇧	⇧	23	16
Reduce budget deficit or lower government expenditure	⇩	⇩	46	32
Increase budget deficit or higher government expenditure	⇧	⇧	8	6
Public debt reduction or stabilization	⇩	⇩	42	31
Reduce social spending	⇩	⇩	0	0
Reduce or stabilize civil sector employment	⇩	⇩	5	4
Tax system reforms	?	?	41	29
Fiscal reforms	?	?	15	10
Market competitiveness				
Trade liberalization	⇩	⇩	31	22
Privatization	⇩	⇩	44	31
Labor market reforms	⇩	⇩	4	3
Educational sector				
Increase in education spending	⇧	⇧	34	24
Education sector reforms	⇧	⇧	10	7
Wage bill ceilings (in social sectors)	⇩	⇩	16	12
User fees on education	⇩	⇩	1	1

Variable		N
Country with IMF program		37
Country had an IMF program before first survey		33
Total number of programs		73
- Short-term		18
- Long-term		55
Average length of programs	- All	3.3
	- EFF	3.3
	- SBA	2.1
	- ESAF	3.5
	- PRGF	3.5

Table 2. Growth in school enrollment by sex, age and program and non-program countries.

	9-11				12-14			
Countries	**Boys**		**Girls**		**Boys**		**Girls**	
IMF program	**T1**	**Growth**	**T1**	**Growth**	**T1**	**Growth**	**T1**	**Growth**
Azerbaijan	97.4	0.2	95.4	1.1	97.0	0.6	94.2	-0.5
Bangladesh	85.9	9.8	89.5	8.2	64.9	12.7	72.3	16.5
Benin	72.2	-1.7	50.9	18.7	65.6	4.4	41.7	22.3
Brazil	94.8	3.1	95.4	3.2	91.2	4.4	92.0	4.0
Burkina Faso	45.6	7.8	34.5	15.4	38.1	6.8	29.2	13.1
Cambodia	78.1	16.2	77.9	24.1	80.2	13.2	63.8	39.2
Cameroon	86.1	7.1	84.7	10.3	85.1	8.3	80.0	7.4
Chad	46.4	7.7	32.7	32.9	48.1	13.0	29.0	69.1
Colombia	94.3	-0.3	96.1	-0.6	84.2	4.3	87.2	4.2
Dominican Republic	95.2	1.9	96.2	1.6	94.0	0.7	95.4	0.9
Ethiopia	49.0	16.0	41.7	25.0	56.4	13.7	45.3	22.6
Ghana	76.9	2.4	76.6	6.2	77.8	10.6	75.4	14.6
Guinea	37.6	85.3	26.3	148.3	40.9	62.4	26.5	119.8
Gambia	93.8	-22.5	90.7	-18.3	91.4	-15.8	83.7	-16.3
Indonesia	95.8	1.1	97.1	0.4	85.0	3.6	85.6	5.4
Kazakhstan	98.7	0.7	99.2	0.5	99.3	0.3	99.0	0.7
Kenya	93.7	-3.8	93.0	-4.8	92.4	-5.1	88.6	-5.0
Kyrgyz Republic	98.5	0.9	99.0	-0.3	96.6	2.0	97.9	1.6
Lesotho	96.3	-8.2	96.6	-0.2	90.4	-9.3	90.5	4.1
Madagascar	66.3	26.3	68.5	24.2	54.0	24.0	50.3	44.6
Malawi	85.3	7.2	87.4	5.7	84.1	6.6	82.9	8.5
Mali	53.5	3.0	42.5	20.2	49.0	15.0	32.0	41.2
Mongolia	83.4	16.0	83.5	16.5	76.6	23.0	86.2	11.5
Niger	42.1	24.3	37.2	32.8	30.8	95.9	26.4	42.9
Nepal	88.1	9.6	71.6	28.1	81.8	11.9	63.5	30.5
Peru	97.6	0.4	96.8	1.9	94.0	2.4	90.5	2.6
Rwanda	66.1	70.3	67.0	72.4	55.9	90.9	54.0	78.2
Senegal	55.5	14.8	47.3	41.2	49.5	23.3	35.6	60.5
Sierra Leone	91.5	-12.0	93.9	-16.5	92.2	-12.3	90.7	-22.6
Tajikistan	97.3	1.9	94.1	3.4	94.8	2.8	88.8	3.1
Tanzania	58.3	44.9	61.5	44.4	71.8	17.0	73.7	12.0
Turkey	93.4	6.0	86.4	13.1	74.1	29.4	49.5	83.1
Uganda	91.2	0.9	91.6	0.7	91.2	-0.1	87.6	1.8
Vietnam	96.5	1.0	96.7	-1.7	90.3	2.1	84.8	4.9
Yemen	86.4	2.7	52.2	33.4	85.4	0.6	40.7	43.6
Zimbabwe	96.3	-2.2	96.1	-0.1	91.3	-6.1	89.6	-0.8
Non IMF-program								
Egypt	98.7	-2.1	98.3	-2.5	93.8	-3.6	93.8	-2.7
Haiti	83.8	-0.8	86.6	-0.9	85.4	0.5	84.7	4.9
India	91.3	-0.8	85.4	3.8	83.0	2.5	74.3	10.8
Namibia	88.6	3.5	89.9	4.5	85.2	6.8	89.9	2.9
South Africa	96.4	-1.5	95.4	0.4	95.2	0.0	93.9	3.4
Swaziland	95.8	-3.9	95.1	-2.6	91.5	-1.2	92.2	-0.2
Syria	97.5	-0.3	95.6	1.7	79.1	10.1	73.8	15.7
Uzbekistan	98.1	2.0	97.2	3.0	96.6	3.3	97.6	2.0

T1 is the year in which the first survey was held.

Table 3. Coefficients of bivariate multilevel regression analyses of IMF programs and their characteristics according to sex and age group with the growth in enrollment as dependent variable.

	Girls		Boys	
Independent variable (all at T1)	**(9-11)**	**(12-14)**	**(9-11)**	**(12-14)**
IMF program in last 5 years before first survey	12.7	13.1	6.4	6.1
IMF program	15.5	17.1	9.4	10.5
Short-term IMF program	1.3	7.8	1.7	2.4
Long-term IMF program	**19.7***	**20.1***	11.7	13.0
Deficit reduction(s)	6.0	11.3	4.2	9.2
Civil sector reductions(s)	-0.6	-1.5	1.4	13.5
Privatization	-1.6	4.0	1.2	6.1
Policies to decrease the level of corruption	13.4	5.1	8.4	-0.3
Tax system reforms	**13.9***	**15.6***	7.9	9.7
Labor market reforms	17.2	**32.0***	6.0	**29.7****
Reduce or stabilize the level of public debt	8.5	7.8	8.6	11.6
Current account deficit reduction or stabilization	**20.3*****	**16.0***	**12.3****	**13.0***
Increase in education spending	**17.7****	**16.7****	**10.8****	**12.3***
Increases in or stabilize net international reserves	2.7	-3.8	6.6	0.9
Trade liberalization	**15.6****	9.2	**11.0****	10.5
Fiscal reforms	-1.4	-5.0	2.5	-0.4
Increases in budget deficit/or higher government expenditure	**24.4****	18.2	8.3	3.7
Wage bill ceilings (in social sector)	**20.1****	**18.0***	9.0	8.7
Education sector reforms	0.1	4.6	-3.4	10.8
Reduce or stabilize inflation	**17.0***	**18.3***	7.5	10.9
Keep inflation below 12 percent	**12.7***	2.5	7.5	7.8
***** P<0.01; ** P<0.05; * P<0.1**				
Number of districts in sample = 431				

T1 is the year in which the first survey was held.

Table 4. Coefficients of all IMF programs and explanatory variables according by sex and age group with interactions with urbanization and development.

Girls[1]				
Variable	**(9-11)**		**(12-14)**	
IMF program	-2.92	-2.03	-4.45	-5.12
Percentage of girls in school in period 1 (T1)	**-1.47*** **	**-1.46*** **	**-1.52*** **	**-1.51*** **
Urbanization level	-7.35		-6.59	
IMF program*Urbanization level	3.63		-1.14	
Development index		-0.46		0.54
IMF program*Development index		-0.06		-1.71
Number of children under 5 in household	**-12.98** **	**-12.13** **	-5.76	-5.40
Percentage of women without education	**-43.0*** **	**-41.53*** **	**-37.96*** **	**-35.75*** **
Household size	1.47	1.37	-0.76	-0.80
Δ CPI	-0.01	0.00	**0.28***	**0.30** **
GDP (constant 2000 $US)	0.00	0.00	0.00	0.00
Boys[2]				
Variable	**(9-11)**		**(12-14)**	
IMF program	-3.28	1.17	-9.62	-3.68
Percentage of boys in school in period 1 (T1)	**-1.43*** **	**-1.43*** **	**-1.83*** **	**-1.84*** **
Urbanization level	-6.40		-8.93	
IMF program*Urbanization level	6.45		15.46	
Development index		-1.50		-2.18
IMF program*Development index		0.58		0.22
Number of children under 5 in household	**-8.47***	**-8.92***	-11.13	**-14.03** **
Percentage of men without education	**-66.45*** **	**-67.56*** **	**-69.84*** **	**-74.89*** **
Household size	**2.03***	**2.09***	0.99	1.37
Δ CPI	-0.06	-0.05	-0.09	-0.08
GDP (constant 2000 $US)	0.00	0.00	0.00	0.00
***** P<0.01; ** P<0.05; * P<0.1**				
Number of districts in sample = 431				

T1 is the year in which the first survey was held.

Table 5. Coefficients of short-term IMF programs and explanatory variables according by sex and age group with interactions with urbanization and development.

Girls[1]				
Variable	**(9-11)**		**(12-14)**	
IMF program (short term)	**6.99*** **	**4.75*** **	**10.12** **	**8.81** **
Percentage of girls in school in period 1 (T1)	**-0.84*** **	**-0.87*** **	**-1.06*** **	**-1.09*** **
Urbanization level	0.04		**0.13** **	
IMF program (short term)*Urbanization level	**-0.06** **		-0.08	
Development index		**1.99** **		**5.56*** **
IMF program (short-term)*Development index		**-3.02** **		-2.98
Number of children under 5 in household	**-3.84***	-2.10		
Percentage of women without education	**-0.10*** **	**-0.11*** **		
Household size	**1.52*** **	**0.99***	**3.25*** **	**3.54*** **
Δ CPI	0.03	**0.06***	**0.44*** **	**0.40*** **
GDP (constant 2000 $US)	0.00	0.00	0.00	0.00
Boys[2]				
Variable	**(9-11)**		**(12-14)**	
IMF program (short term)	**6.13** **	**4.98** **	**4.64***	3.99
Percentage of boys in school in period 1 (T1)	**-0.46*** **	**-0.47*** **	**-0.79*** **	**-0.91*** **
Urbanization level	0.02		0.02	
IMF program (short term)*Urbanization level	-0.03		-0.03	
Development index		0.49		1.24
IMF program (short term)*Development index		-0.65		-1.83
Number of children under 5 in household	**-3.91***	**-3.93***		-2.43
Household size	**1.54** **	**1.53** **		0.94
Δ CPI	0.01	0.01	**0.17*** **	**0.14***
GDP (constant 2000 $US)	0.00	0.00	0.00	0.00
***** P<0.01; ** P<0.05; * P<0.1**				
Number of districts in sample = 209				

T1 is the year in which the first survey was held.

Table 6. Coefficients of long-term IMF programs and explanatory variables according by sex and age group with interactions with urbanization and development.

Girls[1]				
Variable	**(9-11)**		**(12-14)**	
IMF program (long term)	-6.08	-4.09	-8.51	-10.17
Percentage of girls in school in period 1 (T1)	**-1.50*** **	**-1.50*** **	**-1.55*** **	**-1.52*** **
Urbanization level	-9.07		-9.92	
IMF program (long term)*Urbanization level	6.01		-5.25	
Development index		-0.88		-0.75
IMF program (long-term)*Development index		1.63		-2.17
Number of children under 5 in household	**-16.08** **	**-14.36***	-12.07	-11.15
Percentage of women without education	**-46.13*** **	**-68.06*** **	**-39.51*** **	**-36.60*** **
Household size	1.85	1.59	-0.12	-0.26
Δ CPI	-0.08	-0.07	0.10	0.13
GDP (constant 2000 $US)	0.00	0.00	0.00	0.00
Boys[2]				
Variable	**(9-11)**		**(12-14)**	
IMF program (long term)	-7.18	-3.37	-14.39	-9.74
Percentage of boys in school in period 1 (T1)	**-1.56*** **	**-1.46*** **	**-1.94*** **	**-1.96*** **
Urbanization level	-7.40		-11.68	
IMF program (long term)*Urbanization level	7.45		16.83	
Development index		-1.74		-3.08
IMF program (long term)*Development index		1.34		0.07
Number of children under 5 in household	-9.52	-9.66	**-17.332***	**-21.15** **
Percentage of men without education	**-70.14*** **	**-70.40*** **	**-77.80*** **	**-82.63*** **
Household size	2.19	2.19	1.87	2.66
Δ CPI	-0.14	-0.14	-0.13	-0.13
GDP (constant 2000 $US)	0.00	0.00	0.00	0.00
***** P<0.01; ** P<0.05; * P<0.1**				
Number of districts in sample = 306				

T1 is the year in which the first survey was held.

Table 7 Differences between countries with short-term and long-term programs

Variable		tests
	t-test	P-value
Number of children	-2.25	0.0308
under 5	-2.17	0.0528
Household size	-2.83	0.0077
	-4.62	0.0001
Percentage of women	-3.60	0.0010
without education	-6.06	0.0000
Percentage of men	-3.30	0.0023
without education	-5.93	0.0000
Degree of urbanization	6.53	0.0000
	5.49	0.0003
Development index	4.46	0.0001
	4.00	0.0026
Inflation	1.42	0.1661
	0.84	0.4295
GNP per capita	3.92	0.0004
	2.03	0.0821

For each variable the first t-test is the normal t-test, whereas the second is the Satterthwaite-Welch t-test, which corrects for different numbers of observations in the two groups. .

Table 8. Effects of IMF program characteristics by sex and age group, with interaction effects.

IMF program characteristic (a)(b)	Girls						Boys					
	(9-11)	Urb.	Dev.	(12-14)	Urb.	Dev.	(9-11)	Urb.	Dev.	(12-14)	Urb.	Dev.
Policies to decrease the level of corruption (a)	⬆**						⬆*					
Public debt reduction or stabilization (a)	⬆**	⬇*	⬇**	⬆*		⇩	⬆**	⇩	⇩	⬆**	⇩	⬇**
Increase or stabilize net international reserves (a)	⬆*		⇩	⬆*			⬆*		⇩			
Labor market reforms (b)	⬇***		⇧	⬇***		⇩	⬇***	⇧	⇧	⬇***	⬆***	
Increases in education spending (b)				⬇*		⇧				⬇**	⬆*	
Education sector reforms (b)							⬇**	⬆**	⬆*			

(a) = General economic program characteristic.
(b) = Specific program characteristic.

***P<0.01; **P<0.05;*P<0.1. Dark arrows represent significant effects. The larger the arrow, the larger the effect. Transparent arrows represent insignificant effects and are only used for interaction effects. Empty cells mean there is no significant effect in the first place for the specific variable.

APPENDIX

Table I. Data sources

Variable	Source
District	
School enrollment rate	• DHS, MICS2, MICS3, ILO/IPUMS, PNAD, PAPFAM
Percentage of Adults (without education) (finished primary education) (finished secondary education)	• DHS, MICS2, MICS3, ILO/IPUMS, PNAD, PAPFAM • DHS, MICS2, MICS3, ILO/IPUMS, PNAD, PAPFAM • DHS, MICS2, MICS3, ILO/IPUMS, PNAD, PAPFAM
Urbanization	• DHS, MICS2, MICS3, ILO/IPUMS, PNAD, PAPFAM
Household size	• DHS, MICS2, MICS3, ILO/IPUMS, PNAD, PAPFAM
Number of children under 5	
Development Index	• World Bank Aggregate Governance Indicators 1996-2008 • World Development Indicators Online
Nation	
Governance Index	• Ghana 1999: (4,1%) Source: http://earthtrends.wri.org/text/economics-business/variable-643.html. • Vietnam 2008: (5,34%), World Development Indicators Online • Syria 2001: (4,2%). Source: http://globalis.gvu.unu.edu/indicator_detail.cfm?IndicatorID=141&Country=SY.
Education expenditure (% GDP)	• World Development Indicators Online
	• World Development indicators Online
	• World Development Indicators Online • Zimbabwe 1999: Source: Penn World Tables 6.3. • World Development Indicators Online
Inflation (CPI: 2005=100)	• World Development Indicators Online
GDPpc (constant 2000 US$)	• World Development Indicators Online
GDPpc PPP (constant 2005 $ int)	• World Development Indicators Online
Government Expenditure (% GDP)	
Military Expenditure (% GDP)	• World Development Indicators Online
Population, total	• World Development Indicators Online
External Debt Stocks (public and publicly guaranteed (PPG) (DOD, current US$))	• World Development Indicators Online
External Debt Stocks (% GDP)	
Debt service on external debt (% GDP)	• IMF Fund Programs (May 2008) IMF Arrangement Data 1952-Present
FDI, net inflows (% GDP)	• Letters of Intent/Press Releases for specific programs by country (For more details, see Table 3.)
IMF	
All IMF variables	

Table II. Data sources by country.

Country	Surveys	Source	Districts (N)	Type of program	Program years
Azerbaijan	2000/2006	MICS2/DHS	9	PRGF	(2001-2006)
Bangladesh	2004/2007	DHS/MICS3	6	PRGF	(2003-2007)
Benin	2001/2006	DHS	6	PRGF	(2000-2004)
				PRGF	(2005-2009)
Bolivia	1998/2003	DHS	9	ESAF	(1998-2002)
				SBA	(2003-2006)
Brazil	2000/2004	IPUMS/	27	SBA	(1998-2001)
		IPUMS		SBA	(2001-2002)
				SBA	(2002-2005)
Burkina Faso	1998/2003	DHS	5	ESAF	(1996-1999)
				ESAF	(1999-2002)
Cambodia	2000/2005	DHS	17	ESAF	(1999-2003)
Cameroon	1998/2004	DHS	10	ESAF	(1997-2000)
				PRGF	(2000-2004)
Chad	1997/2004	DHS	8	ESAF	(1995-1999)
				PRGF	(2000-2004)
Colombia	2000/2005	DHS	12	EFF	(1999-2002)
				SBA	(2003-2005)
Cote d'Ivoire	1999/2005	DHS	11	ESAF	(1998-2001)
				PRGF	(2002-2005)
Dominican Republic	2002/2007	DHS	9	SBA	(2003-2005)
Egypt				SBA	(2005-2008)
Ethiopia	2003/2008	DHS	3	SBA	(1996-1998)
Gambia, The	2000/2005	DHS	11	PRGF	(2001-2004)
	2000/2006	MICS3	8	ESAF	(1998-2001)
Ghana				PRGF	(2002-2005)
Guinea	2003/2006	DHS	10	PRGF	(2003-2006)
	1999/2005	DHS	5	ESAF	(1997-2001)
Guinea-Bissau				PRGF	(2001-2004)
Haiti	2000/2006	MICS3	9	PRGF	(2000-2003)
India	2000/2005	DHS	9		
Indonesia	1999/2006	DHS	26		
Kazakhstan	2003/2007	MICS2/DHS	25	EFF	(2000-2003)
Kenya	1999/2006	DHS/MICS3	6	EFF	(1999-2002)
	1998/2003	DHS	6	ESAF	(1996-1999)
Kyrgyz Republic				PRGF	(2000-2003)
	1997/2006	DHS/MICS2	4	ESAF	(1994-1998)
				ESAF	(1998-2001)
				PRGF	(2001-2005)
Lesotho				PRGF	(2005-2008)
Madagascar	2000/2004	DHS/MICS2	10	PRGF	(2001-2004)
	1997/2004	DHS/MICS2	6	ESAF	(1996-2000)
Malawi				PRGF	(2001-2005)
	2000/2006	DHS	6	PRGF	(2000-2004)
Mali				PRGF	(2005-2008)
	2001/2006	DHS	9	ESAF	(1999-2003)
Mongolia				PRGF	(2004-2007)
Namibia	2000/2005	MICS3	5	PRGF	(2001-2005)
Nepal	2000/2006	DHS	13		
Niger	2001/2006	DHS	13	PRGF	(2003-2007)
	1998/2006	DHS/MICS2	7	ESAF	(1996-1999)
				PRGF	(2000-2004)
Peru				PRGF	(2005-2008)
	2000/2004	DHS	25	SBA	(2000-2001)
Rwanda				SBA	(2002-2004)
	2000/2005	DHS	8	ESAF	(1998-2002)
Senegal				PRGF	(2002-2006)
	2000/2005	DHS	10	ESAF	(1998-2002)
Sierra Leone				PRGF	(2003-2006)
South Africa	2000/2005	MICS3	4	PRGF	(2001-2005)
Swaziland	1998/2001	DHS			
Syria	2000/2006	MICS2/DHS	4		
	2001/2006	PAPFAM/	14		
Tajikistan		MICS3			
	2000/2005		5	ESAF	(1998-2001)
Tanzania				PRGF	(2002-2006)

	1999/2004	DHS	8	ESAF	(1996-2000)
				ESAF	(2000-2003)
Turkey				PRGF	(2003-2006)
	1998/2003	DHS	12	SBA	(1998-2002)
Uganda				SBA	(2002-2005)
	2001/2006	DHS	4	ESAF	(1997-2001)
Vietnam				PRGF	(2002-2006)
Uzbekistan	2002/2006	DHS	8	PRGF	(2001-2004)
Yemen	2000/2005	DHS/MICS3	5		
	1997/2003	DHS/	14	EFF	(1997-2001)
		PAPFAM		ESAF	(1997-2001)
Yemen					
Zimbabwe	2003/2006		9		
	1999/2006	DHS	10	SBA	(1998-1999)
				SBA	(1999-2000)

Table III. Sources of data on specific IMF programs by country.

Country	Type of program	Program years	Source
Azerbaijan	PRGF	(2001-2006)	Azerbaijan Republic Letter of Intent and Memorandum of Economic and Financial Policies, June 15, 2001. (http://www.imf.org/external/np/loi/2001/aze/01/index.htm).
Bangladesh	PRGF	(2003-2007)	Bangladesh -- Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding, June 4, 2003. (http://www.imf.org/external/country/BGD/index.htm?pn=5).
Benin	PRGF	(2000-2004)	Benin Letter of Intent and Memorandum on Economic and Financial Policies for 2000-03, July 10, 2000. (http://www.imf.org/external/np/loi/2000/ben/01/index.htm).
	PRGF	(2005-2009)	Benin -- Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding, July 21, 2005. (http://www.imf.org/external/np/loi/2005/ben/072105.pdf).
Bolivia	ESAF	(1998-2002)	Bolivia Letter of Intent, August 14, 1998. (http://www.imf.org/external/np/loi/081498.htm).
	SBA	(2003-2006)	Bolivia -- Letter of Intent, Memorandum of Economic Policies, and Technical Memorandum of Understanding, March 21, 2003. (http://www.imf.org/external/np/loi/2003/bol/01/index.htm).
Brazil	SBA	(1998-2001)	Brazil Letter of Intent, November 13, 1998. http://www.imf.org/external/np/loi/111398.htm.
	SBA	(2001-2002)	Brazil Letter of Intent, Memorandum of Economic Policies, and Technical Memorandum of Understanding, August 23, 2001. (http://www.imf.org/external/np/loi/2001/bra/02/index.htm).
	SBA	(2002-2005)	Brazil -- Letter of Intent, Memorandum of Economic Policies, and Technical Memorandum of Understanding, August 29, 2002. (http://www.imf.org/external/np/loi/2002/bra/04/index.htm).
Burkina Faso	ESAF	(1996-1999)	Press Release: IMF Approves Third-Annual Loan for Burkina Faso Under the ESAF, May 31, 1995. (http://www.imf.org/external/np/sec/pr/1995/pr9533.htm).
	ESAF	(1999-2002)	Burkina Faso Letter of Intent, August 2, 1999 (http://www.imf.org/external/np/loi/1999/080299.htm).
Cambodia	ESAF	(1999-2003)	Cambodia Letter of Intent, September 29, 1999. (http://www.imf.org/external/np/loi/1999/093099.htm).
Cameroon	ESAF	(1997-2000)	Press Release: IMF Approves Three-Year ESAF Loan for Cameroon. (http://www.imf.org/external/np/sec/pr/1997/pr9738.htm).
	PRGF	(2000-2004)	Cameroon Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding, December 6, 2000. (http://www.imf.org/external/np/loi/2000/cmr/02/index.htm).
Chad	ESAF	(1995-1999)	Press Release: IMF Approves ESAF Loans for Chad. (http://www.imf.org/external/np/sec/pr/1995/pr9544.htm).
	ESAF	(1999-2002)	Chad Letter of Intent, November 12, 1999. (http://www.imf.org/external/np/loi/1999/111199.htm).
Colombia	PRGF	(2000-2004)	Colombia Letter of Intent, December 3, 1999. (http://www.imf.org/external/np/loi/1999/120399.htm).
	EFF	(1999-2002)	Colombia -- Letter of Intent, Memorandum of Economic Policy, and Technical Memorandum of Understanding, December 2, 2002. (http://www.imf.org/external/np/loi/2002/col/01/index.htm).
Cote d'Ivoire	SBA	(2003-2005)	Press Release: IMF Approves Three-Year Arrangement Under the ESAF for Cote d'Ivoire. (http://www.imf.org/external/np/sec/pr/1998/pr9805.htm).
	ESAF	(1998-2001)	Côte d'Ivoire Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding, March 11, 2002. (http://www.imf.org/external/np/loi/2002/civ/01/index.htm).
Dominican Republic	PRGF	(2002-2005)	Dominican Republic -- Letter of Intent, Memorandum of Economic Policies, and Technical Memorandum of Understanding, August 5, 2003. (http://www.imf.org/external/np/loi/2003/dom/01/index.htm).
	SBA	(2003-2005)	Dominican Republic -- Letter of Intent, Memorandum of Economic and Financial Policies and Technical Memorandum of Understanding, January 14, 2005. (http://www.imf.org/external/np/loi/2005/dom/011405.pdf).
Egypt			
Ethiopia	SBA	(2005-2008)	Ethiopia Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding, January 29, 2001. (http://www.imf.org/external/np/loi/2001/eth/01/index.htm).
			Policy Framework Papers - The Gambia Enhanced Structural Adjustment Facility Policy Framework Paper 1998-2000 – Text. (http://www.imf.org/external/np/pfp/gambia/gam01.htm).
			The Gambia -- Letter of Intent, Memorandum of Economic and Financial

	SBA	(1996-1998)	Policies, Technical Memorandum of Understanding, June 25, 2002.
	PRGF	(2001-2004)	(http://www.imf.org/external/np/loi/2002/gmb/01/index.htm).
			Press Release: IMF Approves US$258 Million PRGF Arrangement for Ghana.
Gambia, The			(http://www.imf.org/external/np/sec/pr/2003/pr0366.htm).
			Guinea Letter of Intent, December 7, 1999.
	ESAF	(1998-2001)	(http://www.imf.org/external/np/loi/1999/120799.htm).
			Guinea Letter of Intent, Memorandum of Economic and Financial Policies, and
			Technical Memorandum of Understanding, March 30, 2001.
	PRGF	(2002-2005)	(http://www.imf.org/external/np/loi/2001/gin/01/index.htm).
			Guinea-Bissau Letter of Intent, Memorandum of Economic and Financial
Ghana			Policies, and Technical Memorandum of Understanding, November 13, 2000.
			(http://www.imf.org/external/np/loi/2000/gnb/01/index.htm).
	PRGF	(2003-2006)	
Guinea			
			Indonesia Letter of Intent, January 20, 2000.
	ESAF	(1997-2001)	(http://www.imf.org/external/np/loi/2000/idn/01/index.htm).
			Kazakhstan Letter of Intent and Memorandum of Economic Policies, November
	PRGF	(2001-2004)	22, 1999.
			(http://www.imf.org/external/np/loi/1999/112299.htm).
Guinea-Bissau			Press Release: IMF Approves Three-Year Loan for Kenya Under the ESAF, April
			26 1996.
	PRGF	(2000-2003)	(http://www.imf.org/external/np/sec/pr/1996/pr9621.htm).
Haiti			Kenya Letter of Intent and Memorandum of Economic and Financial Policies of
India			the Government of Kenya, 2000-03, July 12, 2000.
Indonesia			(http://www.imf.org/external/np/loi/2000/ken/01/index.htm).
			Press Release: IMF Approves Augmented ESAF Loan for the Kyrgyz Republic.
Kazakhstan			(http://www.imf.org/external/np/sec/pr/1995/pr9564.htm).
	EFF	(2000-2003)	Press Release: IMF Approves Third Annual Loan for the Kyrgyz Republic Under
			ESAF.
Kenya	EFF	(1999-2002)	(http://www.imf.org/external/np/sec/pr/1997/pr9714.htm).
			Kyrgyz Republic -- Enhanced Structural Adjustment Facility Policy Framework
			Paper, 1998-2000 – Text.
	ESAF	(1996-1999)	(http://www.imf.org/external/np/pfp/kyrgyz/kyrgyz.htm).
			Kyrgyz Republic Letter of Intent, Memorandum of Economic Policies, and
			Technical Memorandum of Understanding, November 16, 2001.
	PRGF	(2000-2003)	(http://www.imf.org/external/np/loi/2001/kgz/01/index.htm).
Kyrgyz			Kyrgyz Republic -- Letter of Intent, Memorandum of Economic and Financial
Republic			Policies, and Technical Memorandum of Understanding, February 04, 2005.
			(http://www.imf.org/external/np/loi/2005/kgz/020405.pdf).
	ESAF	(1994-1998)	Lesotho Letter of Intent, Memorandum of Economic and Financial Policies, and
			Technical Memorandum of Understanding, February 12, 2001.
			(http://www.imf.org/external/np/loi/2001/lso/01/index.htm).
			Press Release: IMF Approves Three-Year ESAF Loan for Madagascar.
			(http://www.imf.org/external/np/sec/pr/1996/pr9657.htm).
			Madagascar Letter of Intent, Memorandum of Economic and Financial Policies,
	ESAF	(1998-2001)	and Technical Memorandum, February 9, 2001.
			(http://www.imf.org/external/np/loi/2001/mdg/01/index.htm).
			Malawi Letter of Intent, Memorandum of Economic Policies, and Technical
	PRGF	(2001-2005)	Memorandum of Understanding, December 8, 2000.
			(http://www.imf.org/external/np/loi/2000/mwi/01/index.htm).
			Malawi -- Letter of Intent, Memorandum of Economic and Financial Policies, and
			Technical Memorandum of Understanding, July 18, 2005.
	PRGF	(2005-2008)	(http://www.imf.org/external/np/loi/2005/mwi/071805.pdf).
Lesotho			Mali Letter of Intent, July 12, 1999.
			(http://www.imf.org/external/np/loi/1999/071299a.htm).
			Mali -- Letter of Intent, Memorandum of Economic and Financial Policies, and
	PRGF	(2001-2004)	Technical Memorandum of Understanding, May 20, 2004.
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Tanzania			
	ESAF	(1996-2000)	
	ESAF	(2000-2003)	
	PRGF	(2003-2006)	
Turkey			

Uganda	SBA	(1998-2002)	
	SBA	(2002-2005)	
	ESAF	(1997-2001)	
	PRGF	(2002-2006)	
Vietnam			
	PRGF	(2001-2004)	
Uzbekistan			
Yemen			
Yemen			
Zimbabwe	EFF	(1997-2001)	
	ESAF	(1997-2001)	
	SBA	(1998-1999)	
	SBA	(1999-2000)	

Table IV. Detailed descriptions on the content of IMF program characteristics.

Variable	Description
1) Reduce budget deficit/lower government expenditure	- Measures to reduce the budget deficit by increasing revenues (e.g. increasing taxes) or decrease expenditure.
2) Reduce or stabilize civil sector employment	- In order to reduce government expenditure, employment in the civil sector is reduced or no new civil servants are hired.
3) Privatization	- Privatization includes privatizing SOEs. This often occurs in public utility sectors such as telecommunications, energy, water supply and in the mining sector
4) Policies to decrease the level of corruption	- These policies often include adopting new and stricter anti- corruption laws, setting up anti-corruption boards or committees with representatives from civil society, private sectors and NGOs to investigate the causes of corruption and creating better governance and accountability.
5) Tax system reforms	- Tax reforms are done in order to increase government revenue. These reforms often include broadening the tax base, strengthening and modernizing administrative capacity of the system, strengthening value added tax (VAT) and improving assistance to taxpayers.
6) Labor market reforms	- Labor market reforms can include increasing public sector efficiency, liberalizing the labor market and making it more flexible, adopting new laws with respect to firing and hiring workers and harmonizing and simplifying business laws.
7) Public debt reduction/stabilization	- Policies to decrease or at least stabilize the level of public debt.
8) Current account deficit reduction or stabilization	- Reduce the current account deficit primarily by promoting exports and limiting imports.
9) Increases in education spending	- Measures to increase education spending. When these measures are implemented, it is often mentioned to relocate spending towards priority sectors such as education and health.
10) Increase or stabilize net international reserves	- Increase or stabilize the level of net international reserves.
11) Trade liberalization	- Trade liberalization includes lowering or even removing existing barriers to trade.
12) Fiscal reforms	- Fiscal reforms include replacing or modernizing current tax laws to improve efficiency, setting up audit programs to cover large tax payers, improving management of public expenditure and improving legislation on public spending.
13) Increase budget deficit/higher government expenditure	- Increase public spending, thereby increasing the deficit.
14) Wage bill ceilings (in social sectors)	- Introducing new or maintaining current ceilings on the wage bill, especially in the social sectors such as education and health. Salaries for teachers can be frozen as a way to cut public spending.
15) Education sector reforms	- Reforms in the education sector include decentralization, changing wage structures and replacing teachers with qualified teachers.

16) User fees on education	- Introducing user fees on education
17) Reduce or stabilize inflation	- Reduce or stabilize inflation to acceptable levels
18) Reduce or stabilize inflation below 12 percent	- Reduce or stabilize inflation at levels below 12 percent.

Table V. Differences in explanatory variables by short and long-term IMF programs.

Short-term	Number of children under 5	Household size	% women without education	% men without education	Urbanization level	Development index	Δ CPI	GDP (constant 2000 $US)
All	1.08	5.57	12.76	7.16	55.97	0.46	14.07	2227.80
Brazil	2.03	5.09	12.29	14.64	71.26	0.00	6.45	6447.02
Colombia	1.01	6.04	7.24	6.32	67.92	1.32	8.96	940.53
Dom. Republic	0.76	5.22	9.23	10.19	60.06	0.65	6.38	258.45
Indonesia	0.82	5.74	11.40	4.69	41.76	0.17	6.25	1872.73
Kazakhstan	0.43	4.43	0.27	0.23	59.98	1.48	8.62	166.59
Peru	0.81	5.74	11.86	2.55	55.03	0.35	3.41	532.90
Turkey	0.75	5.99	30.15	7.33	56.89	1.41	83.33	2589.70
Zimbabwe	1.01	6.00	16.15	6.91	31.09	-0.24		80.34

Long-term	Number of children under 5	Household size	% women without education	% men without education	Urbanization level	Development index	Δ CPI	GDP (constant 2000 $US)
All	1.37	7.33	52.10	35.47	26.97	-0.43	6.77	70.17
Azerbaijan	0.49	5.54	2.57	0.35	43.15	0.93	2.60	52.73
Benin	1.63	7.74	76.32	48.70	34.65	-0.66	3.45	23.68
Burkina Faso	2.21	10.10	80.00	83.33	27.72	-0.07	4.82	23.87
Bangladesh	1.02	6.64	52.97	36.71	19.44	-0.07	8.14	579.08
Cameroon	1.64	8.63	37.29	21.31	38.89	-0.54	3.53	92.62
Ethiopia	1.33	6.72	80.41	56.22	32.20	-0.76	1.28	81.80
Ghana	1.10	6.05	46.47	29.24	36.80	-0.46	26.23	56.91
Guinea	1.83	9.44	82.94	65.09	33.31	-0.72		30.55
Gambia	1.48	10.35	71.68	50.49	36.28	-0.22	1.61	4.21
Kenya	1.03	5.82	21.16	6.33	22.69	-0.57	7.41	123.31
Kyrgyz Rep.	0.84	5.65	43.00	26.00	38.65	1.09	24.32	12.27
Cambodia	0.91	6.29	38.59	18.56	15.20	-0.79	-1.14	37.46
Lesotho	1.92	5.60	7.34	26.56	15.89	-0.66	5.97	7.83
Madagascar	1.36	6.31	30.34	22.20	23.21	-0.97	4.55	34.03
Mali	1.53	7.16	78.56	64.80	35.54	-0.67	5.62	27.16
Mongolia	1.08	5.73	2.77	3.18	42.64	0.00	12.31	10.89
Malawi	1.15	5.75	39.72	16.75	13.99	-0.94	28.21	17.44
Niger	1.82	8.15	88.52	80.03	29.87	-0.83	4.76	18.35
Nepal	1.23	6.81	86.45	41.04	7.66	0.00	3.70	57.58
Rwanda	1.13	5.74	44.74	31.48	20.94	-0.85	4.35	17.35
Senegal	2.10	12.32	80.99	61.50	27.84	-0.58	1.09	46.92
Sierra Leone	0.94	7.68	77.65	58.81	32.68	-0.79		6.36
Chad	1.76	7.83	83.82	62.30	36.19	-1.05	6.25	13.16
Tajikistan	1.02	7.72	2.00	0.57	33.23	0.59	39.00	8.61
Tanzania	1.71	7.71	42.49	17.28	22.71	-0.84	8.82	86.39
Uganda	1.42	6.56	34.71	13.21	11.62	-1.00	1.23	65.00
Vietnam	0.57	5.40	11.01	6.54	18.40	-0.10	3.75	356.81
Yemen	1.78	9.18	87.11	51.77	28.04	0.00	2.17	82.67