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# The Contribution of the IMF and the World Bank to Economic Freedom

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Zentrum für Europäische  
Wirtschaftsforschung GmbH

Centre for European  
Economic Research

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## **Non-technical summary**

In this paper, we investigate whether policies of the international financial institutions (IFIs), i.e. the World Bank and International Monetary Fund (IMF), contribute to the development of economic freedom. As a dependent variable, we use the economic freedom indicator conceived by Gwartney et al. (2000). The Gwartney index is based on a number of quantifiable measures relating to the various dimensions of economic freedom. Seven subgroups of variables, relating to the size of government, the structure of the economy, the freedom to trade and others, are aggregated into the comprehensive index.

There are a number of ways in which the programmes and policies of the IFIs may influence economic freedom. First, there may be a positive direct impact of the IMF or the World Bank for the time a country participates in an adjustment programme. This is because countries are only eligible for (phased) credit tranches if they comply with the imposed conditions. These conditions often aim at privatisation and liberalisation, a reduction of inflation and government expenditure. Moreover, adjustment programmes negotiated with the IFIs may not impose unwanted conditionality but may rather provide welcome advice.

Second, however, the conditionality may also fail to produce the desired results. Governments may agree only formally to attached conditions and circumvent the programme's spirit with countervailing measures not covered under the programme. In this case, subsidised credits may soften the need for economic liberalisation during economic crises and therefore promote the status quo. In this case, the amount of credit received should be negatively related to economic freedom and growth-oriented policies.

In our estimations, we separate the effect of the number of programmes, on one hand, and the amount of credit received, on the other. The first variable captures the effect of conditionality and the transfer of knowledge and advice more directly than the latter. The second may, in particular, reflect the softening of the government's budget constraint. Our estimates suggest that the role of the IFIs on

economic freedom is ambiguous. The number of projects increases economic freedom, while the volume of credits reduces freedom. This finding applies not only to the composite freedom index, but also to the individual index components, in spite of the fact that the index components cover very different areas of economic policy, such as monetary or fiscal policy, the quality of the legal system, or barriers to trade. World Bank projects are more likely to improve economic freedom than do IMF programmes. Programmes of the latter institution have, according to our estimates, not led to changes in structural, growth-oriented policies.

# The Contribution of the IMF and the World Bank to Economic Freedom

Bernhard Boockmann<sup>‡</sup>

Axel Dreher<sup>§</sup>

## Abstract

We analyse the effect of IMF and World Bank policies on the composite index of economic freedom by Gwartney et al. (2000) as well as its sub-indexes, using a panel of 85 countries observed between 1970 and 1997. With respect to the Bank, we find that the number of projects has a positive impact on overall economic freedom, while the effect of the amount of World Bank credits is negative. These effects are stronger during the 1990s than in earlier periods. There is no clear relationship between credits and programs of the IMF and economic freedom.

**Keywords:** Economic freedom, IMF, World Bank, structural adjustment policies

**JEL-Codes:** F33, F34, O57

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## 1 Introduction

Many countries have liberalised their economies over the past decade, but the driving forces which led to this process are still only poorly understood. In this paper, we investigate whether policies of the World Bank and International Monetary Fund (IMF) contribute to the development of economic freedom. As a dependent variable, we use the economic freedom indicator conceived by Gwartney et al. (2000). The Gwartney index is based on a number of quantifiable measures relating to the various dimensions of economic freedom. Seven subgroups of variables, relating to the size of government, the structure of the economy, the freedom to trade and others, are aggregated into the comprehensive index. The different components of the index are presented below.<sup>1</sup>

Economic freedom has frequently been used as an independent variable in order to explain country-specific growth rates (de Haan and Sturm 2000; Dawson 1998; de Haan and Sierman 1998; Heckelman and Stroup 2000; de Vanssay and Spindler 1994; Przeworski and Limongi 1993). A smaller number of papers attempt to explain the emergence of economic freedom. Lal (1987), Dawson (1998) and de Haan and Sturm (2001) investigate the political preconditions under which economic reforms become viable. There is some similarity to the question of which are the determinants of political liberty (see Feng and Zak 1999). Farr et al. (1998) explicitly address the issue of dual causality between economic well-being and economic freedom, using tests for Granger causality. So far, however, the impact of international organisations on economic freedom has not been addressed in this literature. This provides a main motivation of the paper.

The second strand of literature to which this paper contributes concerns the effects of the international financial institutions (IFIs) on the economies of the recipient countries. In spite of the long-term nature of adjustment lending, most existing studies on World Bank and IMF lending have focused on short term

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<sup>1</sup> A detailed description can be found in Gwartney et al. (2000).

impacts and objectives not under the direct control of the authorities.<sup>2</sup> However, a more meaningful test of international organisations influence on creditors' economies has to focus on long-term developments. Most importantly, the IFIs influence does not only depend on conditions and finance attached to adjustment programs but also on technical advice, often connected with program negotiations but also independent of specific programs, during the IMF's regular surveillance missions. According to Fischer (2001: 237), one of the IMF's main contribution to reforms is in standing consistently for a particular approach to economic policy. IMF and World Bank programs, even if classified as failures with respect to their specific goals, may nevertheless be important to change attitudes in developing countries. The international organisation's advice is often discussed publicly and may influence politics in the longer run (Killick 1994: 156). The change in attitudes will lead to different policies, as measured by the economic freedom indexes.

The focus on policies rather than outcomes provides a third motivation for the paper. Rather than looking at economic variables such as the growth rate of GDP as a result of participation in programs, we are comparing policies chosen by participating governments to the policies chosen by non-participants. While it may be over-ambitious to link international institutions and economic outcomes, it may be feasible to find a link between the former and the choice of policy instruments (Dhonte 1997: 13).

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<sup>2</sup> For instance, Ergin (1999) reports that IMF programs result in an (insignificant) reduction in the rate of real GDP growth and an improvement in the current account. Inflation and the overall balance of payments seem to be unaffected by the IMF. With respect to the World Bank, Harrigan and Mosley (1991: 83) report a weak influence of structural adjustment loans on GDP and no significant effect on export growth. Harrigan and Mosley employ dummies for structural adjustment loans lagged one and two years while Ergin uses only one year lags. Evrensel (2000), Doroodian (1993) and Khan (1990), among others, present similar studies. Exceptions to the short term focus are Barro and Lee (2001), Hutchinson (2001) and Przeworski and Vreeland (2000) who analyse the IMF's influence on long-term real GDP growth rates.



Potentially, other international organisations apart from the IFIs may also have an impact on economic freedom.<sup>3</sup> We look at the impact of the World Bank and the IMF due to their outstanding importance relative to other organisations. Moreover, many multilateral lenders attach their money to the IMF's programs. A proper assessment of the IFI's effects on economic policies is also desirable in view of the ongoing debate on the future role of these institutions.

## **2 Channels for the impact of the IFIs on economic freedom**

There are a number of ways in which the programmes and policies of the IFIs may influence economic liberalisation. First, there is a direct impact of the IMF or the World Bank for the time a country participates in an adjustment programme. This is because countries are only eligible for (phased) credit tranches if they comply with the imposed conditions. These conditions often aim at privatisation and liberalisation, a reduction of inflation and government expenditure. Succeeding programmes may improve economic freedom over time even if most programmes are not implemented as negotiated and some of the money remains undrawn.<sup>4</sup> Frequent negotiations between the IFIs and the national actors during the period, especially if some slippage occurs, may foster consensus between the social partners in recipient countries and thus stabilise the support for the measures demanded by the conditionality (Venkate Ratnam 1996: 11).

In principle, the direct effect of conditionality on national policies might be measured by the amount of IMF or World Bank credit a country receives. However, conditions and credit volumes need not be proportional, although some

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<sup>3</sup> Examples that come to mind are the World Trade Organization (WTO) or the International Labour Organization (ILO) which prohibits the use of forced labor in some of its conventions.

<sup>4</sup> Dreher (2001a: 21) finds that in about 60 per cent of past IMF programs more than 25 per cent of the money agreed under the arrangement is not drawn as scheduled. This may be used as an indicator for non-compliance (Killick 1995: 58). Compliance with Bank conditionality is slightly higher. According to the World Bank (1988), about 60 per cent of the agreed policy changes are implemented. Similar levels of compliance were reported by Nash (1993).

conditions are included in almost all programmes.<sup>5</sup> Therefore, the number of arrangements concluded may be a better measure for IFI conditionality than the flows of finances.

Surely, conditionality may also fail to produce the desired results. In this case, subsidised credits may soften the need for economic liberalisation during economic crises and therefore promote the status quo (Collier 2000: 313, Drake 1998: 151, Goldstein 1998, Heller et al. 1998: 151, Ranis 1996: 6, Bandow 1994: 27, Vaubel 1994: 38). Moreover, governments may not take necessary adjustment measures in order to stay eligible for subsidised credit (Vaubel 1991: 208).<sup>6</sup> This kind of behaviour is not necessarily prevented by the IFI's conditionality. Governments may agree only formally to attached conditions and circumvent the programme's spirit with countervailing measures not covered under the programme. It is therefore possible that the IFI's programmes may delay adjustment more than they promote it (Willet 1999: 3). In this case, the amount of credit received should be negatively related to economic freedom and growth-oriented policies. This is consistent with evidence provided by Vásquez (1998: 279) who showed that countries with greater reduction in economic freedom between 1985-90 received increasing inflows of aid and Burnside and Dollar (1997) who did not find any link from aid flows to policy reform.

There is also a less direct route by which economic policies in the recipient countries may be influenced by the IFIs. Some countries simply lack the capacity to reform. In this case, adjustment programmes negotiated with the IFIs may not impose unwanted conditionality but may rather provide welcome advice. This advice might even change governments preferences about adjustment policy, at least in the long run (Haggard and Kaufman 1992). Fund and Bank may therefore reinforce the liberal consensus (Drake 1998: 78). World Bank projects may be

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<sup>5</sup> Dreher (2002) did not find a significant correlation between the number of conditions included in a program and the amount of money drawn.

<sup>6</sup> The hypothesis that Fund and Bank lending to some extent provokes moral hazard is supported by empirical studies (Dreher 2001b, Dreher and Vaubel 2001).

important not only because of the money attached but also because knowledge is transferred. In this context, the World Bank's technical assistance loans may be of special interest. The transfer of knowledge, however, may take very different routes which are only loosely connected with specific instruments of the IFIs. Another example for the leverage of the IFIs on national policies is the influence of senior officials who were formerly staff members of the IFIs, who may contribute to changing attitudes and steer policy towards liberalisation (Kahler 1992: 127). The most important way of coming into contact with the IFIs economic knowledge, however, is the negotiation and the implementation of adjustment programmes. Every loan negotiated with the IFIs brings the recipient country into some degree of contact with these institutions. Thus, the flow of ideas and advice may be also proxied by the number of programmes negotiated, but not by the amount of credit received.

Our discussion leads to the formulation of two hypotheses which will be at the centre of our empirical investigation:

- Money attached to the IFI's programmes can either improve or reduce economic freedom. On one hand, it may be associated with more stringent conditionality. On the other, if conditionality fails, money can be used to prevent reforms and liberalisation. If the number of World Bank or IMF programmes is a better proxy for conditionality than the flow of finances, the amount of credit should be insignificant or actually negative once the number of programmes is controlled for.
- The number of programmes in operation increases economic freedom due to either the direct effect of conditionality on policies or to the transfer of knowledge and advice, which increases with the number of contacts between a recipient country and the IMF or World Bank.

### **3 Empirical estimation of the IFIs' impact**

To assess the effect of international institutions on economic freedom empirically, we use a panel of 85 countries which are members of the IFIs but non-members of

the OECD. In the estimations presented in the following, the dependent variable is the composite economic liberty index constructed by Gwartney et al. (2000). Our data cover the years 1970-97. Since the dependent variable is available in intervals of five years, the explanatory variables are averages over the five year period preceding the current year. Some of the data are not available for all countries or every year. Therefore, our panel data are unbalanced and the number of observations depends on the choice of explanatory variables.

In our estimations, we use four variables measuring the flow of funds and the number of programmes negotiated with the IMF and the World Bank, respectively. Precise definitions are given in Appendix A while Appendix B contains descriptive statistics. The flow of monetary resources is measured by the change in the stock of outstanding IMF and World Bank credits. The reason for using this concept instead of directly measuring financial flows is that, according to our hypotheses, both payments from the IFIs as well as repayments should matter for economic freedom. For instance, if a country repays its debt, it either has to reduce its (primary) budget deficit or needs other sources of financing which it may only obtain if it chooses more liberal economic policies. This is even true if the money needed is raised from taxpayers. In this case, the electorate is more concerned about politics which increases pressure on the government (Collier 2000: 313).

The number of programmes should ideally include only those programmes that were under effect over much of the year in question. The IMF variable includes the number of arrangements that were active over at least five months in a given calendar year. For the World Bank, however, part of this data was lacking. Hence, we use the number of programmes negotiated in each year as our World Bank variable. A breakdown of programmes and credit volumes according to facilities is provided in Table A1.

Column 1 of Table 1 contains results from a regression of the Gwartney economic freedom index on these four variables. To account for time-invariant unobservable heterogeneity potentially correlated with the regressors, we use a fixed effects specification. Initially, we also included a dummy for each of the five-

**Table 1: Estimation results for the composite index, static specification**

|                                   | 1                | 2                | 3                | 4                | 5                | 6                |
|-----------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| sum of World Bank credit          | -0.159<br>(2.84) | -0.100<br>(1.71) | -0.129<br>(2.02) | -0.088<br>(1.45) |                  | 0.009<br>(0.13)  |
| sum of IMF credit                 | -0.117<br>(1.77) | -0.130<br>(2.07) | -0.094<br>(1.24) | -0.090<br>(1.21) |                  | 0.020<br>(0.21)  |
| number of World Bank projects     | 0.172<br>(4.33)  | 0.117<br>(2.81)  | 0.115<br>(2.62)  |                  | 0.100<br>(2.33)  | 0.072<br>(1.60)  |
| number of IMF projects            | 0.176<br>(1.35)  | 0.122<br>(0.91)  | -0.021<br>(0.14) |                  | -0.127<br>(0.89) | -0.324<br>(1.64) |
| military rule, dummy              |                  | -0.233<br>(1.46) | -0.340<br>(2.01) | -0.334<br>(1.95) | -0.337<br>(2.00) | -0.237<br>(1.43) |
| exports into industrial countries |                  | 2.213<br>(3.48)  | 3.316<br>(4.69)  | 3.241<br>(4.54)  | 3.319<br>(4.80)  | 2.642<br>(3.77)  |
| technical assistance              |                  | 0.026<br>(0.42)  | 0.068<br>(1.05)  | 0.078<br>(1.21)  | 0.048<br>(0.77)  | 0.165<br>(2.48)  |
| secondary schooling enrolment     |                  |                  | 0.019<br>(3.02)  | 0.017<br>(2.67)  | 0.019<br>(3.00)  | 0.015<br>(2.29)  |
| radios per capita                 |                  |                  | 1.928<br>(3.74)  | 1.983<br>(3.82)  | 1.993<br>(3.92)  | 1.811<br>(3.62)  |
| post-1990, dummy                  | 1.022<br>(11.41) | 0.912<br>(9.34)  | 0.618<br>(5.42)  | 0.629<br>(5.50)  | 0.682<br>(6.20)  | 0.472<br>(2.71)  |
| sum of WB credit, post-1990       |                  |                  |                  |                  |                  | -0.263<br>(3.57) |
| sum of IMF credit, post-1990      |                  |                  |                  |                  |                  | -0.217<br>(1.29) |
| number of WB projects, post-1990  |                  |                  |                  |                  |                  | 0.070<br>(2.18)  |
| number of IMF projects, post-1990 |                  |                  |                  |                  |                  | 0.523<br>(2.20)  |
| Constant                          | 4.456<br>(41.56) | 4.240<br>(24.09) | 3.044<br>(9.07)  | 3.391<br>(10.91) | 2.987<br>(9.12)  | 3.239<br>(9.48)  |
| Number of countries               | 85               | 83               | 80               | 80               | 82               | 80               |
| Number of observations            | 404              | 346              | 296              | 296              | 302              | 296              |
| R <sup>2</sup> (within)           | 0.383            | 0.426            | 0.512            | 0.495            | 0.501            | 0.557            |

Note: t-statistics in parentheses

year periods for which the index is available. However, using an F-test we found it sufficient to include a dummy for the period after the end of the cold war, i.e. from 1990 onward.

The regression results suggest that the World Bank has an impact on economic freedom while the influence of the IMF is less clear. As expected, the number of World Bank projects has a positive impact on economic freedom. The volume of World Bank credits, by contrast, exerts a negative influence on economic freedom. Both coefficients are significantly different from zero at the one per cent level. Given the inclusion of the number of projects, the sum of World Bank credits controls for the average size of the projects in a year and particular country. The lesson seems to be that projects are productive in terms of “good” economic policies, but become counterproductive as their volume expands. The signs of the IMF variable suggest a similar mechanism, but standard errors are relatively high and t-tests fail to reject the null hypothesis of zero impact at the five per cent level.

In the further columns of Table 1, we add control variables to account for time-varying observable heterogeneity. We included control variables to account for the following theoretical hypotheses:<sup>7</sup>

First, prosperity and growth create an interest in economic freedom. A prosperous middle class will press harder for the introduction and maintenance of economic freedom. Apart from being the product of economic freedom, a minimum level of wealth may also be its precondition.

Second, economic freedom is believed to depend on human capital – the degree to which people are educated and informed. Enrolment in schooling ratios

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<sup>7</sup> With some of these variables, there is an obvious endogeneity problem: if economic freedom has a beneficial effect on growth, then GDP is endogenous to freedom. The same is true for exports and foreign direct investment, since the Gwartney index contains tariffs and openness to foreign capital as its components. Endogeneity may even be a problem for the involvement of the IFIs. In the framework of the Arellano-Bond estimation discussed below, the right-hand side variables can be instrumented and the validity of the exogeneity assumption can be tested.

and illiteracy rates may thus have a positive relation to economic freedom. Apart from education, means of information and communication may also prove important since they relay information about economic success in other countries (Drake 1998: 75).

Third, economic freedom will depend on the economic relations with foreign actors. The more a country participates in trade and factor movements, the higher is the need to liberalise in order to stay competitive. Foreign direct investment often comes along with management educated in industrial countries. Management may try to press for liberalisation directly, in order to improve the business environment and enhance profits. Moreover, foreign direct investment creates new jobs in developing countries. Workers need to be trained and educated and may ultimately demand – and get – more economic freedom (Dawson 1998: 612).<sup>8</sup> Exports – in particular, exports into industrialised countries – might affect economic freedom in a similar way. Exporters will lobby their governments to reduce barriers and duties on exports and imports. They will also press for the right to use the currency of their trading partners.

Fourth, apart from being the outcome of economic relations with abroad, economic freedom may be imposed by foreign actors. Development aid and technical cooperation grants may be given purposely in order to improve economic freedom. On the other hand, the same argument as the one made above for the IFIs' involvement applies here as well: the influence of aid on economic freedom could be negative because governments isolated from market forces feel less compelled to bring about reforms.

Fifth, there may also be internal political constellations under which calls for economic liberalisation are more successful than others. Even if there is a strong interest in economic freedom, citizens may lack the political resources to see it enforced. This is particularly true in oppressive political regimes. Ideology may

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<sup>8</sup> An extensive discussion on the effects of foreign direct investment on the host countries' economies is provided by Bengoa Calvo and Sanchez-Robles (2001).

also be important. The ruling political party may be more or less in favour of liberalisation.

Finally, there are idiosyncratic political and cultural factors which may influence the level of economic freedom. Some of them may be observable, such as colonial history, but most of them cannot be easily measured. As long as these factors do not vary over time, however, they are captured by the inclusion of fixed effects. The fixed effects specification has the effect that only coefficients of variables which vary over time can be estimated.

In the case of each of these factors, there is not one but several variables which could be used to measure its impact on economic freedom. From data sources commonly used in cross-country time-series estimation, we could obtain data for eighteen variables belonging to the groups just defined.<sup>9</sup> Since many of them are highly collinear, it was impossible to include all of them in a single estimation. Our strategy was thus to form groups of variables, and select the variables with the most robust impact on economic freedom by iteratively replacing these variables with each other inside each of the groups. Our first step was to factor analyse the independent variables to recover the dimensionality of the data. It turned out that there are four important dimensions. The first can be interpreted as the education dimension, the second contains variables relating to external relations

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<sup>9</sup> The following variables are included in the data set as potential explanatory variables: real GDP per capita and its growth rate (taken from the Penn Tables); enrolment in primary, secondary and tertiary education, the illiteracy rate and the number of radios per 1000 capita (all World Bank data); foreign direct investment and private capital flows in relation to GDP, the number of tourists relative to population, the standard openness measure (exports plus imports over GDP – all of the previous are again World Bank data) and exports into industrial countries over GDP (IMF direction of trade statistics); official development assistance and technical cooperation grants as per cent of GDP (World Bank); finally, the Freedom House political rights index, dummy variables indicating left party or military affiliation of the government chief executive, and a variable measuring how long the chief executive's party has been in office (the last three variables were taken from Beck et al.). Means and standard deviations of the variables actually used are displayed in Table A2 in the appendix.



without trade, the third concerns trade, income and growth, and the fourth the political variables.<sup>10</sup> In the iterative replacement procedure, we started with a static specification (see below) with two variables from each of the groups, replacing them with other covariates from the groups and retaining those which had the highest number of statistically significant coefficients. We dropped variables which did not have a coefficient significant at the five per cent level in more than a third of the regressions run. We then re-ran the procedure using the dynamic model discussed below; in two cases, the variables chosen by the static and the dynamic model did not coincide. Ultimately, we let the dynamic model decide over which of the variables to include. The procedure led to the choice of the following five control variables:

- ▶ a dummy variable for military dictatorship
- ▶ the share of exports into industrial countries in GDP
- ▶ the share of technical cooperation grants in GDP
- ▶ enrolment in secondary education
- ▶ the number of radios per 1000 capita.

In column 2 of Table 1, we present results of a regression on the first three of these variables. Independent variables similar to these three are used in a regression by de Haan and Sturm (2001). As can be seen, exports into industrial countries are significantly positively related to economic freedom, while the other two are not significant. In column 3, we added the secondary schooling rate and the number of radios per capita. Both coefficients have the expected sign and are highly significant. Military leadership now affects economic freedom significantly negatively. As a result of the inclusion of the covariates, the World Bank variables become smaller in absolute values but their coefficients are still significant. By contrast, the IMF variables appear to be completely unrelated to economic freedom

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<sup>10</sup> We also regressed the Gwartney index on the four factors but this procedure left us with too few observations.

in column 3. Taken as a whole, the IFI variables are jointly significant at the 5 per cent level (p-value = 0.036).<sup>11</sup>

The conflicting signs of the coefficients on the number of projects, on one hand, and credit amounts, on the other, may in part be due to high correlation between the two. It is therefore instructive to see whether the coefficients concerning projects react to the exclusion of the credit amounts and vice versa. Results are contained in columns 4 and 5. Concerning the number of projects, there are no changes vis-à-vis column 3. The sum of world Bank credits, however, loses its significance once the number of projects is excluded. This is what one would expect: if projects are excluded, the credits variable takes over some of the positive impact of the number of projects on the dependent variable. The resulting coefficient is thus a mixture of the positive effect of conditionality and the negative effect created by a larger size (in terms of credit volume) of the average project.

Finally, column 6 contains a specification where we interacted the IFI variables with the dummy for the post-1990 period. This interaction is included to check whether the IFIs' policies and impact have changed during the observation period. As a result, the interaction effects are clearly statistically significant. This suggests that the signs of the coefficients reported earlier are mainly produced by behaviour in the 1990s. Again, the World Bank variables are individually significant and have the signs found in the other specifications. The IMF's impact on economic freedom is less visible: judging by the sums of coefficients, the impact of the number of IMF projects is negative in the period before 1990, but the

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<sup>11</sup> Since the dependent variable is an index which is scaled arbitrarily, it is not sensible to interpret the absolute magnitudes of the coefficients. However, one can assess the relative quantitative importance of the independent variable. Thus, from the results displayed in column 3, raising the secondary school enrolment ratio by 10 percentage points increases the index by 0.19 points, and raising the number of radios per 1,000 capita by 100 leads to the same increase of 0.19 index points. If the ratio of exports into industrialised countries to GDP increases by 10 percentage points, the index rises by 0.33 points. An additional World Bank project raises the index by 0.11 per cent, and an increase in World Bank loans by one per cent of GDP decreases the index by 0.13 points (the average World Bank loan amounts to 1.2 per cent of GDP).

coefficient is marginally insignificant at the ten per cent level. This negative coefficient is, however, reversed in the 1990s. As in the previous specifications, the IFI variables are jointly significant (p-value = 0.0005).<sup>12</sup>

Establishing economic freedom is most likely a process which evolves slowly, instead of being accomplished instantaneously. Therefore, we also estimated a dynamic model which includes the lagged dependent variable. Results are contained in Table 2. In column 1, we present results from within-groups estimation similar to specification 3 from Table 1, but with the lagged dependent variable included. The latter appears to be highly significant. In the dynamic specification, military rule no longer has a significant influence on economic freedom while economic freedom now rises significantly with technical assistance from abroad. Most importantly, our variables for engagement of the World Bank are in the order of magnitude found in earlier estimations, with the number of projects significant at the five and the credit volume significant at the ten per cent levels. Again, the IMF variables are not significant.

A potential problem with these results is that the within groups estimator is inconsistent in the presence of a lagged dependent variable in a short panel (Nickell 1981). Therefore, we applied the GMM estimator of Arellano and Bond (1991) to our problem. This estimator consists in first-differencing the estimating equation and using lags of the dependent variable from at least two periods earlier as well as lags of the right-hand side variables as instruments. Since there are more instruments than right-hand side variables, the equations are over-identified and instruments must be weighted in an appropriate way. We present only results from the Arellano-Bond one-step GMM1 estimator, which uses the identity matrix as a weighting matrix. The two-step GMM estimator weighs the instruments asymptotically efficiently using the GMM1 estimates. However, in small samples

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<sup>12</sup> We also tested for non-linearity in the amount of credits. There was some indication of non-linearity, with a quadratic term which enters the equation positively. However, the overall effect of the credit variable turns positive only for World Bank loans greater than 6.8 percent of GDP. Such large credits are very rare.

**Table 2: Estimation results for the composite index, dynamic specification**

|                                   | 1                | 2                | 3                |
|-----------------------------------|------------------|------------------|------------------|
| lagged dependent variable         | 0.282<br>(4.79)  | 0.188<br>(1.47)  | 0.230<br>(2.74)  |
| sum of World Bank credit          | -0.131<br>(1.77) | -0.076<br>(1.30) | -0.123<br>(2.03) |
| sum of IMF credit                 | -0.020<br>(0.26) | 0.046<br>(0.78)  | -0.042<br>(0.46) |
| number of World Bank projects     | 0.092<br>(2.10)  | 0.073<br>(1.49)  | 0.142<br>(1.73)  |
| number of IMF projects            | -0.054<br>(0.34) | 0.058<br>(0.46)  | -0.135<br>(0.59) |
| military rule, dummy              | -0.232<br>(1.41) | -0.105<br>(0.48) | -0.423<br>(1.59) |
| exports into industrial countries | 2.512<br>(3.10)  | 1.827<br>(2.44)  | 3.230<br>(2.69)  |
| technical assistance              | 0.185<br>(2.68)  | 0.168<br>(2.38)  | 0.169<br>(2.09)  |
| secondary schooling enrolment     | 0.020<br>(2.88)  | 0.015<br>(1.81)  | 0.033<br>(2.79)  |
| radios per capita                 | 1.614<br>(3.23)  | 1.206<br>(6.54)  | 1.601<br>(1.96)  |
| post1990, dummy                   | 0.475<br>(4.12)  | 0.618<br>(4.23)  | 0.619<br>(4.52)  |
| Constant                          | 1.748<br>(4.12)  | 0.016<br>(0.20)  | -0.082<br>(1.05) |
| Number of countries               | 76               | 69               | 69               |
| Number of observations            | 271              | 192              | 192              |
| R <sup>2</sup> (within)           | 0.577            |                  |                  |
| Sargan Test (p-level)             |                  | 0.065            | 0.165            |
| Arellano-Bond-Test (p-level)      |                  | 0.441            | 0.507            |

Note: t-statistics in parentheses

like the one used here, standard errors tend to be under-estimated by the two-step estimator (Arellano and Bond 1991: 291). All standard errors are estimated robustly.

Applying the Arellano-Bond estimator leads to a dramatic loss of observations, since information from two periods is discarded by differencing and instrumenting. This results in generally lower t-statistics. In particular, both of the World Bank variables are no longer significant. Surprisingly, the coefficient of the lagged dependent variable is smaller than in the within groups estimator, although econometric theory suggests that it should be biased negatively in the WG specification. This could be interpreted as evidence that the bias described by Nickell (1981) is not present in the dynamic WG specification and that the results displayed in column 1 are valid. Alternatively, if the standard error of the lagged dependent variable is taken at face value, one might also argue that the dynamic model is not supported by the data and the static specification from Table 1 should be preferred.

On the basis of the Arellano-Bond estimator, we can also conduct a Sargan test on the validity of the instruments used. This amounts to a test for the exogeneity of the covariates. As can be seen, the Sargan test accepts the over-identifying restrictions at the five per cent level, but rejects them at the ten per cent level. Since the test statistic is borderline, we conducted estimations treating all right-hand side variables as predetermined. Results are contained in column 3. The results appear to be closer to the WG specification. The amount of World Bank credit is now again significantly negative, and the number of World Bank programmes is significant at the ten per cent level. The Sargan test statistic now clearly accepts the over-identifying restrictions. The Arellano-Bond test of second order autocorrelation, which must not be present in the data in order for the estimator to be consistent, also accepts the specification.

Summing up, there is some evidence that a dynamic model is preferable to a static specification. However, with a coefficient of 0.23 on the lagged dependent variable, the degree of inertia in the model is not large. Thus the choice of the static

and the dynamic model is not obvious. With respect to the World Bank variables, however, there are no big differences between the static and dynamic specification.

In the following, we will be working with specification 3 from Table 1. In Table 3, we replicate this regression using data on individual facilities for the IFI variables. The amount of World Bank credit used in Tables 1 and 2 is divided into loans provided by the IBRD and IDA credits. Due to data availability, both variables relate to the gross flows of new credits. Instead of IMF credit, amounts drawn under the Fund's different facilities are included, where the Extended Fund Facility, Structural Adjustment Facility and the Poverty Reduction and Growth Facility are measured as net flows and money from Standby Arrangements as gross flows. Except for money disbursed under the IMF's structural adjustment facility, we obtain negative coefficients for all of these variables. However, none of the credit variables is individually significant. Thus it seems not possible to ascertain which part of the IFI's activities drives the negative coefficients found earlier. Using a conventional F-test, we are not able to reject the hypothesis of equal coefficients among the different facilities. Hence, the specification used earlier is not rejected.

The number of IMF and World Bank programmes approved are also classified according to different facilities. Again, none of the coefficients are individually significant and their equality cannot be rejected. With respect to the World Bank variables, we find a positive coefficient significant at the ten per cent level for projects not financed by adjustment and technical loans. As with the other subgroups, coefficient equality cannot be rejected.

Finally, we used the number of IMF arrangements and World Bank adjustment loans that were in effect at least 5 months in a given year. Only arrangements under the IMF Structural Adjustment Facility were (marginally) significant, with a negative coefficient.

In a further effort to provide more detailed information on the IFI's impact on economic freedom, we used single components of the Gwartney index instead of the composite index. The motivation is that the World Bank and the IMF only

**Table 3: Test for coefficient equality across IMF and WB facilities**

| Category                                       | Variable                                  | Sign | Significance level (per cent) | F-test of equality of coefficients (p-value) |
|--|---|------|-------------------------------|--|
| Amount of credit drawn in per cent of GDP      | IBRD                                      | –    |                               | 0.882  |
|  | IDA                                       | –    |                               |  |
|  | IMF Standby Arrangement                   | –    |                               | 0.579  |
|  | IMF Extended Fund Facility                | –    |                               |  |
|  | IMF Poverty Reduction and Growth Facility | –    |                               |  |
| IMF Structural Adjustment Facility             | +   |      |                               |  |
| Number of arrangements approved                | IMF Standby Arrangement                   | –    |                               | 0.563  |
|  | IMF Extended Fund Facility                | +    |                               |  |
|  | IMF Poverty Reduction and Growth Facility | –    |                               |  |
|  | IMF Structural Adjustment Facility        | +    |                               |  |
|  | World Bank Adjustment Loans               | –    |                               | 0.352  |
|  | World Bank Technical Loans                | +    |                               |  |
| World Bank other loans                         | +   | 10   |                               |  |
| Number of arrangements at least 5 month active | IMF Standby Arrangement                   | +    |                               | 0.206  |
|  | IMF Extended Fund Facility                | +    |                               |  |
|  | IMF Poverty Reduction and Growth Facility | –    |                               |  |
|  | IMF Structural Adjustment Facility        | –    | 10                            |  |
|  | World Bank Adjustment Loans               | +    |                               |  |

Note: Military rule, exports into industrial countries, technical assistance, secondary school enrolment and radios per capita included as independent variables, but coefficients not reported.

include some of the components of the overall economic freedom index into the conditions for new credits, while others are never made a condition. Hence, we should find an effect in some areas of economic policy but not in others. Results are displayed in Table 4. We only report the signs of the coefficients for the four World Bank and IMF variables from the specification as in column 3 of Table 1 and indicate whether they are significant at the one, five or ten per cent level.

The results vary widely, both with respect to the overall fit of the regression (as measured by the within  $R^2$ ) and to the significance of the coefficients. It is clear that many of these estimation equations, being a replication of our preferred specification for the composite index, are necessarily misspecified and suffer from omitted variable bias, which is reflected in the small average size of the  $R^2$ . However, the signs of the significant coefficients are as expected. Similar to the findings for the composite index, World Bank credit is almost always negatively correlated with economic freedom, and in eight cases the coefficient is significant at least at the ten per cent level.

In the light of our earlier considerations, it appears that World Bank money induces countries to have less security of ownership rights, inferior legal institutions, higher inflation levels and volatility, a higher black market premium, less private ownership of banks and more restrictions on the freedom to engage in capital transactions with foreigners.

World Bank programmes are found to have a significant positive influence on the difference between the official and the black market exchange rate. Although the Bank does not directly force countries to devalue their currencies, some adjustment programmes aim at liberalising the exchange rate (Dreher 2002). As a consequence, overvalued currencies may devalue which decreases the black market premium.

Also significant is the Bank's influence on the use of conscripts in national defense systems (which, however, is rather surprising), on interest controls as well as freedom of citizens to engage in capital transactions with foreigners. While conditions on interest rate policy are included in some adjustment programmes,



**Table 4: Results for WB and IMF variables from subindex estimation**

| Subindex                                     | WB credit, amount | IMF credit, amount | WB programs | IMF programs | R <sup>2</sup> | obs |
|--|-------------------|--------------------|-------------|--------------|----------------|-----|
| Ia: Government Consumption                   | 0                 | 0                  | 0           | 0            | 0.14           | 302 |
| Ib: Transfers and Subsidies                  | 0                 | 0                  | 0           | 0            | 0.07           | 205 |
| IIa: Government Enterprises and Investment   | 0                 | 0                  | 0           | 0            | 0.33           | 298 |
| IIb: Price Controls                          | 0                 | 0                  | 0           | 0            | 0.37           | 186 |
| IIc: Top Marginal Tax Rate                   | 0                 | – (1)              | 0           | 0            | 0.55           | 215 |
| IId: Use of Conscripts                       | 0                 | 0                  | + (1)       | 0            | 0.14           | 298 |
| IIIa: Growth rate of Money Supply            | 0                 | 0                  | 0           | 0            | 0.05           | 301 |
| IIIb: Standard Deviation of Inflation        | – (1)             | 0                  | 0           | + (10)       | 0.11           | 304 |
| IIIc: Inflation, level                       | – (10)            | 0                  | 0           | 0            | 0.16           | 304 |
| IVa: Freedom to own Currency Accounts Abroad | 0                 | – (5)              | 0           | 0            | 0.16           | 304 |
| IVb: Black Market Premium                    | – (10)            | 0                  | + (1)       | 0            | 0.12           | 302 |
| Va: Private ownership Rights                 | – (10)            | 0                  | 0           | 0            | 0.40           | 272 |
| Vb: Viability of Contracts                   | – (5)             | 0                  | 0           | 0            | 0.27           | 272 |
| Vc: Rule of Law                              | 0                 | 0                  | 0           | 0            | 0.07           | 272 |
| VIa(i): Taxes on International Trade         | 0                 | 0                  | 0           | 0            | 0.32           | 251 |
| VIa(ii): Mean Tariff Rate                    | 0                 | 0                  | 0           | 0            | 0.37           | 216 |
| VIa(iii): Standard Deviation of Tariff Rate  | 0                 | 0                  | 0           | 0            | 0.45           | 109 |
| VIb(i): Non-Tariff Trade restraints          | + (10)            | 0                  | 0           | 0            | 0.18           | 177 |
| VIb(ii): Actual Size of Trade Sector         | 0                 | 0                  | 0           | 0            | 0.20           | 304 |
| VIIa: Ownership of Banks                     | – (10)            | 0                  | 0           | + (1)        | 0.23           | 264 |
| VIIb: Extension of Credit                    | 0                 | 0                  | 0           | 0            | 0.17           | 277 |
| VIIc: Interest Rate Controls                 | 0                 | 0                  | + (10)      | 0            | 0.18           | 278 |
| VIId: Capital Transactions with Foreigners   | – (5)             | 0                  | + (5)       | 0            | 0.41           | 304 |

Note: All components are indexes ranging from 0 (not free) to 10 (free). Numbers in brackets are significance levels. Military rule, exports into industrial countries, technical assistance, secondary school enrolment and radios per capita included as independent variables, but coefficients not reported.

restrictions on the freedom of citizens to engage in capital transactions with foreigners are usually not covered by Bank conditionality, as opposed to IMF programmes.<sup>13</sup> However, there is no statistically significant impact of the IMF on that variable. As can be seen, Fund programmes tend to increase the per cent of deposits held in privately owned banks. Again, privatisation of banks is a condition often included in IMF programmes.

Heckelman and Stroup (2000: 530) found that four of the Gwartney subindexes are positively correlated with growth: the standard deviation of inflation, the black market premium, taxes on international trade and actual size of trade sector.<sup>14</sup> It is noteworthy that, in our estimations, two of them are (at least at the 10 per cent level of significance) negatively correlated with the amount of World Bank credit provided. One of those variables – the black market premium – is (positively) influenced by World Bank projects. This is consistent with Harrigan and Mosley (1991: 83) who found a positive influence of compliance with World Bank conditionality on growth which is counterbalanced by the negative influence of financial flows.

#### **4 Conclusions**

Our estimates suggest that the role of the IFIs on economic freedom is ambiguous. The number of projects increases economic freedom, while the volume of credits reduces freedom. This finding applies not only to the composite freedom index, but also to the individual index components, in spite of the fact that the index components cover very different areas of economic policy, such as monetary or fiscal policy, the quality of the legal system, or barriers to trade. In our

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<sup>13</sup> Between 1988-92, capital account liberalisation was covered in almost 20 per cent of IMF Standby and Extended Fund Facility programs (Dreher 2002)

<sup>14</sup> Heckelman and Stroup aggregate the single components of economic freedom using an alternative weighting methodology. While their analysis is useful in checking which economic freedoms contribute to growth, this weighting procedure seems to be seriously flawed (Sturm et al. 2001).

interpretation, the number of programmes increases freedom because it increases both the conditions imposed by the IFIs and the number of contacts between them and national politicians, which raises the transfer of knowledge. However, if the level of financing associated with the programmes rises, this eases policy constraints for governments, which has a negative impact on governments' willingness to undertake reforms.

As the results show, World Bank projects are more likely to improve economic freedom than do IMF programmes. Programmes of the latter institution have, according to our estimates, not led to changes in structural, growth-oriented policies. This endorses recent criticism of the IMF demanding to scale back the mandate of the Fund in order to restrain its activities to key areas of expertise, providing short term balance of payments credits, and to let the World Bank deal with development goals (Meltzer and Sachs 2000, International Financial Institutions Advisory Commission 1999).

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## **Appendix A: Definitions and data sources of IFI variables**

### **I. NUMBER OF ARRANGEMENTS AT LEAST FIVE MONTHS ACTIVE**

a) *“Number of IMF arrangements at least 5 month active”* (Source: *IMF Annual Report, various years*): Number of arrangements that were active at least for 5 months in a given year under the following facilities:

- Standby Arrangements: Established in 1952. Programmes focus on short term balance of payments problems and last between one to three years. Repayments are due between three to five years. Loans are at market rates.
- Extended Fund Facility (EFF): Established in 1974. Programmes focus chiefly on structural balance of payments problems and chronic low growth and usually last for three years. Repayments are due between 4.5 and ten years. Loans are at market rates.
- Structural Adjustment Facility (SAF): Established in 1986; no new credits since 1993. Aims at reducing “protracted balance of payments difficulties” in the poorer IMF member countries. Programmes usually last for three years; conditionality is lower than under PRGF. Repayments are due between 5.5 and ten years. Loans are highly concessional.
- Poverty Reduction and Growth Facility (PRGF): Established in 1987 as Enhanced Structural Adjustment Facility (ESAF). Aims at reducing “protracted balance of payments difficulties” with a focus on poverty reduction in the poorer IMF member countries. Programmes usually last for three years. Repayments are due between 5.5 and 10 years. Loans are highly concessional.

b) *“Number of World Bank Adjustment Loans at least 5 month active”* (Source: <http://worldbank.org>): Number of projects classified as adjustment by the World Bank that were active at least for 5 months in a given year.

### **II. NUMBER OF ARRANGEMENTS APPROVED**

a) *“Number of arrangements approved”* (Source: *IMF Annual Report, various years and http://worldbank.org*): Number of arrangements that were approved in a given year under the above mentioned facilities or as classified by the World Bank in technical, adjustment and other arrangements.



### III. AMOUNT OF CREDIT PROVIDED

a) *IMF, "Amount of credit drawn"*(Source: *World Bank, Global Development Finance*): net change of countries' repurchase obligations as per cent of GDP with respect to all uses of IMF resources, excluding those resulting from drawings in the reserve tranche.

b) *"Amount of credit drawn under IMF Standby Arrangement"*(Source: *IMF, International Financial Statistics Indicators*): gross drawings as per cent of GDP.

c) *"Amount of credit drawn under IMF Extended Fund Facility"*(Source: *IMF, International Financial Statistics Indicators*): net drawings as per cent of GDP.

d) *"Amount of credit drawn under IMF Poverty Reduction and Growth Facility"*(Source: *IMF, International Financial Statistics Indicators*): net drawings as per cent of GDP.

e) *"Amount of credit drawn under IMF Structural Adjustment Facility"*(Source: *IMF, International Financial Statistics Indicators*): net drawings as per cent of GDP.

f) *World Bank, "Amount of credit drawn"* (Source: *World Bank, World Development Indicators*): net change of countries' outstanding IBRD loans and IDA credits (as explained below) in per cent of GDP in a given year.

g) *"Amount of loans provided by IBRD"* (Source: *World Bank, Global Development Finance*): Public and publicly guaranteed debt outstanding from the International Bank for Reconstruction and Development (IBRD) is nonconcessional. Nonconcessional debt excludes loans with an original grant element of 25 per cent or more. Gross drawings on loan commitments during the year specified in per cent of GDP.

h) *"Amount of credits provided by IDA"* (Source: *World Bank, Global Development Finance*): Public and publicly guaranteed debt outstanding from the International Development Association (IDA) is concessional. Concessional debt is defined as loans with an original grant element of 25 per cent or more. Gross Drawings on loan commitments during the year specified in per cent of GDP.

## Appendix B: Descriptive Statistics

**Table A1: Descriptive Statistics for the Programme Variables**

| Variable Group                                  | Variable                                  |         | Mean | Std. Dev. |
|---|---|---------|------|-----------|
| Number of Arrangements at least 5 months active | All IMF programs                          | overall | 0.45 | 0.44      |
|   |   | between |      | 0.34      |
|   |   | within  |      | 0.31      |
|   | IMF Standby Arrangement                   | overall | 0.21 | 0.29      |
|   |   | between |      | 0.20      |
|   |   | within  |      | 0.22      |
|   | IMF Extended Fund Facility                | overall | 0.08 | 0.20      |
|   |   | between |      | 0.13      |
|   |   | within  |      | 0.16      |
|   | IMF Poverty Reduction and Growth Facility | overall | 0.10 | 0.25      |
|   |   | between |      | 0.20      |
|   |   | within  |      | 0.18      |
| IMF Structural Adjustment Facility              | overall                                   | 0.06    | 0.15 |           |
|   | between                                   |         | 0.11 |           |
|   | within                                    |         | 0.12 |           |
| World Bank Adjustment Loans                     | overall                                   | 0.58    | 0.89 |           |
|   | between                                   |         | 0.71 |           |
|   | within                                    |         | 0.63 |           |
| Number of Arrangements approved                 | IMF Standby Arrangement                   | overall | 0.15 | 0.21      |
|   |   | between |      | 0.15      |
|   |   | within  |      | 0.16      |
|   | IMF Extended Fund Facility                | overall | 0.03 | 0.09      |
|   |   | between |      | 0.10      |
|   |   | within  |      | 0.06      |
|   | IMF Poverty Reduction and Growth Facility | overall | 0.04 | 0.10      |
|   |   | between |      | 0.07      |
|   |   | within  |      | 0.09      |
|   | IMF Structural Adjustment Facility        | overall | 0.02 | 0.06      |
|   |   | between |      | 0.03      |
|   |   | within  |      | 0.06      |
| All World Bank projects                         | overall                                   | 2.86    | 2.75 |           |
|   | between                                   |         | 2.53 |           |
|   | within                                    |         | 0.97 |           |

**Table A1 (continued)**

| Variable Group         | Variable   |                              | Mean | Std. Dev.            |
|------------------------|--|------------------------------|------|----------------------|
|                        | World Bank Adjustment Loans  | overall<br>between<br>within | 0.29 | 0.47<br>0.36<br>0.35 |
|                        | World Bank Technical Loans   | overall<br>between<br>within | 0.20 | 0.27<br>0.19<br>0.20 |
|                        | World Bank other loans   | overall<br>between<br>within | 2.31 | 2.58<br>2.36<br>0.84 |
| Amount of credit drawn | All IMF arrangements, net flows, in per cent of GDP                      | overall<br>between<br>within | 0.20 | 0.65<br>0.48<br>0.56 |
|                        | IMF Standby Arrangements, new credits, in per cent of GDP                | overall<br>between<br>within | 0.20 | 0.41<br>0.31<br>0.31 |
|                        | IMF Extended Fund Facility, net flows, in per cent of GDP                | overall<br>between<br>within | 0.02 | 0.16<br>0.15<br>0.14 |
|                        | IMF Poverty Reduction and Growth Facility, net flows, in per cent of GDP | overall<br>between<br>within | 0.07 | 0.21<br>0.14<br>0.16 |
|                        | IMF Structural Adjustment Facility, net flows, in per cent of GDP        | overall<br>between<br>within | 0.01 | 0.08<br>0.03<br>0.08 |
|                        | All World Bank loans, net flows, in per cent of GDP                      | overall<br>between<br>within | 0.93 | 1.34<br>1.19<br>0.70 |
|                        | IBRD loans, new credits, in per cent of GDP                              | overall<br>between<br>within | 0.43 | 0.51<br>0.42<br>0.30 |
|                        | IDA credits, new credits, in per cent of GDP                             | overall<br>between<br>within | 0.71 | 1.37<br>1.26<br>0.65 |

Note: All numbers are based on the estimation sample.

**Table A2: Descriptive Statistics for the Independent Variables**

| Variable  | Data Source                       |         | Mean   | Std. Dev. |
|---|-----------------------------------|---------|--------|-----------|
| military rule, dummy                                    | Beck et al.                       | overall | 0.31   | 0.44      |
|   |                                   | between |        | 0.37      |
|   |                                   | within  |        | 0.25      |
| exports into industrialized countries (per cent of GDP) | IMF Direction of Trade Statistics | overall | 0.18   | 0.13      |
|   |                                   | between |        | 0.12      |
|   |                                   | within  |        | 0.06      |
| technical cooperation grants (per cent of GDP)          | WDI                               | overall | 1.66   | 2.41      |
|   |                                   | between |        | 2.75      |
|   |                                   | within  |        | 0.73      |
| secondary schooling enrolment                           | WDI                               | overall | 39.35  | 25.50     |
|   |                                   | between |        | 26.81     |
|   |                                   | within  |        | 7.47      |
| number of radios per 1000 capita                        | WDI                               | overall | 222.44 | 185.91    |
|   |                                   | between |        | 178.56    |
|   |                                   | within  |        | 87.12     |

Note: All numbers are based on the estimation sample.