

Kangoye, Thierry

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Does foreign aid promote democracy? Aid, democracy, and instability from trade

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Working Paper No. 2011/64

Does Foreign Aid Promote Democracy?

Aid, democracy, and instability from trade

Thierry Kangoye*

October 2011

Abstract

This study revisits the effect of aid on the quality of institutions and examines the effects of a major source of instability, namely terms-of-trade instability, on the quality of democracy. We take advantage of previous empirical findings which explain the role of aid in mitigating the adverse effects of external shocks, and argue that in the long term, aggregate aid flows can potentially dampen the effects of terms-of-trade instability on the quality of democracy. An empirical investigation with data from 71 developing countries (including 28 African states) over the period 1980-2003 provides supportive results.

Keywords: democracy, foreign aid, terms-of-trade instability.

JEL classification: F35, F4, O11, O43

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*Université d'Auvergne, Centre d'Études et de Recherché sur le Développement International, CNRS.

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publications@wider.unu.edu

UNU World Institute for Development Economics Research (UNU-WIDER)
Katajanokanlaituri 6 B, 00160 Helsinki, Finland

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1 Introduction

The positive role of institutions on development has been widely assessed and confirmed: fundamentally institutions cause economic growth and development (Rodrik et al. 2004; North 1990; Hall and Jones 1999; Acemoglu et al. 2001). The obvious next question for some scholars has been to understand how countries acquire good institutions. Rodrik (2000) explained that countries face two strategies to optimize their institutions: copying well-functioning institutions from advanced countries (with a risk of failure, since the effectiveness of institutions is highly specific to local conditions), or taking advantage of local knowledge and engaging in an experimentation process of institutional designs.

However, from another policy point of view, one can propose an alternative formulation of strategies: still following Rodrik (2000), a first strategy suggests that countries invest their resources directly in institutional improvement (through experimentation or copying from abroad), which can be costly for their current economic performance, while a second strategy suggests that instead of focusing directly on institutions, countries give preference to an indirect way of institution-building. They can do this by investing their resources in some of the factors that determine the emergence of good institutions, such as economic performance.

As we will discuss in the next section, growth stability matters for institution building and external assistance can be given a role; and this is the purpose of this research. As a matter of fact, recent studies on aid effectiveness have highlighted macroeconomic instability as a factor of aid effectiveness. Guillaumont and Chauvet (2001); Chauvet and Guillaumont (2004, 2007); Collier and Dehn (2001); Collier and Goderis (2007) have all shown that aid, by protecting growth against the negative effects of shocks, is more effective in vulnerable countries. The core assumption of our study is based on these findings and can be formulated as follows: if one admits that stable growth is good for institution-building, and that aid can make growth more stable by protecting it against shocks, a positive effect of aid on institutions in countries exposed to these shocks can therefore be expected. The question this research answers is important since reducing the adverse effects of macroeconomic instability has become a great challenge for developing countries.

We focus in this research on democracy, as measured by synthetic indexes. As a matter of fact, democracy is considered as a meta-institution which helps to build better institutions, helps societies to select good economic institutions from those available to them, and delivers higher-quality growth (i.e. growth that is more stable, better redistributed and more predictable) (Rodrik 1997, 2000). Democracy has also gained importance with the worldwide diffusion of its ideology, which has induced a great deal of pressure for the underdeveloped world to adopt democratic forms of governments. We also focus in this research on terms-of-trade fluctuations as a source of instability, since most developing countries rely on the export of primary products and are dependent on world markets, making them particularly sensitive to terms-of-trade fluctuations. Moreover, given the exogenous character of the terms-of-trade fluctuations means we can assume that the data we use provides some technical benefits in the econometric estimations.¹

¹ We discuss this argument in Section 4.3

We demonstrate empirically that terms-of-trade instability is a source of income instability, which has negative effects on democracy, and that aid has a positive effect on the quality of democracy. We explain that this is probably due to the ‘growth-stabilizing’ effect of aid shown in previous studies. We use panel data from 71 developing and emerging countries² over the period 1980-2003 (pooled in to two twelve-year period) and find evidence that aid mitigates the adverse effects of terms-of-trade instability on democracy. The effect of aid on institutions susceptible to instability is assessed through an interactive variable equal to the product of aid and terms-of-trade instability. We also use instrumental variables to isolate the exogenous variation in aid flows. Our results add to the existing literature to the extent that, to our knowledge, our study is the first to explicitly test this effect empirically.

The rest of the paper proceeds as follows: in Section 2 we review the determinants of democracy and the relationships between the instability of economic performance and democracy. In Section 3 we focus on the relationships between aid and democracy and on how aid may have a positive impact on democracy conditional on terms-of-trade stability. Section 4 provides the empirical evaluation of the theoretical arguments, and Section 5 concludes.

2 The determinants of democracy

2.1 Non-economic determinants of democracy

Theoretical and empirical models in the literature have identified and discussed a number of non-economic determinants of democracy, the most referred to being colonial heritage, cultural factors (religious affiliation), and social fractionalization.

Colonial heritage

Depending on what countries inherited from their previous rulers (e.g. regarding political freedom), colonial heritage could be a determinant of democracy. British colonial heritage is the most cited colonial heritage variable in the literature on the determinants of democracy and is quite widely evidenced as good for democracy (Weiner 1987; Lipset 1996; Mainwaring and Shugart 1997). According to these authors, British colonists handed down traditions of law (reducing the control of local landed elites over the colonial state), parliamentarism and civil service professionalism that left their former colonies in a better position to sustain open rule than the former colonies of other European powers. Lipset et al. (1993) also argue that British rule provided a crucial learning experience for subsequent democracy. Przeworski et al. (2000a) support this view by arguing that transitions to democracy are more likely in former British colonies, where citizens had an historical positive experience with democratic practice.

However, the empirical evidence for these arguments is not clear. When testing the effect of colonial history on democracy, La Porta et al. (1999) find a positive relationship between British colonial heritage and democracy, while Barro (1999) only succeeded in identifying an indirect effect through economic development factors (standard of living and education).

² See the complete list in Appendix B

Barro (1996) argues that the former colonies of Britain and Spain are substantially more democratic than are those of France, Portugal or other countries. However, he concludes that the breakdown among different colonizers is irrelevant and colonial history is insignificant for democracy when measures of the standard of living (such as schooling and infant mortality) are held constant.

Ethnic diversity

Much academic writing on the determinants of democracy assumes that social heterogeneity lowers democracy's prospects. A number of eminent political scientists have seen diverse societies as disadvantaged when it comes to democratization (Lijphart 1977; Dahl 1971; Rabushka and Shepsle 1972; Welsh 1993). According to them, ethnic differences divide society and make compromise and consensus difficult. Heterogeneity also potentially undermines open politics by increasing the risk of intercommunal violence. As political parties and other organizations are formed more readily around ethnicity than other identities, political entrepreneurs have an incentive to play on such divisions and to neglect efforts to mobilize citizens around civil rights and class concerns (Horowitz 1985). Fish and Brooks (2004) also explain that more ethnically diverse countries are less likely to sustain democracy because ethnic diversity, by contributing to inequality, can reduce democratic tendencies. The 2001 Freedom House survey provided support for these points by showing that democracy has been significantly more successful in mono-ethnic societies than in ethnically divided and multi-ethnic societies (Karatnycky 2002). Barro (1999) in his empirical investigation of the determinants of democracy also highlighted that the population's degree of heterogeneity with respect to ethnicity, language and culture also matter for democracy, the common idea being that more heterogeneous societies are less able to sustain democracy.

Religious affiliation

Religious affiliation has also been stressed as an important determinant of democracy (see Huntington 1991; Lipset 1994; Boone 1996) although theory about the relationships between religion and political structure is not very well developed. Some authors have pointed out the deficit of democracy in the Muslim world and have then negatively associated affiliation to Muslim religion to democratic performance (Karatnycky 2002; Goodwin 1995; Mayer 1998; Fish 2002). According to their analysis, the fusion of temporal and spiritual authority in Islamic thought, the subordination of women, and a culture of intolerance predispose Muslim societies to authoritarianism.

From an empirical point of view, Barro (1999), from a set of over 100 countries from 1960 to 1995, provides statistical evidence that Protestant countries are nearly always highly democratic, whereas Muslim countries are usually not democratic. However, his empirical analysis also show that the effects of religion on democracy are likely to work through the channels of economic development variables such as the gap between male and female education and the indicators of standard of living.

2.2 Economic performance and democracy

To what extent does democracy lead to development economic outcomes such as economic growth³ and high levels of income? This question has been the subject of much interest in the field of political economy. Competing theoretical and empirical studies have yielded few robust conclusions supporting each of the possibilities: ‘democracy facilitates development’, ‘democracy hinders development’, and ‘there is no independent relationship between democracy and development outcomes’. Using indices of democracy (political openness, political regimes, civil liberties), a huge empirical literature has examined the question by looking at the causal effects of democracy on economic growth, and has come to inconclusive findings. Helliwell (1994) finds that while democracy (measured by the indexes of political rights and civil liberties) positively affects education and investment, and has a negative and insignificant impact on growth once these factors are controlled for, concluding that democracy has no significant effect on economic growth. Barro (1996) highlights a non-linear relationship between democracy and growth. His results explain that at low levels of democracy, growth increases with democracy and at higher levels of democracy, growth decreases with democracy. The work of Monali (1997) finds a positive association between the degree of non-elite participation in politics and economic growth. Tavares and Wacziarg (2001) find that the positive effect of democracy on growth works through the channels of education, reduced inequality and lower government consumption.

Rodrik (1997) investigates the effect of democracy (as measured by indexes of civil liberties and political rights) on economic performance and shows that compared with autocracies, democracies yield higher and more predictable growth rates. Tavares and Wacziarg (2001) provide empirical evidence that after taking into account the positive and negative indirect effects of democracy on growth (negative effect through physical capital accumulation and government consumption and positive effect through the accumulation of human capital and the lowering of income inequality), the overall effect of democracy on economic growth is moderately negative. Barro (1999) explains that the net effect of democracy on growth is uncertain. While an expansion of political freedom provides a check on governmental power and thereby limits the potential of public officials to amass personal wealth and to carry out unpopular policies, it may also encourage rich-to-poor redistributions of income and thus enhance the power of interest groups. Using a measure of democracy based upon the number of years that a country can be regarded as a democracy, De Haan and Siermann (1996) conclude that there is no robust relationship between democracy and economic growth. Recent research by Persson and Tabellini (2006) found support for the contention that the relationship between democracy and economic growth depends on the details of democratic regimes such as electoral rules, forms of government, stability and persistence of democratic institutions.

Summing up, what comes out from the number of studies that have investigated the causal relationships from democracy to economic development and growth is that there are no robust findings.

However, interestingly, within the huge analytical literature about the beneficial effects of democracy on economic performance and development, a number of studies have also

³ For a complete survey of economic theories on the link between democracy and growth, see Przeworski and Limongi (1993) and Przeworski et al. (2000b).

addressed the inverse linkage between democracy and economic development outcomes, that is the effect of income on democracy.

The modernization theory articulated by Lipset (1959) claims that countries should become more democratic as they become richer. This seminal work of Lipset (1959) discusses a broad category of economic development as a determinant of democracy, including indices of wealth (per capita income), of urbanization and of industrialization. The key element of this hypothesis is that richer countries are more willing to promote democratic values and receptivity to democratic political tolerance norms.

A great deal of studies have followed up this theory by recognizing that the level of income is an important background condition for democracy (Lipset 1960; Dahl 1971; Bollen 1979; Lipset 1994), although the exact form of the relationship is still a matter of debate. However, this theory has received mixed empirical support. While Barro (1999) and Helliwell (1994) find that improvements in the standard of living (or income level) favour democracy (as measured by a subjective indicator of electoral rights, political rights and civil liberties), Acemoglu et al. (2005a) use post-war data to highlight that when the factors that simultaneously affect income and democracy are controlled for, the strong cross-country correlation between democracy and a high level of income no longer results in a causal effect of income on democracy.

Recent studies of democratization do however point out that other factors can play a causal role in the emergence of democracy. Sachs and Warner (2001) and Ross (2001) highlight the natural resource endowments of countries and argue that greater reliance on mineral exports leads to a concentration of power, reducing the probability that dictatorships will become democratic. The work of Lipset (1959) predicts that a better educated population favours democracy and democratic practices because education provides individuals with a higher value of staying politically involved. While a number of empirical studies provide support to this view Barro (1999); Przeworski et al. (2000b); Glaeser et al. (2004) and Acemoglu et al. (2005b) all find that when considering the variations between countries, there is no evidence that countries that increase their education are more likely to become democratic.

2.3 Instability of economic performance and democracy: causation and reverse causation

Few academic works deal explicitly with issues about causal relationships between macroeconomic instability (or its determining factors) and the quality of institutions. One aim of this study is to explain how macroeconomic instability (more precisely terms-of-trade instability) can affect the quality of democracy. However, the well-known papers in the literature about macroeconomic instability and institutions has been interested in the reverse causation, that is the institutional causes of instability. Rodrik (1997) has explained that countries with weak institutions of conflict management, and in which latent social conflicts exist, are more likely to experience severe external shocks. The core idea of his argumentation is that shocks (or, more precisely, negative terms-of-trade shocks), by reducing the degree to which wealth is redistributed, weaken growth stability because of the resulting redistribution conflicts. This idea leads to the conclusion that good institutions of conflicts management (democratic institutions, rule of law, good social insurance system etc.) can mitigate the impacts of shocks on growth. Acemoglu et al. (2003) have also explained

that macroeconomic volatility are deeply determined by weak institutions rather than distortionary macroeconomic policies.

Countries characterized by weak institutions are more likely to experience macroeconomic instability, because of weak constraints on the Executive (that favour bad resource redistribution and distortionary policies), lack of entrepreneurs' confidence (which causes investment instability), and weak security of contracts. Democratic institutions have also proved to have direct effects on macroeconomic stability, making countries led by democratic regimes experience greater macroeconomic stability than non-democratic countries (Rodrik 1997; Weede 1996; Almeida and Ferreira 2002; Quinn and Woolley 2001; Mobarak 2005). Yang (2008) has also examined the causal relationship between democracy and growth volatility, and has shown that democratic institutions lower the volatility of real GDP per capita growth in ethnically divided countries.

However, the idea that institutions can be affected by instability also has important policy implications and does concern this research. We are interested, in this study, in knowing how terms-of-trade instability can affect the quality of democracy. Our main theoretical reasoning is that terms-of-trade instability negatively affects democracy by generating income instability (Easterly and Kraay 2000) and in turn, by lowering growth (Mobarak 2005), which has proved to be unfavourable to democratic processes. Academic works interested in the economic determinants of democracy have highlighted the level of development as one of the main determinants (Lipset 1959; Helliwell 1994). Nonetheless, while most of them have established a positive effect of the level of growth on democracy, very few of them have discussed the quality of growth, and more specifically its stability (although the two can be closely related). We support the view that terms-of-trade instability causes *ceteris paribus* growth instability which in turn, weakens democracy. As a matter of fact, growth instability can have an effect on the quality of democracy through (income) growth volatility in various ways.

The first argument is that macroeconomic volatility is costly for growth and development, these being important determinants of democracy. Indeed, development which is favourable to the emergence of good political institutions requires sustained increases in income. The influential work of Ramey and Ramey (1995)⁴ using a sample 92 countries has shown that countries with higher volatility have lower growth rates. But more interestingly, Mendoza (1997) has shown that volatility associated with terms-of-trade fluctuations could lead to slower growth (depending on the degree of risk aversion). Since we know that democratic institutions are evolving slowly and that their establishment and reinforcement requires financial resources (resources for organizing democratic elections, resources to give means to civil society to be effective, resources for the establishment of an efficient parliament or an independent judicial court etc.) that rely on growth, income volatility which lowers growth appears as a penalizing factor on democracy.

Instability from trade (proxied in this research by terms-of-trade instability) *per se* can also be harmful for democracy. High trade dependency (which increases countries' exposure to external shocks) has been found to be unfavourable for the installation and consolidation of democratic regimes. As a matter of fact, terms-of-trade instability, which can be seen as one of the symptoms of economic dependence and weak diversification is a source of high exposure to fluctuations in world markets and economic instability, which penalizes the

⁴ Followed by many other studies.

stabilization and legitimization of regimes (Huber et al. 1993). Regarding this point, Djankov et al. (2008) have explained that negative shocks bring pressure on governments to reduce democracy.

Income volatility (arising from terms-of-trade instability) can also have a negative effect on democratic institutions by generating uncertainty and risks for resource redistribution within an economy. On the one hand, income instability can create some uncertainty in the politico-economic environment which can in turn have a direct negative effect on the democratic process by changing the way of assuming power. On the other hand, this uncertainty can give some incitement to elites in power to exclude other competing political groups in order to maximize current rent capture. So, elites can engage in rent-seeking activities in ‘good times’ (when income is high)⁵ if their objective is to smooth their private consumption across time. As a consequence, this can result in weak political competition and therefore in a weak quality of democracy.

3 Does foreign aid promote democracy?

3.1 Aid and democracy

Several papers have examined the potential direct impact of aid on institutional development and have found different results on the nature of this impact; the topic has therefore been much debated.

Many of them have focused on legal institutions (rule of law, corruption, bureaucracy, contracts, property rights), others on economic and political institutions, and have found that aid can have negative as well as positive effects on these institutions (see Alesina and Weder (2002); Knack (2001); Brautigam and Knack (2004); Knack and Rahman (2004); Svensson (2000); Goldsmith (2001); McNab and Everhart (2002); Tavares (2003); Hoffman (2003); FMI (2005); Coviello and Islam (2006)).

Regarding the specific effect of aid on democracy, the empirical findings in the literature seem to be less debated. The general view of the relationship between foreign aid and democracy is that one of the purposes of aid is to promote democracy in the developing world. Except for the work of Djankov et al. (2008), which finds that aid has a negative effect on democracy, most of empirical papers conclude that it either has a positive effect or simply no effect. Djankov et al. (2008) explain their findings by the fact that foreign aid could lead politicians in power engaging in rent-seeking activities in order to appropriate aid resources and to exclude other groups from the political process. This damages political institutions because they become less representative and less democratic.

The democracy-building efforts of aid donors potentially contributes to democratization by improving the learning of electoral processes (through technical assistance and conditionalities), and by improving the quality of human resources and income level (Knack, 2004). This point is confirmed by Kalyvitis and Vlachaki (2005) who find strong evidence

⁵ Since instability can be viewed as an alternation of positive and/or negative shocks.

that political aid (electoral and technical assistance) directed to democratization positively predicts democratic transitions in recipient countries, when aggregate aid flows do not.⁶

While most empirical studies on aid and democratization have concluded there is no effect of aid (Hoffman 2003; Knack 2004; Kalyvitis and Vlachaki 2005), some of them have found that aid could lead to better civil liberties, political competition and participation. Goldsmith (2001) supports this point by explaining that foreign aid, by improving health and literacy, makes people more informed and aware of public politics, which improves the quality of democracy. Dunning (2004) demonstrates that foreign aid has had a (small) positive effect on democracy in the post-Cold War period.

To sum up, the main empirical studies about the direct effect of aid on democratic institutions conclude that either aid has no effect, or that, at most, it has a positive effect on democracy. But what effect of aid on institutions can be expected in some exogenous circumstances?

Aid and growth: the stabilizing nature of aid

The aid effectiveness literature, which focuses on macroeconomic instability and economic vulnerability of recipient countries has provided the general impetus for this research. If one accepts the point that aid has proved to be more effective in vulnerable countries by protecting growth against external shocks (by making it more stable), so aid could therefore have an indirect (positive) effect on institutions in these countries through this channel, since institutional development requires some stability in the economic environment.⁷

Guillaumont and Chauvet (2001) and Chauvet and Guillaumont (2004, 2007) have shown that negative terms-of-trade shocks have adverse effects on growth and that aid is more effective in vulnerable countries by making growth more stable in the medium term. Chauvet and Guillaumont (2007) have discussed the stabilizing nature of aid regarding exports, and more interestingly for this research, regarding growth volatility. They have explained that more than aid cyclical (pro or counter), it is the relative level and volatility of aid, compared to the flow of the interest (exports, national revenues, etc.) that contributes to the explanation of its dampening character. Pointing out aid volatility as a factor of income volatility, their findings have concluded that the level of aid tends to dampen it. Guillaumont and Chauvet (2001) and Chauvet and Guillaumont (2004, 2007) have explained that in cases where shocks occur, aid smoothes public expenditure and limits the risk of fiscal deficits. In recipient countries, national income and fiscal revenues are indeed more likely to be influenced by aid disbursements. The indicator of vulnerability they have used allows them to conclude that the level of aid is likely to cushion the negative effects of external shocks on economic growth.⁸ Collier and Goderis (2007) have pursued this idea and have shown that the level of aid lowers the negative effects of commodity export prices shocks on growth because aid finances precautionary expenditure, which reduces vulnerability to shocks. Elsewhere, Collier and Dehn (2001) have focused on export price shocks to explain aid effectiveness and have shown that while positive shocks have insignificant effects on the

⁶ The data they used is Government and Civil society Aid, provided by OECD.

⁷ Figure 1 illustrates the quite complex relationships to be taken into account when studying this effect.

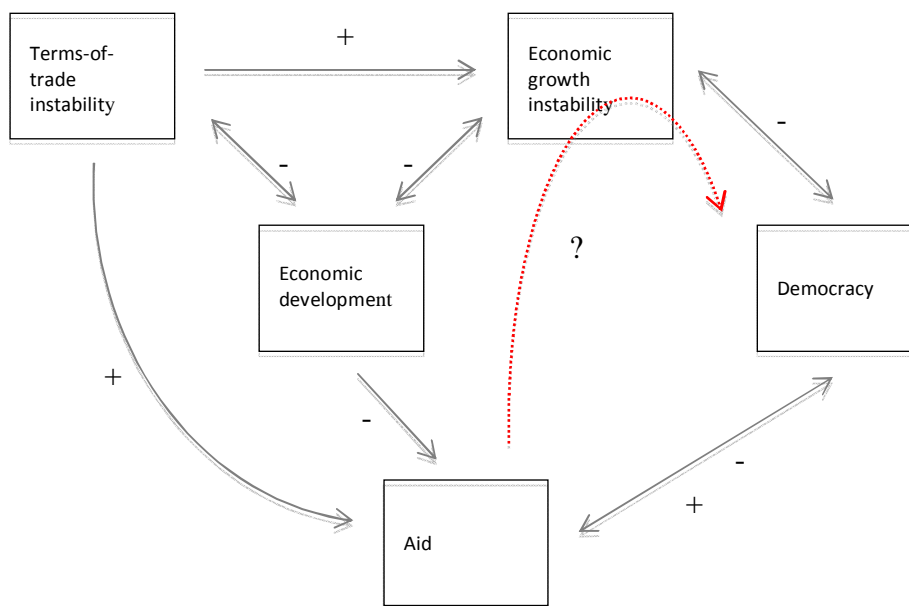
⁸ In Guillaumont and Chauvet (2001), the indicator of vulnerability takes into account the size of population and the instability of agricultural export production, while in Chauvet and Guillaumont (2004), it only takes into account export instability and the negative trend of terms-of-trade. Since (exogeneous) terms-of-trade instability is also a source of vulnerability (which causes a risk to growth), the growth-stabilization effect of aid can also be valid for this type of instability.

growth process, negative shocks reduce growth and the interaction between them and offsetting increases of aid is significantly positive, meaning that aid mitigates the negative effects of terms-of-trade deterioration on growth.

Easterly and Kraay (2000) have shown that for small states, because of their greater openness, terms-of-trade shocks volatility is a source of growth instability. We can generalize this point to underdeveloped countries because of their high dependence on trade and their specialized exports, making their growth performance fragile in cases of trade shocks. In the previous sections, we have provided some arguments explaining that growth instability is not good for institutions partly because stable growth allows quality institutions to emerge. We deduce from this point that all causes of stable growth are indirect causes of the emergence of good institutions. So, if aid reduces growth volatility, it could also protect institutions in situations of instability.

To put things briefly, our main theoretical prediction is that aid, by mitigating the adverse effects of shocks on growth could have a positive conditional effect on democracy (*ceteris paribus*). The next sections provide an empirical evaluation of this prediction.

Figure 1: From aid to democracy: inter-relationships with other economic variables



Source: author's illustration.

4 Empirical evidence

4.1 The data

We use data from 71 developing countries over the period 1980-2003. Aid data are from the World Development Indicators (2005) and the Global Development Finance (2005) (originally taken from OECD/DAC). Data on exports and imports of goods and services,

Gross Development Product (measured in constant US (2000 rate) and at purchasing power parity) and population have also been gathered from the same source. The Global Development Network Growth Database collected by William Easterly provides us with data on legal origin, ethno-linguistic fractionalization, geography and infant mortality. We focus in this study on political institutions and, more precisely, on democratic institutions. We use two synthetic democratic indicators from the Polity IV project database and the Freedom House database (See appendix A for a complete description of these indicators). Data on terms-of-trade are from the United Nations Conference on Trade and Development (UNCTAD) statistics.

4.2 The measure of term-of-trade instability

Our terms-of-trade instability variable measures the gap between the terms-of-trade and an estimated trend of terms-of-trade. Instability is indeed always measured over a reference which is often an estimated trend. This requires making some assumptions about the nature of this trend. As a matter of fact, estimations can give wrong results if a deterministic trend is estimated with a non-stationary variable. Because most economic variables include a trend which is not purely stochastic, we assume the trend in terms-of-trade to be mixed (both deterministic and stochastic). Then, we get the predicted value of terms-of-trade by running the regression (equation 3) on twelve-year periods.⁹

(i refers to countries, t refers to years; X is the terms-of-trade variable and ε is the idiosyncratic error term):

$$X_{it} = \alpha + \beta X_{i(t-1)} + \eta + \varepsilon_{it} \quad (1)$$

Then, we compute for each period, an instability index by using the following formula (quadratic mean):

$$Instab_{it} = 100 \sqrt{\frac{1}{T} \sum_{i=t_1}^{t_2} \left(\frac{X_i - \hat{X}}{\hat{X}} \right)^2} \quad (2)$$

Where $T = t_2 - t_1$ is the length of periods p .

4.3 Some stylized facts

Our theoretical arguments predict a negative effect of instability on the quality of institutions (democracy). We have explained through reference to the literature how causalities between institutions and instability can run. We use in this section some statistical tools to assess the correlation between these two variables. Figures 1 confirm the expected negative correlation between terms-of-trade instability and the quality of democracy. As a matter of fact, after sorting countries by deciles regarding their indexes of terms-of-trade instability,¹⁰ we show by using the institutional quality indexes of Freedom House and Polity IV that the most unstable countries are the ones which have the weakest democratic institutions.¹¹ Table 2

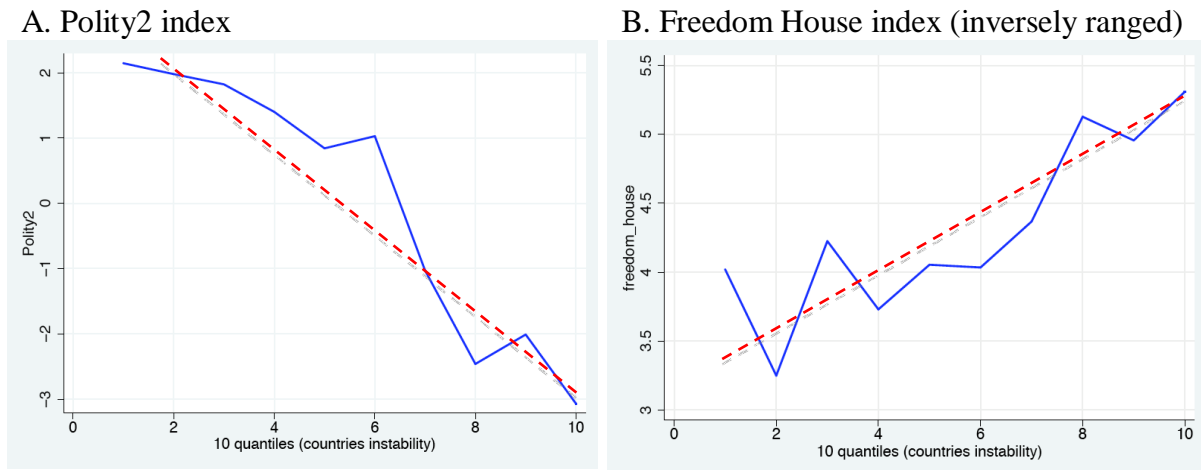
⁹ We also considered twelve-year trends.

¹⁰ See Section 5.2 for the calculation method of instability and Appendix B for the sample countries.

¹¹ The Freedom House index is negatively ranged from one to seven. So the higher the index is, the weaker the quality of institutions

also confirms this statistical evidence, by indicating a negative and significant correlation between terms-of-trade instability and the Freedom House democratic index. Though a correlation does not mean a causality we predict a causal effect of instability on democracy since, in our opinion, one can assume an exogeneity of terms-of-trade instability. As a matter of fact, most of developing countries rely on their primary sector exports and are price takers on the world markets. So, by using a variable of terms-of-trade instability, we exclude the assumption of the causal relationship from institutions to instability.

Figure 2: The quality of institutions by deciles of instability



Source: author's calculations.

4.4. Identification of causal effects

Our econometric model includes as main controls: net aggregate Official Development Assistance, terms-of-trade instability and an interaction term equal to the product of aid and terms-of-trade instability.¹² This latter variable allows us to test the dampening effect of aid. We write the baseline model as follows:

$$Democ_{it} = \beta I_{it} + \gamma A_{it} + \kappa A_{it} \times I_{it} + \omega X_{it} + v_{it}$$

where $Democ_{it}$ is an index of democracy, A_{it} is the aid variable, I_{it} is terms-of-trade instability and $A_{it} \times I_{it}$ is the interaction term between aid and terms-of-trade instability. X_{it} is a vector of controls including geography, education, ethno-linguistic fractionalization, initial conditions, estimated settler mortality rate, life expectancy, and an African dummy variable.¹³

i and t stand for countries and time periods respectively. Since we are interested in estimating the effects of time invariant variables (such as geography, ethno-linguistic fractionalization, initial income, settler mortality) on democracy, we do not include country-fixed effects in our baseline estimations. However, we have included them as robustness checks (that are not shown for space reasons, but are available upon request); the main results remained unchanged. Democracy in a country is indeed a function of many factors. Ethnic diversity

¹² See Appendix B for a more detailed description and definition of the data.

¹³ Appendix B gives a precise description of all of these variables.

(proxied by ethno-linguistic fractionalization) is often assumed to have an effect on political freedom and political competition, since democracy is less likely to prevail in countries which are socially divided and which lack cultural and linguistic coherence (Lijphart 1977; Horowitz 1993). Socioeconomic development (that we proxied by the purchasing power parity estimate of income per capita, and education) has long been believed to be conducive to the emergence or survival of democracy. Democracy can also be explained by geographical characteristics which are a good control for climatic conditions and contagion effects, and which may predict political regime classification. Initial economic conditions (proxied by initial level of per capita income) also matter for democracy, since they are assumed to determine the initial quality of democracy (and as well as the current quality of democracy, because of the persistence of institutions). So, we anticipate positive estimated coefficients of the interaction term, geography, education, and negative coefficients of instability, and fractionalization. Since we focus on long-run effects of aid and instability, and because democratization is a long-term process, we average our variables on twelve-year periods (1980-91 and 1992-2003).

Dealing with endogeneity issues

It is often argued that aid and democracy are endogenously related, since countries which make progress in their democratization process are able to attract more aid ('conditionality' argument), as some donors reward recipients with better democratic performances with more aid. The econometric estimation of such a model facing reverse causality between aid and institutions requires us to deal correctly with endogeneity. As demonstrated by Wooldridge (2006), Ordinary Least Squares (OLS) estimation of such a model produces biased and inconsistent estimators. Although in principle, the endogeneity problem can be avoided by applying instrumental variable techniques, the fundamental problem is that there are no ideal instruments available. A good instrument in this case would be a variable which is highly correlated with aid but not with the error term in the regression. Nevertheless, we have tried to control for the aid endogeneity problem by using, as excluded instruments, the amount of official development assistance and grants of the five main donors (identified each year), weighted by the distance between the donor and the recipient. So, following Brun et al. (2006), we create instrumental variables for aid (Tavares 2003), which should be correlated with the level of foreign aid received by a country while being exogenous to the level of democracy in that country. For each recipient country and each year, the five main aid donors are identified (with dummy variables). The total amount of aid is then weighted by the geographical proximity (proxied by the inverse of bilateral distance) of the recipient country with Washington (for Canada and the United States), Brussels (for European donor countries), Tokyo (for Japan) and Canberra (for Australia and New Zealand). As explained by Tavares (2003), the reasoning is that, when a donor country increases its total aid outflows, recipient countries that are closer to that donor experience an exogenous increase in aid inflows. The overidentification tests and statistics confirm the quality of these two variables as instruments for aid.

We assume terms-of-trade instability to be exogenous;¹⁴ as a matter of fact, most of developing countries rely on their primary sector exports and are price takers on the world markets. Moreover, the principal international markets for developing countries exports are the advanced industrial countries on which developing countries also rely for their imports. Thus, terms-of-trade shifts should be determined exogenously. Finally, we use the predicted

¹⁴ Unfortunately, it remains difficult to test the exogeneity of this variable because of the weak availability of good instrumental variables.

value (exogenous component) of aid from the first-stage regression to compute the interactive variable between aid and terms-of-trade instability to get its real exogenous value. So, the econometric model we estimate can be written as follows:

$$Democ_{it} = \beta I_{it} + \gamma \hat{A}_{it} + \kappa \hat{A}_{it} \times I_{it} + \omega X_{it} + \varepsilon_{it} \quad (4)$$

where \hat{A} is the predicted value of aid from the first-stage regression. $Democ_{it}$, I_{it} , X_{it} keep the same meaning as in equation (1). ε_{it} is the error term.

Findings

Table 1 presents the main results.¹⁵ In columns (1), (2) and (3) the dependant variable is the quality of democracy, measured by the Polity2 combined index of democracy and autocracy. All of our estimations include country-fixed effects to take into account country-specific heterogeneity. The aid variable is aid per capita in the three specifications. Column (1) is the baseline specification and includes as controls, geography, education, ethno-linguistic fractionalization, and initial income. According to the findings of previous studies, the effect of aid on democracy is not significantly different from zero, even if the coefficient is negative. Unsurprisingly, an increase in terms-of-trade instability seems to be associated with a significant decline in democracy, which confirms our theoretical expectations. But since both the coefficients of terms-of-trade instability and the multiplicative variables are significant, the marginal effect of terms-of-trade instability on democracy must be interpreted with caution. As demonstrated by Wooldridge (2006), this marginal effect depends on aid values, and equals:

$$\frac{\partial Democ}{\partial Anstab} = \alpha + \beta Aid$$

where α is the estimated coefficient of terms-of-trade instability and β is one of the interaction variables. From our main findings,

$$\frac{\partial Democ}{\partial Anstab} = -0.51 + 0.005 Aid$$

This means that at the sample mean value of aid (per capita) which is 54.82, the marginal effect of terms-of-trade instability on the quality of democracy is always negative, and is about $-0.51 + 0.005(54.82) = -0.235$.

More interestingly, we find that aid dampens the effect of instability on democracy. This effect is shown by the positive and significant coefficient of the interactive variable, explaining that as instability increases, the effect of aid on the quality of democracy becomes positive. This coefficient is however small at about 0.005.

Among the control variables, education is the most powerful predictor of democracy. As expected, its coefficient is positive and significant. Geography and initial income are not significant. Only ethno-linguistic fractionalization does not have the expected sign, and is

¹⁵ Regarding the number of countries we basically consider, the number of observations seems to be somewhat small; this is due to gaps in some important variables we control for in regressions.

significantly different from zero. In columns (2) and (3), we successively include in the regression, for robustness, other possible determinants of democracy. These are: the estimated mortality of European settlers, the initial income and a dummy variable for African countries. The African dummy variable controls for group-specific effects; life expectancy allows a better control for socioeconomic development, and settler mortality controls for historical conditions. As a matter of fact, Acemoglu et al. (2001) have explained that the different environments (from the viewpoint of their hospitality) faced by European colonists, have fundamentally influenced the types of long-lasting institutions they created. We find that these specifications do not change the main findings, and that the coefficients of interest are stable. Aid remains not significantly related to democracy; increase in instability still leads to a decrease of democracy, and aid has still a dampening effect. In column (3), except settler mortality which does not have the expected sign (but is however weakly significant), all others significant variables have the right sign: geography, education, and initial income positively predict democracy, while having a high fractionalization index and being an African country negatively predicts democracy. The Hansen overidentification test confirms the quality of instrumental variables for aid, since all associated p-values are above ten per cent.

Columns (1) and (2) of Appendix C, Table 4 attempt to explain the dampening effect of aid according to our theoretical expectations, that is terms-of-trade instability is a source of income instability and aid dampens the negative effect of the primer because it makes growth more stable. In column (1) we test the direct effect of terms-of-trade instability on democracy with the same set of control variables, and confirm its negative effects. In column (2), we include in the regression, income instability.¹⁶ As expected, while the effects of terms-of-trade instability remain negative and far from significant, the coefficient of the income instability variable, which is about -2.95, is negative and significantly different from zero. And, because we suspect income instability to be endogenous to democracy (since it may depend on many internal factors correlated with the quality of democracy), we instrument it. As a matter of fact, Rodrik (1997) has shown that democracies produce greater stability in economic performance. So, to deal with this potential endogeneity, we use as an instrumental variable for income instability, foreign direct investments (FDI) instability. The amount of FDI is indeed a strong predictor of the level of development and income, and is not obviously related to democracy. The Hansen over identification test confirms the quality of this instrumentation, since the associated p-value is about 0.19. Among the control variables, except life expectancy, all of them have the expected sign, even if only geography and settler mortality are significantly different from zero. This result shows that income instability is a valid transmission channel of the effect of terms-of-trade instability on democracy. To come back to our question of interest, if the negative effect of terms-of-trade instability on democracy is channelled through income instability, so, aid may have a dampening effect, since some authors have shown that it makes income growth more stable.

Finally, we have tested the robustness of our main results regarding the use of another democracy index (the Freedom House index of democracy), the use of another measure of aid intensity (net official development assistance over GDP), and the use of different temporal periods (eight-year periods). Our main results, which are summarized in columns (1), (2) and (3) of Table 1, stand. Except geography and settler mortality which do not have the expected sign, terms-of-trade instability remains detrimental for the quality of democracy and aid remains stabilizing, while having no direct effect on democracy.

¹⁶ This is computed with the same methodology used for the calculation of terms-of-trade instability.

We also ran all of the regressions with a sample including only African countries; our main findings stand. The instability of terms-of-trade proved to affect negatively and significantly African countries' democratic institutions. For the set of African states as well, aid mitigates the negative effects and has a positive effect on democracy conditional on terms-of-trade instability. The aid instrumental variables remained valid.

Table 1: Main results

	Dependent variable: democracy (Polity 2)		
	(1)	(2)	(3)
Aid	-.07(-1.31)	-.0718(-1.31)	-.07(-1.32)
Terms-of-trade instab.	-.51***(-2.54)	-.512***(-2.54)	-.51**(-2.44)
Aidxinstability	.005**(2.00)	.005**(2.00)	.005**(1.99)
Geography	-.02(-0.48)	.13(1.28)	.348*** (3.27)
Education	.25*** (3.23)	.25*** (3.23)	.25*** (3.13)
Eth. fractionalization	.12*** (6.16)	.08* (1.77)	-.07*** (-2.46)
Initial income	1.10(0.30)	1.77(0.50)	2.49(0.68)
Settler mortality		.24(0.17)	4.03*(1.88)
Life expectancy			-.0002(-0.00)
Africa			-13.8***(-4.45)
R2	0.86	0.86	0.87
Obs	88	88	88
Overidentification test for aid instruments			
Hansen J stat.	2.34	0.36	1.82
p-value	0.12	0.54	0.17

Notes: Significativity thresholds: (***)1%, (**)5%, (*)10%. Heteroskedasticity robust z-statistics in parentheses. Aid is measured as per capita.

Source: author's calculations.

5 Concluding remarks and policy implications

Aid neither promotes nor undermines democratic processes, but has an indirect positive effect on democracy in the long term by dampening the adverse effects of terms-of-trade instability. While the debate about how external assistance could improve political institutions is still ongoing, this study finds that aggregate aid flows mitigate instability from trade and protect democracy, and this is probably because aid makes growth more stable, as shown by some recent studies (Guillaumont and Chauvet 2001; Chauvet and Guillaumont 2004, 2007; Collier and Dehn 2001; Collier and Goderis 2007). We have also shown that terms-of-trade instability is a source of income instability which has a negative effect on democracy. So, coming back to the development strategies we proposed in the introduction, foreign aid can be useful in promoting institutions through their determinants. However, in a context of a debate about how to significantly increase aid in developing countries to reach the Millennium Development Goals by 2015, the findings from this study must not be interpreted as a calling for a big push of aid. As a matter of fact, though democracy is considered as a meta-institution, others types of institutions (legal and economic institutions) also matter for

growth and development, and numerous studies have shown that they can be severely damaged as a result of large amounts of aid.

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Appendix A: Description of democracy indicators from Freedom House and Polity IV

The Freedom House democratic index

The Freedom House index focuses on two aspects of democracy which are political rights and civil liberties. The methodology of assessing democracy consists of ranking each country regarding these two aspects, from 1 (worse democratic situation) to 7 (best democratic situation). Evaluations are made on the basis of the answers to a questionnaire submitted to actors from civil society, political world and the media, which are mostly non-governmental organizations or press. Next, the synthetic index is computed by averaging the index of political rights (proxied through the election mode of the chief of executive and the existence of an electoral framework) and the index of civil liberties (proxied through the freedom of opinion, the freedom of beliefs, the freedom of association, the legitimate state and human rights, the autonomy of people and the economic rights). The questionnaire is made of eight questions about political rights and 14 questions about civil liberties; the scale of each question goes negatively from 1 to 4. Finally, depending of the total score, the two indexes are given a note between 1 and 7.

The Polity IV democratic index (polity2)

The Polity IV project from the University of Maryland provides a database about several indicators of democracy (executive constraints, political participation, openness in recruitment, etc.). The polity2 index is computed by summing an index of democracy (DEMOC) which is positively scaled from 0 to 10, and an index of autocracy (AUTOC) which is positively scaled from -10 to 0. The (DEMOC) index of democracy assesses democracy on the basis of four criteria: competition in political participation, competition and openness in the executive recruitment, and institutional constraints on the executive power. For instance, to assess openness in executive recruitment, assessors will ask whether all people can potentially access the power if elections are free, or whether the powers are hereditary. For instance, in order to assess executive constraints, assessors will be interested in the existence of a legislative power or a constitutional strength. This information is used to give a ranking for each variable. So, political participation will be coded by 3 in cases of competitive situations, by 2 in cases of transitional situations, and by 1 in cases of factional situations. The total score of these different components of democracy will be the score for the DEMOC variable. The AUTOC index of autocracy, which assesses political competition and respect for political liberties, is computed with the same methodology. Thus, situations of repressed competitiveness of participation will be coded by -2, and situations of suppressed competitiveness of participation will be coded by -1. The scale for the DEMOC variable goes positively from -10 to 0. In the end, the polity2 synthetic variable is obtained by summing the two indexes and by normalizing situations that assessors have considered as impossible to assess, like periods of political transitions.

Appendix B: Data description

Aid per capita¹⁷ = Net aggregate official development assistance transfers (2004 US\$ millions) per capita (Source: author's calculations from Development Assistance Committee (DAC) online database and World Development Indicators, 2005)

Aid%GDP¹⁷ = Net aggregate official development assistance transfers (2004 US\$ millions) as share of Gross Domestic Product (Source: author's calculations from Development Assistance Committee (DAC) online database and World Development Indicators, 2005)

Polity2 index = Combined democracy and autocracy score, ranged from -10(full autocracy) to +10 (full democracy). (Source: Polity IV project)

Freedom House index = Democracy index, ranged from 1(best democratic situation) to +7(worst situation). (Source: Freedom House)

Terms-of-trade instability = Net barter terms-of-trade instability (see section 4.2 for the calculation method). (Source: author's calculation)

Income instability = instability of GDP per capita (2000 US\$), computed with the calculation method described in section 5.2 (Source: author's calculation)

Geography = Distance from equator of capital city measured as abs(latitude)/90. (Source: World Bank (2002))

Education = Literacy rate, adult total (percentage of people 15+). (Source: World Development Indicators, 2005)

Ethnolinguistic fractionalization= Probability that two persons randomly selected in the population do not belong to the same ethnic group. (Source: Atlas Narodov Mira)

Settler mortality = Natural logarithm of estimated European settlers' mortality rate. (Source: Acemoglu, Johnson, and Robinson 2001)

Life expectancy = Life expectancy at birth, for total population (years). (Source: World Development Indicators, 2005)

Africa = Dummy variable taking value 1 if a country belongs to Africa, 0 otherwise. (Source: author)

Initial income = Natural logarithm of GDP per capita in 1980 (2000 US dollars and PPP). (Source: World Development Indicators, 2005)

Income growth = Natural logarithm of GDP per capita growth (2000 US dollars and PPP). (Source: World Development Indicators, 2005).

Base countries sample (71 countries - African countries in bold characters)

Algeria, Argentina, Bahrain, Bangladesh, **Benin**, Bolivia, **Botswana**, Brazil, **Burkina Faso**, **Burundi**, **Cameroon**, **Central African Rep.**, **Chad**, Colombia, **Congo (Rep.)**, Costa Rica, **Ivory Coast**, Cyprus, Dominican Rep., Ecuador, **Egypt**, El Salvador, Fiji, **Ghana**, Guatemala, Honduras, India, Indonesia, Iran, Islamic Rep., Israel, Jamaica, Jordan, **Kenya**, Kuwait, Lao PDR, **Lesotho**, **Liberia**, **Malawi**, Malaysia, **Mali**, **Mauritania**, Mexico, **Morocco**, **Mozambique**, Nepal, Nicaragua, **Niger**, **Nigeria**, Oman, Pakistan, Panama, Paraguay, Peru, Philippines, **Rwanda**, Saudi Arabia, **Senegal**, Singapore, Sri Lanka, **Sudan**, Syrian Arab Republic, Thailand, **Togo**, Trinidad and Tobago, **Tunisia**, Turkey, United Arab Emirates, Uruguay, Venezuela, **Zimbabwe**.

¹⁷ Aid includes grants and concessionary loans with a grant element of more than 25 per cent. Military assistance is excluded.

Table 2: Descriptive statistics

	Obs	Mean	Std. Dev.	Min.	Max.
A. Aid variables					
Net ODA per capita (US\$)	204	54.82	71.29	-2.40	485.52
Net ODA as per cent. of GDP (%)	198	.106	.139	-.0002	.89
B. Institutional measures					
Polity2 index	203	-.86	6.41	-10	10
Freedom House index	204	4.61	1.59	7	1
C. Terms-of-trade					
Net barter terms-of-trade	150	113.37	42.39	26.25	397.54
Terms-of-trade instability (12-year trend)	150	9.53	9.33	7.63e-06	90.22
D. Countries characteristics					
Geography	204	16.84	10.92	0	39
Education	168	66.04	22.46	9.81	97.87
Eth. fractionalization	166	47.62	29.10	0	93
Settler mortality	138	4.90	1.06	2.43	7.98
Life expectancy	203	59.11	11.21	35.80	77.95
Africa	204	0.45	0.49	0	1
Initial income	174	6	5898.56	126.35	46473.4
Income growth	193	0.88	0.65	-0.93	3.37

Source: author's calculations.

Table 3: Pair-wise correlation matrix

	Aid per cap.	Aid%GDP	Polity2	Fr. House	tot ins.	Income ins.
Aid per cap.	1.00					
Aid%GDP	0.41*	1.00				
Polity2	-0.07	-0.22*	1.00			
Fr. House	0.02	-0.27*	0.88*	1.00		
tot ins.	-0.07	0.06	-0.13	-0.17*	1.00	
Income ins.	0.09	0.13	-0.18*	-0.19*	0.19*	1.00

Note: (*) 5 per cent level significance. Terms-of-trade instability and income instability are computed with 12-year trends.

Source: author's calculations.

Appendix C: Findings

Table 4: Democracy, terms-of-trade and income instability

	Dependent Var. : democracy (polity2)	
	(1)	(2)
Income instab.	-	-2.95***(-2.61)
Terms-of-trade instab.	-0.18***(-2.59)	-0.03(-0.33)
Geography	-0.61(-0.13)	-0.36***(-5.08)
Eth. fractionalization	-1.05(-0.55)	-0.02(-0.50)
Settler mortality	-69.41(-0.36)	-7.75***(-2.90)
Education	0.25***(5.96)	-0.04(-0.62)
Life expectancy	-0.03(-0.33)	-0.51***(-2.74)
Initial income	16.64***(3.91)	1.44(0.89)
R2	0.81	0.68
Obs	128	126
Overidentification test for income instab. instrument		
Hansen J stat	-	1.74
p-value	-	0.19

Notes: significance thresholds: (***)1%, (**)5%, (*)10%. Heteroskedasticity robust z-statistics in parentheses.

Source: author's calculations.

Table 5: Robustness checks

	Dependent variable: democracy		
	freedom house	aid%gdp	8-years periods
Aid	-.027(-1.56)	-.099(-1.50)	-.061(-1.42)
Terms-of-trade instab.	-.18***(-2.97)	-.184***(-3.39)	-.054***(-2.74)
Aidxinstability	.0016***(2.38)	.007***(2.90)	.003*(1.86)
Geography	.062*(1.86)	.028***(2.18)	.068***(2.34)
Education	.02(0.99)	.027(1.37)	.024(1.48)
Eth. fractionalization	.003(0.33)	-.013(-1.12)	.012(1.43)
Initial income	.84(0.94)	.94(1.02)	1.45**(2.09)
Settler mortality	.41(0.72)	.77***(2.43)	.74(2.04)
Life expectancy	-.05(-0.85)	-.09(-1.43)	-.01(-0.37)
Africa	-1.94**(-2.12)	-2.12***(-3.20)	-.63(-0.92)
R2	0.85	0.85	0.82
Obs	88	88	131
Overidentification test for aid instruments			
Hansen J stat.	0.397	0.57	0.56
p-value	0.52	0.44	0.45

Notes: significance thresholds: (***)1%, (**)5%, (*)10%. Heteroskedasticity robust z-statistics in parentheses.

Source: author's calculations.