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Forced to Freedom?

Empirical relations between aid and economic freedom

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Januar 2007

Abstract

The paper explores the relationships between *economic freedom* on the one side and *development aid* and *IMF credit as approximation for conditional aid* on the other side. After a short review of current literature the paper develops a simple panel regression model to evaluate the relationships. In contrast to previous research, our results allow the rejection of the hypothesis that IMF credit increases economic freedom and that development aid is not contributing to economic freedom. It could not be shown that countries can be forced to economic freedom by aid conditions. The paper discusses explanations of the empirical findings.

Key words: Aid receiving countries, economic freedom, development aid, IMF credit

JEL classification: F35, O19, P10

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Abstract

The paper explores the relationships between *economic freedom* on the one side and *development aid* and *IMF credit as approximation for conditional aid* on the other side. After a short review of current literature the paper develops a simple panel regression model to evaluate the relationships. In contrast to previous research, our results allow the rejection of the hypothesis that IMF credit increases economic freedom and that development aid is not contributing to economic freedom. It could not be shown that countries can be forced to economic freedom by aid conditions. The paper discusses explanations of the empirical findings.

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I INTRODUCTION

A controversial issue discussed in the literature is whether foreign aid leads to increasing economic growth in recipient countries (see e.g. Hudson, 2004: 185-6). Rather unambiguous is, however, the scholarly debate on whether economic freedom is favorable for economic growth. Current literature on economic development finds positive correlation between economic freedom and economic development (see e.g. Miles et al., 2005: 18, Powell and Ryan, 2005, and De Haan, 2003) and also suggests that economic freedom is a precondition for economic development (Pasicolan and Fitzgerald, 2002: 7-8). If this relationship holds then, to promote economic growth, foreign aid should increase, or at least not negatively affect, economic freedom within the recipient country. Otherwise economic growth initiated by aid, e.g. via the investment channel, could be interfered with by negative effects of aid on economic freedom. However, the literature indicates that at least some forms of foreign aid act system preserving and support rent seeking behavior. The discussion is linked to the 'curse of natural resources' debate and in this respect, research indicates that foreign aid, as well as natural resources have a negative impact on democracy (Djankov et al., 2005: 8-17).

Thus the objective of the present study is to examine whether different forms of foreign aid affect economic freedom and, therefore, economic growth in recipient countries. Answers are sought mainly to the question whether overall foreign aid and conditional support promote or impede economic freedom. To examine this, panel analysis is used with the "Heritage Index of Economic Freedom" as dependent variable and "official development assistance" and "IMF credit" as independent variables, while controlling for other variables considered of importance in the literature.

Previous research on economics of aid found that unconditional foreign aid is, if not utterly insignificant, negatively correlated with economic freedom (see e.g. Vásquez, 1998: 279). Conditional support, however, as in the case of IMF credit, is found to increase economic freedom and is therefore regarded as more successful in supporting economic development (Boockmann and Dreher, 2003: 637-47).[1] However, whilst these previous studies usually refer either to official development assistance or to support by international financial institutions (e.g. International Monetary Fund) this study includes both variables to examine the relationship between economic freedom and different forms of foreign aid at the same time. Furthermore, contrary to previous studies, which usually use the Economic Freedom Index provided by the Fraser Institute (see Gwartney and Lawson, 2005), in this study the Economic Freedom Index from the Heritage Foundation is used.[2] This index is, in many respects, similar to the Economic Freedom

[1] Boockmann and Dreher (2003) find that the number of programs, not the amount of credit increases economic freedom.

[2] The data is available at www.heritage.org/research/features/index/index.cfm.

Index by the Fraser Institute but it has the advantage of being available at an annual basis.[3]

Section 2 discusses the relationship between economic growth and freedom and how foreign aid might influence economic freedom. Section 3 describes the estimation method and data used and presents and discusses empirical results. The summary and discussion of the findings are presented in the final part of the paper.

II INTERRELATIONS BETWEEN AID, ECONOMIC FREEDOM AND ECONOMIC DEVELOPMENT

One of the overarching objectives of foreign aid is, beside emergency aid as is for example given in case of a starvation disaster, to stimulate economic growth of recipient countries. However, despite of a large amount of foreign aid flowing to developing countries over the years, recipient countries usually remained poor or even became poorer (UNDP, 1996: 1). Especially in the 1990s in respect to aid enthusiasm amongst donors declined (Hudson, 2004: 185) along with the extent of aid flows (see e.g. Collier and Dollar, 2004: 244, and Addison et al., 2005: 991-6 for aid volumes to Sub-Saharan Africa). This observation let economists to rethink whether and under what circumstances foreign aid stimulates growth. Empirical literature discussed this issue quite extensively in recent years. In a nutshell, the early strand of empirical literature indicates that aid has a positive effect on growth (e.g. Papanek, 1972). However, a second strand of literature questions these findings. For example, Mosley et al. (1987) and Boone (1996) find no relationship between aid and growth for developing countries; it is rather the case that aid increases the size of governments. The most recent strands of literature, however, suggest that aid is growth enhancing when it meets a favorable environment in the recipient countries (see e.g. Addison et al., 2005 for a literature overview).[4]

An important element of such a favorable environment seems to be an encouraging economic climate or in other words, a market system based on economic freedom. The empirical literature indicates that economic freedom is positively related to economic growth. For example Scully and Slottje (1991), De Vanssay and Spindler (1994), Islam (1996), Hanke and Walters (1997), Easton and Walker (1997), Dawson (1998), and Heckelman and Stroup (2000) find that economic freedom is positively related to the level of economic development and economic growth.[5] However, De Haan (2003)

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[3] The economic freedom index provided by the Fraser Institute is available at five-year frequency until 2000; only after 2000 it is available at annual frequency (see Gwartney and Lawson, 2005). For a comparison of these two indicators see e.g. De Haan and Sturm (2000) and Hanke *and* Walters (1997).

[4] Some current articles again question this finding and focus on absorptive capacity (see Loots, 2006).

[5] See for a literature overview De Haan (2003).

points out that these studies usually do not consider all relevant estimation problems. He also notes that studies which include these considerations find only a positive change of economic freedom is related to economic growth (De Haan and Sturm, 2000, Sturm and De Haan, 2001, and Pitlik, 2002).

These findings, especially that aid can be growth enhancing when it meets a favorable environment and that a positive change in freedom is growth enhancing, suggest that the relationship between aid and economic freedom is relevant for economic growth. The question arising in particular is how aid may influence economic freedom, and thus economic growth.

The literature on aid and economic freedom identifies different transmission paths of aid on economic freedom and growth. On the positive side aid can be a means of growth enhancing public investment, which could stimulate additional private capital flows towards developing countries. Public investment based on foreign aid is financed without the need to tax domestic citizens and can, therefore, increase economic freedom (Powell and Ryan, 2005: 13, Vásquez, 1998: 277). The little empirical evidence there is for economic freedom enhancing foreign aid is reasoned for by various claims which try not only to explain why aid impulses do not translate into increased economic freedom, but also why foreign aid may lead to a reduction of economic freedom. The channels of explanation include the use of aid for neither freedom nor growth enhancing policy, such as the increase of public consumption or financing of projects preferred by domestic governments instead of investment (Vásquez, 1998: 278) and the characteristic of aid to increase the size and scope of governments – absolutely and relative to private sector (Powell and Ryan, 2005: 2, 13). The reduced need for domestic taxation leads to a reduced pressure for policy reform (Collier and Dollar, 2004: 262-3). It is also identified in the literature that aid may negatively harm economic freedom because of the specific provision of foreign aid by donor countries. Thus, aid seems to be mainly distributed to countries whose governments maintain growth-thwarting policies (Vásquez, 1998: 278) and leads to propping up of institutions resisting economic liberalization (Hanke and Walters, 1997: 144, Powell and Ryan, 2005: 11). Therefore, the expectance of aid may lead to reduced efforts of liberal reform and to a reduction of pre-cautionary measures (Boockmann and Dreher, 2003: 636, Collier and Dollar, 2004: 257).[6] Accordingly, Hanke and Walters (1997: 144) conclude that foreign aid is not a necessary condition for economic growth and Powell and Ryan (2005: 2) even state that aid is an "anti-market force" which leads to "expulsion of productive groups, suppression of private trade, restriction of the inflow of foreign capital, confiscation of property, forced collectivization, takeover of foreign enterprises, discouragement of agriculture, support of unviable projects, and import substitution." This leads to the conclusion that overall aid reduces economic freedom.

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[6] For example Knack (2001) finds that aid is positively correlated with corruption.

The long-lasting debate of aid effectiveness led to two possible measures, selective and conditional aid[7], which may reduce the negative effects of aid on economic freedom and growth, while not abandoning the potential benefits from foreign aid. This paper focuses on conditional support in comparison to overall aid, while selective aid, where countries have to meet preconditions before qualifying for donor support, will not be included in the empirical analysis due to a lack of data. Conditional support has the advantage that specific agreed upon policy measures can be implemented which directly increase economic freedom. Besides this direct effect, conditional support could stimulate private capital flows as it could work as a kind of official approval of a positive economic environment (Vásquez, 1998: 282). Other potentially indirect effects of conditional support are listed by Boockmann and Dreher (2003: 635) and include the negotiation process with donors potentially leading to political advantages of pro-market reform politicians, the involvement of civil society possibly encouraging a liberal consensus, a lack of reform capacity in developing countries may be overcome by welcome advice, reform programs which underlie conditional support can be improved in their efficiency by learning from recipients countries experience, and that complementary training may enhance domestic capacities to reform. These potential advantages of conditional support are, however, questioned by the argument that promises about reforms are seldom kept (Hudson, 2004: 188) and that, from an institutional perspective, even lenders, i.e. development agencies, are not interested in proper reforms, which would make them obsolete (Vásquez, 1998: 282). However, since the arguments against the effective use of conditional support do not indicate that conditional support would be more harmful than unconditional aid and since there are arguments that the positive effects of aid can be better ensured if conditions are in place, we conclude that conditional support is expected to yield better results with regard to economic freedom.

The discussion of conditional support versus overall aid leads to two hypotheses: Firstly, overall aid reduces economic freedom. Secondly, conditional support increases economic freedom.

III TESTING THE RELATIONSHIP BETWEEN ECONOMIC FREEDOM AND AID

1. Data and method

The first issue with regard to the empirical analysis of the relationship between aid and economic freedom is the decision of which available data can appropriately measure economic freedom. There exist two indices for this purpose: the Economic Freedom

[7] For a discussion see e.g. Hudson (2004: 188).

Index of the Fraser Institute and the Heritage Foundation Index of Economic Freedom.[8] Both indices try to include the whole range of government activities which are related to economic freedom and market friendliness, e.g. property rights, and freedom of transaction. Although both indices are somewhat different in their methodology, e.g. the Fraser index consist of 23 components classified in five core components (Gwartney and Lawson, 2005) whilst the Heritage Foundation index consist of 50 components classified in ten core components (Beach and Miles, 2006: 56), a comparison by Hanke and Walters (1997) indicates that their results are comparable and similar; both indices are highly correlated with each other (ibid.: 135-6). However, both indices have some advantages and disadvantages.

The Fraser index is available from 1970 to 2003, however not for all years and not for all countries. The first draw in 1970 contains data for 53 countries, after that the index is available at five-year intervals extended successively by further countries until 2000. Since then the index is available on an annual basis and contains information for 123 countries. The advantage is that the index allows comparison for more than three decades. In contrast, the advantage of the Heritage Foundation index is that it is available on an annual basis however only for a shorter time period, from 1995 to 2006. Furthermore, it is also available for some 140 countries for nearly the whole time period.[9]

To serve the purpose of our study the Heritage Foundation index seems to be more favorable for three reasons. Firstly, in terms of time period, the shorter availability seems not to be disturbing. The advantage of the use of more current data is that the regime switch in development policy and the abolition of communist regimes in the 1990s which led to structural breaks is not interfering (see Collier and Dollar, 2004: 244), hence the use of the time period from 1995 onwards seems to be favorable to capture the actual influence of development aid on economic freedom. Secondly, the annual availability of the Heritage Foundation index matches better with the frequency of the independent variables. Thirdly, in terms of the number of observations the Heritage Foundation is superior. In particular it includes a higher number of countries and is available on an annual basis. Hence, the Heritage Foundation index is used. The core components of this index are: trade policy, fiscal burden, government intervention, monetary policy, capital flows, banking and finance, wages and prices, property rights, regulation, and informal market activity. For a description of the contents of the core components see annex 1. The index decreases with increasing economic freedom.

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[8] Another index is provided by the *Freedom House*, however this index rather measures political freedom and civil liberties, than economic freedom (see e.g. Hanke and Walters 1997 and http://www.freedomhouse.org).

[9] It started in 1995 with information for 106 countries and extended the countries included already in 1996 to a number of 143 countries. In 2005 it is available for 159 countries.

The second issue to be considered is which available data can be employed to test the hypotheses with regard to conditional support and overall aid. As a measure for overall aid we use the aid per capita data provided by the World Bank's World Development Indicators, which are calculated from OECD data of aid flows including both, Official Development Assistance (ODA) and Official Aid (OA),[10] and from World Bank's population data. Both measures of aid meet the same specifications, e.g. they bear a grant element of at least 25 percent. Official development assistance is provided in various different frames: unconditional, conditional, and selective aid; therefore it is regarded as appropriate approximation for overall aid. As a measure for conditional support we use IMF disbursements to member countries per capita generated from original IMF data about countries' transactions with the fund and World Banks Population data. IMF transactions are not included in the overall aid, since they do not bear a grant element. All forms of IMF disbursement are conditional (see IMF, 2005). The conditionality of IMF credit is implemented by a letter of intent in which the recipient countries spell out plans to reform. The first tranche is usually disbursed on this promise, while further tranches are disbursed after observing progress in the fulfillment of the conditions. The general objective of IMF conditionality is to resolve a country's balance of payments difficulties by policy measures which address the underlying structural problems. Examples can be found in the reduction of public debt and the liberalization of prices and trade which can be generally regarded as economic freedom enhancing. Therefore, IMF disbursements are regarded as best available data for conditional support.

With respect to the availability of these variables our sample consists of 104 countries covering the years 1995 to 2004. The selection includes countries for which data of the Heritage Economic Freedom Index is available and which received aid in the period of observation. To get a first impression on the data, table 1 presents some descriptive statistics.

[10] There is no difference between ODA and OA other than that ODA is directed towards "traditional" developing countries (included in part I of the OECD's Development Assistance Committee (DAC) list), while OA is directed towards more advanced and transition economies (included in part II of the DAC list) (OECD, 2006a and 2006b).

Table 1: Development of economic freedom, aid, and IMF disbursements in the sample

Variable		Year									
		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Economic Freedom Index	Mean	3.28	3.32	3.27	3.23	3.20	3.20	3.16	3.13	3.09	3.08
	Standard deviation	0.58	0.63	0.63	0.63	0.62	0.63	0.64	0.60	0.57	0.57
	Growth rate [in %]		1.4	-1.5	-1.1	-1.0	-0.1	-1.3	-0.8	-1.2	-0.5
Aid	Total [in billion US $]	43.3	39.3	33.5	36.1	37.9	34.7	36.3	38.0	38.5	
	Growth rate [in %]		-9.3	-14.7	7.7	4.9	-8.3	4.5	4.6	1.5	
IMF disbursements	Total [in billion US $]	27.0	8.2	23.0	28.5	14.5	9.7	31.0	33.4	29.1	6.4
	Growth rate [in %]		-69.6	180.7	23.8	-49.2	-32.8	218.4	7.7	-12.8	-77.9

Source: Heritage Foundation, World Bank, and IMF; own calculations.

As shown in table 1 economic freedom of the sample countries as measured by the Heritage Foundation seems to increase since 1996. The average score of the countries decreased from 3.32 in 1996 to 3.08 in 2004, which indicates an increase in economic freedom. Similarly the standard deviation decreased which indicates that the differences between the countries considered declined. In contrast the total sum of aid received by the sample countries shows no uniform picture. From 1995 to 1997 the flow of aid decreased dramatically from 43.3 billion US dollar to 33.5 billion US dollar. After that decrease the extent of aid flow increased slightly resulting in another slump in 2000. However, the amount of aid seems to be more or less constant since 1999 with a sum of around 38 billion US dollar. Whilst the extent of aid seems to be constant this is not the case for IMF disbursements. The figures clearly indicate that IMF disbursements are high in time of a crisis and low otherwise, and that they show an overall increasing trend.

To examine the effect of aid on economic freedom empirically we use GLS panel estimation. The simple model specification to test whether overall aid and conditional support effects the change of economic freedom is as follows:

$$\Delta FREE_{it} = \alpha + ß_1 AID_{it} + ß_2 IMF_{it} + u_i + \varepsilon_{it} \qquad (1)$$

where $\Delta FREE_{it}$ is the year to year change of the value of the Heritage Economic Freedom Index of a country, AID_{it} is the extent of official development assistance per capita, IMF_{it} is the amount of IMF credit per capita a country received in the respective year, α is a constant term, and $u_i + \varepsilon_{it}$ is treated as an error term consisting of two components, a country specific component which does not vary over time, and a remainder component which is assumed to be uncorrelated over time.

A standard issue in panel data econometrics is whether to employ a random or a fixed estimation model. In our case the Hausman test does not argue against the use of a random effects model therefore it can be assumed that the individual effects are

uncorrelated with the other regressors, and a random effects model seems to be appropriate.

Another concern with regard to the above mentioned model specification is that this simple model design may not be exhaustive in explaining the change in economic freedom. That is, the simple regression model should be recalculated under control of other variables. Because of the lack of a theoretical model which explains the impacts on economic freedom we are considering various variables used in the empirical literature so far. Determinants that might influence changes of economic freedom in a country might be GDP per capita growth, macroeconomic shocks such as declines of GDP per capita growth rates of 5 percent points, changes in the terms of trade, terms of trade shocks such as a 5 percent deterioration in terms of trade indices, changes in the political system indicated by a political rights index, the primary commodity dependence measured as the share of fuel exports as percent of total exports, as well as the level of human ability to stand in for economic freedom measured by school enrolment indicators.[11] Various other measures that would be regarded as important for economic freedom in a general theoretical model, such as the level of corruption, must be excluded from the set of independent variables since they are part of the economic freedom index of the Heritage Foundation. This reflexts a fundamental problem of empirically dealing with composit indicators: The estimation of a fully specified theoretical model is not possible due to the empirical inability to explain a variable be components of itself. The full estimation model is:

$$\Delta FREE_{it} = \alpha + ß_1 AID_{it} + ß_2 IMF_{it} + ß_3 GDP\_PC\_GRO_{it} + ß_4 GDP\_SHOCK\_DUM_{it}$$
$$+ ß_5 POL\_RIGHTS\_CHA_{it} + ß_6 FUEL\_EXP_{it} + ß_7 TOT\_CHA_{it}$$
$$+ ß_8 TOT\_SHOCK\_DUM_{it} + ß_9 SCHOOL\_ENROL_{it} + u_i + \varepsilon_{it} \qquad (2)$$

We start our estimation procedure by estimating the core model, which is then extended by other explanatory variables to evaluate their influence on the results of the core model. To test the robustness of the results we conduct the same procedure for two sub-samples. Finally, as part of the discussion of the results we conduct a level estimation of economic freedom, to detect possible selection differences between IMF support countries and overall aid reception countries.

[11] Similar Boockmann and Dreher (2003) use data for school enrolment and export figures; Collier and Dollar (2004: 251) stress the importance of macroeconomic and terms of trade shocks; De Haan and Sturm (2003) emphasise the importance of political rights for economic freedom. All data used here is drawn or based on World Bank's World Development Indicators, except for the political right index, which is taken from Freedom House (2006). A review of the correlation matrix indicates no multicollinearity between all variables considered.

2. Empirical results

The results of the various estimations are reported in table 2. Since the economic freedom index is a composite index consisting also of qualitative variables, the coefficients indicating the quantitative relationships between the dependent and independent variables are difficult to interpret. We are, therefore, restricting the discussion to the signs and significance of the results, while still reporting the coefficients.

Table 2: Estimation results on changes in the Economic Freedom Index (whole sample)

	Dependent variable: Annual change in economic freedom								
	1	2	3	4	5	6	7	8	9
Aid, pc	-0.0002 *	-0.0002 *	-0.0002 *	-0.0002 *	-0.0004 **	-0.0003 *	-0.0004 *	-0.0005 **	-0.0005
IMF, pc	0.0005 **	0.0005 **	0.0006 ***	0.0005 **	0.0005 **	0.0005 **	0.0004 *	0.0006 **	0.0005 **
GDP, pc growth		-0.0007							0.0005
GDP shock dummy			-0.0217						-0.0072
Pol. rights, change				0.0139					0.0046
Fuel exports					0.0003				0.0000
ToT, change						0.0340			0.0935
ToT shock dummy							-0.0174		0.0043
School enrolment								-0.0002	-0.0001
Constant	-0.0308 ***	-0.0290 ***	-0.0287 ***	-0.0304 ***	-0.0347 ***	-0.0222 **	-0.0197 *	-0.0032	-0.0015
No. of countries	104	102	104	103	101	72	72	102	63
No. of observations	807	792	803	799	663	461	461	435	233
Prob > χ^2	0.0084	0.0188	0.0130	0.0116	0.0018	0.0537	0.0477	0.0077	0.5468

* significant at 10 percent level, ** significant at 5 percent level, *** significant at 1 percent level.

The estimation of the core model yields a surprising result; while the coefficient of overall aid is significantly negative; the coefficient of IMF credit is significant and positive. The economic freedom index increases with lower economic freedom; a positive change of the index indicates therefore less economic freedom. Accordingly, a positive coefficient of the IMF credit measure indicates that a positive amount of IMF credit transferred to a country is related to decreasing economic freedom. The Wald χ^2 test statistic shows the estimation model as having advantages over a pure random model and can be interpreted. Thus, from the estimation of the core model we could conclude that the first hypothesis, overall aid decreases economic freedom, can be

rejected and the second hypothesis, IMF credit enhances economic freedom, can also be rejected. Since one can argue that the impact of the IMF conditionality and aid acts retarded we re-estimated the model with lagged variables (up to three years), however, this does not change the results. However, before drawing conclusions we consider seven other possible explanatory variables.

The growth rate of per capita GDP is an indicator for economic development. If positive economic development were positively related with economic freedom we would expect a significant negative coefficient. The second row in table 2 reports a negative but non-significant coefficient, which is not interfering with the coefficients of the core model. We conclude that the variable adds no value to the estimation and drop it again.

The inclusion of a dummy variable for GDP growth shocks is the next step. We consider the variable as important because it can be argued that the negative impact of IMF credit on economic freedom could simply result from the fact that credit is only provided in times of serious economic trouble. Thus, the crisis may reduce economic freedom and it is therefore not the IMF support, which is provided at the same time, impeding economic freedom. The variable (1 for differences in growth rates of minus five percent points or less, 0 for all other cases) becomes insignificant (see row 3 in table 2). We conclude from this estimation that the IMF credit variable in the core model does not show a positive sign because of an unobserved negative effect of macroeconomic shocks on economic freedom.

In the fourth estimation we include a variable that measures the change of the political rights index of the Freedom House. We are arguing that political freedom may be linked with economic freedom and positive changes in one index may be related to positive changes of the other. The estimation shows a positive coefficient which remains, however, not significant. The inclusion of the variable does not change the significance of the core model and does not add value to the explanatory power of the core model.

In a further estimation (see row 6) we include a changes-in-terms-of-trade variable. The idea behind the inclusion is that a favorable foreign trade positions, e.g. increases in the terms of trade, may result in less opposition against trade liberalization and may therefore lead to increased trade openness and economic freedom. The estimation results in an insignificant coefficient for the terms of trade variable.

We then construct a terms of trade shock variable indicating a drop in the countries' terms of trade index of at least 10 percent. We consider this variable as being of interest since the IMF may react on a balance of payment crises, which may consist of economic freedom decreasing because governments restrict the freedom of trade due to crises. The inclusion of the variable may, therefore, capture a so far undetected effect borne by the IMF credit measure. The estimation shows a negative sign of the coefficient, just as in the case of the GDP shock dummy, but it also remains insignificant. The significance of

the core model remains. We conclude that the coefficient of the IMF credit variable is not overlaid by a terms of trade shock effect.

Finally we include a school enrolment variable to capture the capacity of a society to understand the advantages of the abstract concept of economic freedom and to articulate the will to demand economic freedom (see row 8). We test various measures of school enrolment. Gross secondary school enrolment yields the best fitting results, however still not significant at a 10 percent level.

We then estimate a model including all potentially explanatory variables (see row 9), which leads to reduced explanatory power compared to the core model. We then undertake estimations with various combinations of the explanatory variables (not reported in table 2) without being able to increase the power of the estimation compared to the core model. As a final point we conduct a Wald χ^2 test on the combined significance of the variables we added to the core model. The probability of 0.9959 does not allow concluding that the additional variables would add value to the core model.

The results of the estimation models presented in table 2 can be summarised as follows: First, aid per capita is positively correlated with economic freedom. Second, IMF credit shows significant positive signs in all estimation models and is therefore negatively correlated with economic freedom. Other variables are insignificant and their interrelation with economic freedom can hardly be interpreted.

3. Robustness tests and test for endogeneity

Before we draw conclusions regarding the hypotheses and interpret the results we are testing the robustness of the results by conducting the same exercise with two sub-samples. The first includes the 24 sub-Sahara African countries of the sample, one of the least developed region in the world. The second includes all countries but only data from 2000 onwards. The main findings of the estimations of the whole model are verified by the results of the sub-sample estimations (see table 3). The model including the limited time frame confirms the results of the above analysis, aid is positively and IMF credit is negatively correlated with economic freedom. The core model of the sub-Sahara African sub-sample leads to insignificant results regarding the aid variable, while IMF credit has a significant negative impact on economic freedom in African countries too.

The literature (e.g. Heckelman and Knack, 2005: 9) discuses that aid variables may be potentially endogenous because aid flows may depend on economic freedom in the recipient countries. To test for endogeneity we construct instrument variables for IMF credit as well as for aid. As instruments we use the lagged variables as well as highly correlated variables from our database. We employ general two stage least square estimation procedure for panel data with random effects. We then use a Durbin Wu Hausman test to test for systematic differences in the coefficients. The null hypothesis of

no systematic differences cannot be rejected for the IMF credit case and the aid case using both lagged data and other highly correlated variables as instruments. Thus, we conclude that endogeneity is not a problem in our above described estimation procedure.

Table 3: Estimation results on changes in the Economic freedom Index (sub-samples)

	Dependent variable: Annual change in economic freedom	
	Sub-Sahara African sub-sample	2000-2004 sub-sample
Aid, pc	-0.0005	-0.0006***
IMF, pc	0.0098**	0.0007***
Constant	-0.0359	-0.0125
No. of countries	24	104
No. of observations	186	416
Prob > χ^2	0.0566	0.0005

* significant at 10 percent level, ** significant at 5 percent level, *** significant at 1 percent level.

4. Discussion of the results

After considering various explanatory variables in extension of the core model and after testing the robustness of the results by conducting sub-sample estimations, we can now conclude that the first impression following from the estimation of the core model is persistent.

The hypothesis which claims overall aid to be decreasing economic freedom can be rejected. The estimations indicate that aid flows are negatively correlated to changes in the Economic Freedom Index.

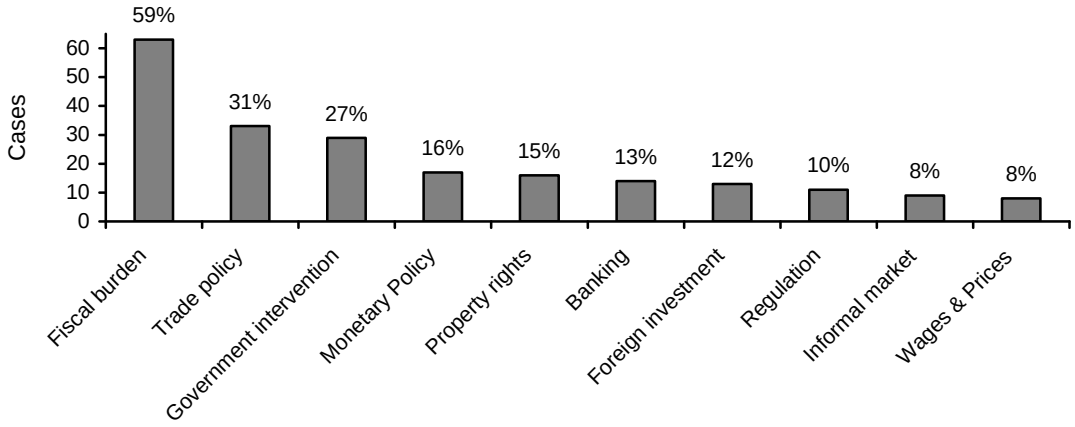
The second hypothesis, that IMF credit is economic freedom enhancing can be rejected. The results of the estimation indicate that financial IMF support is economic freedom decreasing. This result is robust to changes of samples. It is also evident from the above analysis that IMF credit is worse than overall aid regarding the effect on economic freedom.

The estimation results raise two questions: why IMF credit has negative effects on economic freedom and why IMF credit is less favorable than overall aid. The first question could be answered by blaming the negative effects of conditioned aid, as outlined in section 2 to IMF credit, and by arguing that the imposed conditions are seldom fulfilled. We could also blame all the negative effects of unconditioned aid to explain the negative impacts of IMF credit on economic freedom. What we cannot

explain by these claims is why IMF credit is less favorable than aid. We are therefore returning to the data to bring some light in the dark.[12]

As stated above and documented in annex 1, the economic freedom index is constructed of 10 sub-categories of economic freedom. In order to find out how IMF credit is affecting the different sub-categories we use a sub-sample of observations in which cases a positive amount of IMF credit meet an increasing economic freedom index. The sub-sample comprises of 106 observations. Which sub-categories are worsening in the respective periods in the respective countries is reported in figure 1.

Figure 1: Cases of sub-category worsening in the IMF credit and positive economic freedom index change cases



Source: Heritage Foundation; own calculation.

The figure shows the fiscal burden sub-category being of outstanding importance for the worsening of the economic freedom index in the cases of IMF credit. While all other categories are worsening in less than a third of the cases, the fiscal burden worsens economic freedom in more than half of the cases. The fiscal burden sub-category comprises three measures: the top marginal income tax rate, the top marginal corporate tax rate, and the year-to-year change in government expenditure as a percent of GDP. The first two of these measures may be affected by IMF conditionality, which usually includes a fiscal tightening to reduce government debt. It seems that the fiscal consolidation is undertaken in most of the cases by increasing taxes instead of reducing spending.[13] Expenditure may also not be reduced because of the availability of resources provided by IMF credit. At the same time, shrinking GDP, caused by an IMF support-

[12] Another idea was to test whether IMF credit and aid are distributed differently between countries with different degrees of freedom. Therefore, we regressed aid per capita and IMF credit per capita on the level of the economic freedom variable. We found no significant result, which could provide evidence for a different distribution.

[13] Boockmann and Dreher (2003: 646) state that IMF credit go hand in hand with increasing taxes.

raising crisis, leads to increasing figures of expenditure per GDP even if spending is constant or slightly shrinking. Thus, the negative effect of IMF credit on the fiscal burden measure of the Heritage index is comprehensible. This negative effect tops possible positive effects of IMF conditionality on other sub-categories of the Freedom index and leads to the overall negative impact on the economic freedom index.

IV CONCLUSIONS

The analysis of the interdependences between overall aid and IMF credit, as measure for conditional support on the one side and economic freedom on the other side demonstrates clearly that the introduction of conditions on aid does not increase the economic freedom, as measured by the economic freedom index, in aid receiving countries. It can be concluded that the postulation of post-drawing conditions has not been helpful in order to increase economic freedom, as measured by the economic freedom index, during the period of observation. If the aforementioned positive relation between the economic freedom index and economic growth holds, then conditional support was just as little helpful to initiate growth processes.

However, we are also concluding that the effect of conditional IMF credit on the economic freedom index is concentrated on one specific sub-category of the index, namely the fiscal burden. This category includes measures for tax rates as well as for public spending in relation to GDP. If one of the conditions of IMF support would be fiscal consolidation and if countries would fulfill this condition by increasing taxes and not by reducing expenditure, then the condition will lead to less economic freedom, as measured by the index. In the index of the Heritage Foundation the positive effect of such a policy, that is to say the reduction of public deficits or even debt, is not defined as increasing economic freedom. It could be argued however that such a policy could increase economic freedom, e.g. by less public competition on credit markets. This condition is aimed to increase economic stability rather than economic freedom and is responsible for the overall negative impression of conditional IMF support because it excels other freedom enhancing conditions such as the demand to liberalise prices and foreign trade. This is also due to the specific weights of the sub-categories in the index. Thus, we cannot conclude from the effect of the IMF credit on the economic freedom index that the IMF conditions do not contribute to a favorable economic environment, although the index suggests it.

Therefore further research should evaluate other variations of aid, such as selective aid, which is only provided if pre-conditions are fulfilled and other forms of conditional aid with conditions on public spending instead of conditions on public deficits.

Assuming, as stated initially, that IMF credit is an appropriate approximation for conditional support and that the economic freedom index of the Heritage Foundation is an appropriate approximation for economic freedom, we must conclude that the

establishment of conditions of the international donor community cannot force economic freedom in developing countries.

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Annex 1: Components of the Heritage Index of Economic Freedom

Area	Core components	Contents
I	Trade policy	Weighted average tariff rate
		Non-tariff barriers
		Corruption in the custom service
II	Fiscal burden of government	Top marginal income tax rate
		Top marginal corporate tax rate
		Year-to-year change in government expenditures as a percent of GDP
III	Government intervention in the economy	Government consumption as a percentage of the economy
		Government ownership of businesses and industries
		Share of government revenues from state-owned enterprises and government ownership of property
		Economic output produced by the government
IV	Monetary policy	Weighted average inflation rate from 1995 to 2004
V	Capital flows and foreign investment	Foreign investment code
		Restrictions on foreign ownership of business
		Restrictions on industries and companies open to foreign investors
		Restrictions and performance requirements on foreign companies
		Foreign ownership of land
		Equal treatment under the law for both foreign and domestic companies
		Restrictions on repatriation of earnings
		Restrictions on capital transactions
		Availability of local financing for foreign companies
VI	Banking and finance	Government ownership of financial institutions
		Restrictions on the ability of foreign banks to open branches and subsidiaries
		Government influence over the allocation of credit
		Government regulations that inhibit financial activity
		Freedom to offer all types of financial services, securities, and insurance policies
VII	Wages and prices	Minimum wage laws
		Freedom to set prices privately without government influence
		Government price controls
		Extent to which government price controls are used
		Government subsidies to businesses that affect prices
VIII	Property rights	Freedom from government influence over the judicial system
		Commercial code defining contracts
		Sanctioning of foreign arbitration of contract disputes
		Government expropriation of property
		Corruption within the judiciary
		Delays in receiving judicial decisions and/or enforcement
		Legally granted and protected private property
VIIII	Regulation	Licensing requirements to operate a business
		Ease of obtaining a business license
		Corruption within the bureaucracy
		Labor regulations, such as established workweeks, paid vacations, and parental leave, as well as selected labor regulations
		Environmental, consumer safety, and worker health regulations
		Regulations that impose a burden on business
X	Informal market activity	Smuggling
		Piracy of intellectual property in the informal market
		Agricultural production supplied on the informal market
		Manufacturing supplied on the informal market
		Services supplied on the informal market
		Transportation supplied on the informal market
		Labor supplied on the informal market

Source: Beach and Miles (2006: 58-74).