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Does Aid Unpredictability Weaken Governance? New Evidence from Developing Countries

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AFRICAN DEVELOPMENT BANK GROUP

Does Aid Unpredictability Weaken Governance? New Evidence from Developing Countries

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Abstract

This paper revisitates the effects of aid on governance from a different prospect, by upholding that aid unpredictability can potentially increase corruption in recipient countries through increased incentives from political leaders that are risk averse and corrupt, to engage in rent-seeking activities. Empirical investigation with data from 67 developing countries over 1984-2004 provides supportive evidence that higher aid unpredictability is associated with more corruption as measured by a synthetic index. Coherently with some studies, we also found that aid dependency is on average associated with less corruption. These findings are a supplementary advocacy for the need to have a better predictability of aid.

Keywords: Rent-seeking, corruption, foreign aid, uncertainty
JEL codes: C53, F35, F47, O11

1 Introduction

International recent initiatives called aid donors community to urgently increase Official Development Assistance flows to allow poor countries to reach the Millenium Development Goals (MDGs). In 2007 (the midway through the 15-year-long process of achieving the so-called MDGs), mid-term reviews of these goals stressed that a significant number of countries were way off the expected results and that there was an absolute necessity to bring aid flows to higher levels. Also through international committments like the Paris declaration on aid effectiveness and the Accra Agenda for Action (recently adopted at the Accra High Level Forum on Aid) donors countries pledged to make aid more effective through a better coordination of donors, a better ownership of by recipient countries, a better alignment of aid interventions with national development strategies, a better results-based management of aid, a better mutual accountability on results achieved. The Accra Agenda for Action also importantly stressed the need to improve other aspects of the quality of the management of aid, aiming at increasing the medium-term predictability of aid. Aid volatility and unpredictability issues are indeed of crucial importance for the MDGs. Till now, aid has been widely volatile and unpredictable[1]. In comprehensive reviews of aid volatily, Bulir and Hamann (2001, 2003), Bulir and Lane (2002) strongly evidenced that aid is highly volatile, with coefficients of variation exceeding those of fiscal revenues of aid. Vargas (2005) provided the evidence for Sub-Saharan Africa that aid flows are fives times more volatile than GDP and seven times more volatile than OECD countries' GDP. The work of Pallage and Robe (2001) also evidenced that aid is more volatile than the revenue of developing countries, while Fielding and Mavrotas (2005) provided supportive evidence that programme aid is more volatile than project aid .

According to a growing body of research examining aid flows instability issues, predictability of overall aid and of various types of aid is a significant and potentially costly problem in aiddependent countries. In general, aid commitments exceed aid disbursements and the formers are known to be bad predictors of the laters (Bulir and Hamann, 2001). Aid predictability issues have attracted some research interest in recent years, to document the extent of its implication for development programs and macroeconomic management in recipient countries. According to OECD (2008), less then 50 percent of committed aid is on average delivered on schedule. Celasun and Walliser (2008) found significant absolute deviations between commitments and disbursements. They also evidenced that aid flows are less predictable in countries weakly covered by IMF programs (which is a proxy of a stable country environment). The work of Fielding and Mavrotas (2005) confirmed that aid flows are unpredictable and that this lack of predictability is related to the type of aid, programmatic aid being more unpredictable that project aid. From a macroeconomic prospect, the lack of aid predictability[2] can have some adverse consequences in aid-dependent countries. One of the main consequences of aid unpredictability is that it makes fiscal planning and implementation of a recipient country's development agenda extremely difficult, since aid commitments have shorter terms than governments' development planning. Aid predictability also makes much more difficult the ownership of development programs by recipient countries since they are

[1] In this paper, we will use the term uncertain interchangeably with unpredictable

[2] The sources of aid unpredictability are multiple. Aid can be unpredictable due to the fact that aid disbursements approvals are often made by different actors (e.g. ministry vs parliament), creating a gap between what is committed and what is really disbursed. The donors' conditions, which can be process-related or policy/performance based also contribute to the lack of aid predictability.

relying on uncertain funds. Elsewhere, the lack of predictability of aid increases the likelihood of fiscal and monetary instability (Bulir and Lane, 2002). Aid unpredictability associated with aid pro-cyclicality also increases output volatility and end up reducing growth (Ramey and Ramey, 1995; Lensink and Morrissey, 2000). Lensink and Morrissey (2000) find that the effect of aid on growth is insignificant unless a measure of aid uncertainty is included in the regression, and that uncertainty about aid is detrimental to growth.

This paper switches the attention from the macroeconomic effects of aid unpredictability to a more "political economy" approach by linking aid flows uncertainty to rent-seeking behaviors in recipient countries. Institutional issues have recently returned to the foreground in economic development debates. Academic researches have extensively investigated the impact of aid on the quality of institutions in aid-recipient countries and have focused on aid intensity ratios (Aid/GDP, Aid/GNP, Aid/exports, Aid/public expenditures, aid per capita, etc.) as measures of aid dependence. Number of them has empirically evidenced that aid is on average associated to more corruption and more rent-seeking activities in aid-recipient countries (Alesina and Weder, 2002; Svensson, 2000), while others has come to the opposite effect (Tavares, 2003).

To our knowledge, no work has focused on the effects of aid flows uncertainty on recipient countries' institutions. Looking for a new evidence of the effect of aid on institutions in recipient countries, this paper switches from traditional measures of aid dependency to one feature of its delivery: its unpredictability. Does aid unpredictability leads to more corruption in aid recipeint countries? Through this core research question, the paper focuses on aid-dependent countries and investigates whether higgher uncertainty in aid flows is associated with higher corruption. The basic political economy rationale is that aid flows uncertainty reduces the temporal horizon of the aid rent capture. Ventelou (2001) investigate the effect of the political survival on rent capture and concludes that the shorter is the probability of the political survival, the greater are the incentives of leaders (kleptocrats) to engage in rent capture. The paper uses a similar theoretical framework and explains that the greater is the uncertainty of future aid flows, the greater are the incentives of kleptocrat leaders to engage in rent-seeking in countries where institutions are weak. The paper then provides an empirical evaluation of these theoretical arguments, which provides supportive results. Rent-seeking is proxied by an index of corruption. Corruption is of course an extreme form of rent-seeking. Even if rent-seeking can take other forms than corruption (costs to ensure protection, costs to seize rents, costs to face competition, etc.), the weak availability of such data leads to use this proxy. Fixed effects estimations with a sample of 67 developing countries over the period 1984-2002 confirms that aid dependency is associated with less corruption while aid unpredictability leads to more corruption. Sensitivity analysis then show that the type of aid matters for the nature and the size of the effect. Programmatic aid unpredictability has a greater negative effect on corruption than project aid unpredictability.

The rest of the paper is organized as follows. The next section briefly presents the litterature on the impacts of aid on corruption. Section 3 discusses the links between aid unpredictability and rent-seeking behaviors. Section 4 provides the empirical evaluation. Section 5 concludes.

2 Aid dependency and corruption in the litterature

The need for aid-recipient countries to have good policies and good-quality institutions in order to ensure a good management and a good effectiveness of aid has been a matter of interest of scholars and policy makers. More interestingly, the potential effect that aid could have on the quality of these institutions has also attracted the interest of many scholars. Even though the debate is still controversial, many empirical studies have concluded that aid dependence can potentially undermine institutional quality, by weakening accountability, encouraging rent-seeking and corruption, fomenting conflict over control of aid funds, siphoning off scarce talent from the bureaucracy, and alleviating pressures to reform inefficient policies and institutions. These empirical studies have focused on several indexes of institutional quality measuring democracy, governance, corruption, economic liberties indexes, etc. (Svensson, 2000; Goldsmith, 2001; Knack, 2001; Alesina and Weder, 2002; McNab and Everhart, 2002; Hoffman, 2003; Tavares, 2003; Brautigam and Knack, 2004; Knack, 2004; FMI, 2005; Coviello and Islam, 2006; Dalgaard and Olsson, 2006).

Focusing on the specific impact of aid on corruption, some empirical studies fuel the controversy. In particular, a couple of them have demonstrated that aid leads to more corruption in recipient countries. The negative impact of aid on the quality of recipient countries' institutions is traditionnaly paralleled with the so-called "natural resources curse phenomenon" in the litterature. This phenomenon explains that countries with great natural resources tend to experience slower growth rates than resource-poor countries. A huge litterature provided a political economy theoretical framework to explain the resources curse, pointing out induced-rent-seeking behaviors as the main cause[3]. Sala-i Martin and Subramanian (2003) show that natural resources appear to cause no direct effect on growth while having adverse indirect effects through the weakness of institutions. Lane and Tornell (1996) and Tornell and Lane (1999) point out dysfunctional institutions as the source of the disappointing growth performances after the oil windfalls in Nigeria, Venezuela, and Mexico.

They explain how the "voracity effect" (the more-than-proportional increase in redistribution in response to a windfall) leads to lower growth. Ades and Di Tella (1999) empirically show that natural resource rents stimulate corruption among bureaucrats and politicians. Other things equal, countries where firms enjoy high rents (and thus where bureaucrats and politicians can extract them) tend to have high corruption levels. According to Torvik (2002), a greater amount of natural resources increases the number of rent-seekers (entrepreneurs engaged in rent seeking) and reduces the number of modern entrepreneurs (running productive firms). Entrepreneurs move into rent-seeking once the profit in rent-seeking is higher than before the occurence of the windfall. Acemoglu, Robinson, and Verdier (2004) provides cases studies explaining how higher resource rents make it easier for dictators to buy off political challengers. In the Congo the "enormous natural resource wealth including 15% of the world's copper deposits, vast amounts of diamonds, zinc, gold, silver, oil, and many other resources [. . .] gave Mobutu a constant flow of income to help sustain his power". (p. 171). Their work explain that resource abundance increases the political benefits of buying votes through inefficient redistribution. The work of Leite and Weidmann (1999) also suggests that resource (especially minerals) rich countries tend to be more prone to rent-

[3] The "resource curse"-literature provides another kind of answers through the "Dutch-disease" phenomenon, well developed in Sachs and Warner (2001, 1997); natural resources abundance shifts factors of production out of sectors where production exhibits static or dynamic increasing returns to scale, pushing down productivity growth.

seeking and corruption, thereby decreasing the quality of government.

Closer to our research, some studies have concluded that foreign aid may also cause a resource curse. Foreign aid transfers has been considered as windfalls in several other studies, and thus as a source of rent-seeking. The work of Djankov, Montalvo, and Reynal-Querol (2008) interstingly points out that aid and natural resources share a common feature in the extent that they can both be captured by rent-seekers leaders. They are not constrained to be accountable with such resources as it would be the case with the resources from taxation. Acemoglu, Robinson, and Verdier (2004) also stress that aid and resource rents share the general character of "windfall gains", which disrupt political and economic incentives although some important differences can be noted between them. Dalgaard and Olsson (2006) also explain that aid transfers and natural resources have both the character of windfalls since poor countries can benefit from without much efforts and have both the ability to generate rent-seeking. Nonetheless, Dalgaard and Olsson (2006) discuss the differences and similarites between natural resource rents and foreign aid. These two resources have several different features. The first difference to be emphasized is that foreign aid is clearly endogeneous to the level of development (countries with low GDP per capita received on average more aid) whereas reserves of valuable natural resources are exogeneous (they are randomly allocated over the planet). Second, aid resources are more subject to external influence through foreign donors' conditionalities[4] and strategic interests, albeit foreign firms extracting the natural resources can also have a large influence in the countries. Third, the ease with which aid and resource rents can be captured by rent seekers and predators do differs, depending on the form of aid (microeconomic targeting with a weak government involvement or direct budget support). Fourth, aid and natural resources differ in terms of the fixed costs of operation (relatively higher for the laters. The degree of externalities and volatility of the two resources is also a source of differences.

Several studies provided empirical and theoretical evidence that foreign aid is associated with more rent-seeking activities and corruption[5]. Boone (1996) analyzing the importance of the political regime for the effectiveness of aid programs, finds, with a panel of developing countries that foreign aid fails to raise the investment rate in recipient countries, because aid resources are mostly consumed.

As underlined in Economides, Kalyvitis, and Philippopoulos (2008) and Svensson (2000), the aid-rent-seeking relationship is basically linked to a common-pool problem, aid transfers being the common-pool resource. Competing political groups vieing for aid resources (for private purposes) without coordination. Svensson (1996) shows that, in countries suffering from ethno-lingual fractionalization and weak political institutions, foreign aid receipts generate increases in corruption, implying a higher rent dissipation. Svensson (2000) evidences both theoretically and empirically that foreign aid is associated with more rent-seeking and corruption in ethnically diverse countries (with several powerful groups). When there are several competing social groups with a weak incitement to cooperation, foreign aid increases rent dissipation. This argument was then confirmed empirically with cross-countries data.

The theoretical model provided in Tornell and Lane (1999) predicts that the receipt of foreign aid leads powerful groups to increase their appropriation rates, dissipating the revenues and

[4] Svensson (2000) also supports this point.

[5] Although a couple of studies have reached the opposite conclusion, based on empirical results, that is more aid leads to less corruption (McNab and Everhart, 2002; Dalgaard and Olsson, 2008; Tavares, 2003)

yielding in no gain in welfare. Knack (2001) provides evidence that higher levels of aid increase the level of corruption and thus erodes the quality of governance by beign a potential source of rents. He provides the example of Tanzania where the increase of aid levels in the 1970s and 80s helped enlarge a public sector and created more opportunities for corruption by sustainning large government subsidies to state-owned enterprises and parastatals. Using data from the International Country Risk Guide (ICRG) including two six-point scale measures of corruption in government and rule-of-law (reflecting the potential for rent-seeking associated with weak legal systems and insecure property rights), aid levels have proved to be strongly and negatively related to changes in corruption and rule-of-law measures. Higher aid transfers induces rent-seeking competition among self-interested individuals in countries with large public sectors (Economides, Kalyvitis, and Philippopoulos, 2008). Self-interested leaders get the incentive to enter a game of rent-seeking competition and to extract rents from aid resources for private interests. They also evidence that aid generate rent-seeking through government activities that being exacerbated by a large public sector.

Aid would also fuel corruption by increasing the size of resources that interest groups fight over (Alesina and Weder, 2002). An increase of foreign aid inflows increases corruption according to their findings. Before reaching this conclusion, the authors succeeded in demonstrating empirically that less corrupt government do not significantly receive more aid transfers and that donors do not discriminate against corrupt government, although different behaviors have been discovered between some of them. These last findings partly explain the persistence of the rent-seeking behaviors related to foreign aid.

3 Aid flows uncertainty and rent extraction

How aid flows uncertainty could explain rent-seeking behaviors and corruption from "kleptocrats" leaders? The question, while not looking new, has not yet been explicitely adressed in the political economy litterature of aid. There is a huge political economy litterature on aid and endogeneous political leaders behaviors. However, as shown in the previous section, this litterature has focused only on the level of aid flows, investigating the impact on rent-seeking behaviors. This paper incorporates a risk factor in the analysis, that is the effect of aid flows uncertainty on political elites' bahaviors. From a theoretical perspective, the expectation is that a high uncertainty of aid flows (under some assumptions) generate a high level of corruption and rent-seeking.

We consider a theoretical reasonning framework where the political leaders (the elites in and around the government) are rent-seekers (This assumption is strengthenned by the considerable evidence of rent-seeking activity in many developing economies.) and where aid transfers can be the subject of predation and dissipation. Moreover, we assume (from the aid flows uncertainty evidence – see section 4.3.2) that the leaders face uncertainty about the future of the rents they extract. We thus relax the assumption of a benevolent government found in the political economy litterature of government spending and assume that on average, aid recipient countries are managed by politicians who draw partial utility from rents and who face an uncertainty in the future aid flows.

The intuition of this paper is as follows: in a theoretical setting where politicians aim at maximizing the amount of the rent they capture and where they have intertemporal smoothing considerations, a greater unpredictability of aid can lead them to engage more-than-proportionally (as compared with the optimal path) in rent-seeking since they face a risk of a

shortfall of aid. Investigating the political foundations of the negative impact of resources booms on the economy with a political economy model, Robinson, Torvik, and Verdier (2006) have shown that politicians have the incentive to over-extract natural resources (generating rents) compared to the efficient extraction path. That is determined by their survival probability in power, which is a discount factor of the future. In other words, the less certain they will be to stay in power, the more they will have the incentive to over-extract the resource and consume the rents. Robinson, Torvik, and Verdier (2006) explain that the future stock of resources (and therefore rents) only matter if the politicians are in power.

The work of Ventelou (2001) also supports the point that political risk determines the incentive of politicians to over-engage in rent-seeking. Considering a government who have the choice between investing the public resources in productive goods or appropriating them to finance private consumption, he shows that as the probability of the political survival[6] decreases, the level of rent capture by politicians increases. The less the government in office has a chance to keep the power in the next period, the more he will have the incentive to capture the maximum of rents in the current period, the return of the productive investments benefitting the next government.

We rely on a similar theoretical reasonning, which is the probability of receiveing the tranfers from which the rent is extracted and which determines the behaviors of leaders insofar as one can predict that they will tend to be more engaged in rent-seeking when this probability is low or unknown. Anticipations and expectations about the future can also be affected, not only by the probability of leaders' survival in power in the future (determining their ability to capture the rent) but also by the probability of receiveing the income (foreign aid) from which the rent is extracted (determining their ability to capture the rent as well). So, things go as if the rent-seekers leaders are risk averse, and over-extract the current rent from aid instead of waiting for an uncertain amount of future rent. Contrary to Svensson (2000) who shows that the mere expectation of foreign aid provides incentives to increase rent dissipation, we suggest that the mere anticipation of aid shortfall provides incentives to rent-seekers to increase rent dissipation. Acemoglu, Robinson, and Verdier (2004) show that aid provides kleptocratic rulers with greater resources to finance their tenure of power by buying off opponets. A greater uncertainty of such a resource for such leaders would increase their incentive to over-extract the rent.

This paper's theoretical reasonning is inspired by the political economy litterature describing governments behaviors facing economic and political risk. Battaglini and Coate (2008) study the relationship between politicians rent-seeking incentives and public debt and deficits, and find that in the presence of (political) risk, rent-seeking government over-extract the rent and therefore holds a level of debt which exceeds that of the benevolent government. Myopic politicians facing a risk prefer to extract the rents as early as possible[7].

Does aid fungibility matter?

The aid fungibility paradigm explains that aid delivered for a project that the recipient government would have undertaken anyway could end up financing some other expenditures (Devarajan, Rajkumar, and Swaroop, 1999). A number of studies has been interested in discussing and evidencing the fungibility of aid. While Devarajan, Rajkumar, and Swaroop

[6] interpreted as the probability of a re-election in a democracy
[7] Caballero and Yared (2008) evidence the same conclusion in the long term.

(1999) find mixed evidence that aid to Sub-Saharan Africa is fungible, the work of Pack and Pack (1993) reaches the opposite conclusion, explaining that in the Dominican Republic, aid is diverted away from its intended purposes. Jha and Swaroop (1998) focusing on aid fungibility in India, also found that aid is fungible insofar as it substitutes for spending that governments would have undertaken anyway. They also found that when transferring external assistance to states, the central government reduces the other transfers to them. Using panel data, Feyzioglu and Al (1998) evidence that except for loans to the transport and communication sectors, concessionary loans to agriculture, education and energy sectors lead aid-recipient governments to reduce their own resources going to these sectors and to allocate it elsewhere.

We argue that aid fungibility could matters in explainning the extra rent-seeking behaviors raising from aid unpredictability. As shown by Jha and Swaroop (1998), the funds freed by aid are spent on nondevelopment activities in general and administrative services in particular. From that point, aid fungibility could lead to increased consumption expenditures and then to more rent-seeking if the diverted resources are more "exposed" to rent capture. The rationale supporting that aid fungibility matters in explainning the extra rent-seeking behaviors raising from aid unpredictability as discussed above, is based on the point that aid fungibility all by itself may be a source of rent-seeking behaviors.

Aid unpredictability may also directly increase the fungibility of aid resources. Indeed, as explained in the previous section, myopic rent-seekers politicians facing a risk prefer to extract the rents as early as possible (Caballero and Yared, 2008). Based on this point, a capture of the resources diverted through aid fungibility may occur when uncertain aid flows are delivered.

4 Empirical evidence

4.1 Data and base specification

The data[8] for this paper are mainly from the World Bank statistics[9], the International Country Risk Guide (ICRG), the Development Comitte Assistance (DAC) statistics and the Global Development Network Growth Database. Our sample is made of 67 developing countries. The number of countries is relatively weak due to our desire to have a most balanced possible database, for our main variables. The International Country Risk Guide (ICRG) index of corruption is on a scale from 0 to 6. Lower scores indicate that "high government officials are likely to demand special payments", "illegal payments are generally expected throughout lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessment, police protection, or loans." We computed annual values of our index of corruption (taken from the ICRG) by taking the average of the 12 monthly observations for each year and for each country. The index is provided on a scale from 0 (worst situation of corruption) to 6 (best situation of corruption). We choose not to rescale the index, so an increase means a reduction of corruption.

[8] See Appendix A for data sources and definitions.
[9] World Development Indicators, 2008

Our main measure of aid intensity is "official development assistance"[10] scaled by the Gross Domestic products (GDP). Even though such measure of aid may reflect changes in GDP with aid constant, rather than changes in aid, it does capture the importance of aid. As indicated in Appendix A, aid data are available from the World Development Indicators (WDI), based on aid data provided by the OECD's Developement Assistance Committee. We also make use of two other measures of aid intensity for robustness, which are aid as a percentage of the Gross National Income (GNI) and as a percentage of total importations (also available from the WDI).

Table 1, which presents some basic descriptive statistics for the main variables used in the empirical analysis (based on 5 years sub-periods averages), shows that values of aid as a percentage of GDP ranges up to 53% (Mozambique). For aid as a percentage of the Gross National Income (GNI) and the importations, the figures are higher. The table also shows that no country in the sample on the sub-periods means reaches the maximum score indicating the best corruption situation (6). The average score of corruption is also relatively low (2.632, on a scale from 0 to 6), indicating that the set of developing countries we focuse on in our analysis are on average corrupt.

We rely on the litterature on the determinants of corruption to select the remaining controls variables. Following Svensson (2000), we use an index of ethnolinguistic fractionalization (*fractionalization*) as a proxy of ethnic diversity. Ethnolinguistic fractionalization (the likelihood that two citizens belong to a different ethnic or linguistic group) is assumed to be a determinant of corruption as bureaucrats may favor members of their same group (Mauro, 1995). We also include the level of income (*GDP par capita*) in our vector of controls, of which the net effect on the level of corruption might be ambiguous. A greater level income can create more opportunies for rent-seeking as well as go with a reduction of corruption since the quality of institutions in a country get better with the level of development. The other controls used are: *oil exporter* (a dummy indicating whether the country is a major oil exporter), total population (*population*), initial income (*initial inc.*), legal origin dummies (*british*, *french*, *socialist*). Sachs and Warner (2001) show that resource-endowed countries experience slower growth, partly due to the corruption in the government. Some work suggest that larger countries are over-sampled in corruption indexes, which is a source a sample selection biais (Knack and Azfar, 2000). Finally, a country's colonial history may explain the level of corruption since they may have inherited inadequate weak institutional systems favouring rent-dissipation. We capture that effect with dummies for the origin of the legal system. Table 1 reveals considerable variation in income (GDP per capita, constant 2000 US$) although the variation is substantially larger accross countries than over time (the between standard deviation is 1712.35 while the within standard deviation is 266.65[11]).

4.2 Aid dependency and corruption: revisitating the causal effect

This section tests against the litterature findings the assumption that high levels of aid have a significant (positive or negative) effect on corruption in recipient countries. We carefully address the issue of causality when investigating the effect of aid on corruption. Indeed, the relationship between foreign assisstance and recipient countries' domestic institutions is two-way; while aid could affect the quality of these institutions as demonstrated by a huge

[10] According to OECD/DAC, "Official Development Assistance" includes grants and loans with a grant element of more than 25%

[11] detailed statistics not shown

litterature set, recipient countries' institutionnal performance might also be a determinant of aid in the extent that donors pay attention to that, when allocating their assistance to countries. That is an important source of reverse causality bias, covering the true causal effect of aid on recipient countries' institutions. As stressed in the former sections, several empirical studies in the litterature fuel the controversy, but it's worth noting that few of them have succeed in properly dealing with the endogeneity of aid. Traditional instrumental variables approaches have focused on instruments taken from the "recipient side" (recipient countries characteristics such as population size (Hoffman, 2003; Svensson, 2000; Knack, 2004; Djankov, Montalvo, and Reynal-Querol, 2008), initial population size (Goldsmith, 2001; Brautigam and Knack, 2004), infant mortality (Hoffman, 2003; Knack, 2001, 2004; Brautigam and Knack, 2004), level of income (Svensson, 2000; Goldsmith, 2001; Brautigam and Knack, 2004), initial level of income (Knack, 2001; Djankov, Montalvo, and Reynal-Querol, 2008), terms-of-trade (Svensson, 2000), dummies for former french, british, portuguese or belgian colonies (Brautigam and Knack, 2004; Goldsmith, 2001), dummies for sub-saharan africa, franc zone, Egypt, central America (Djankov, Montalvo, and Reynal-Querol, 2008)).

Table 1: Descriptive statistics (1984-2004)

Variable	Mean	Std. Dev.	Min.	Max.	N
	Panel A: Corruption measure				
Corruption (ICRG)	2,632	-0,89	0	5	268
	Panel B: Aid variables				
Aid(%GDP)	7,578	10,139	-0,02	53,511	268
Aid(%GNI)	7,752	10,09	-0,02	58,06	267
Aid(%import)	18,726	23,905	-0,027	133,182	254
	Panel C: Countries characteristics				
GDP per cap. (2000 cst)	1541,609	1723,463	83,5	8922,924	268
Urban pop.	45,352	20,576	9,777	92,02	268
Population (log)	16,32	1,44	12,87	20,77	268
Trade (%GDP)	66,122	35,887	13,548	226,871	267
Oil export.	0,119	0,325	0	1	268
Eth. fract.	51,302	28,865	1	90	252
Legal orig. (brit.)	0,299	0,458	0	1	268
Legal orig. (fr.)	0,687	0,465	0	1	268
Legal orig. (soc.)	0,015	0,121	0	1	268
Africa	0,478	0,5	0	1	268
Initial inc.	1385,75	1527,285	123,884	6762,182	268

Using such instrumental variables (from the "recipient side") could not be the best way to isolate the exogeneous variations in aid since recipient countries' characteristics such as income, infant mortality, terms-of-trade are not really exogeneous to that countries' institutions. Countries with weak institutional performances are precisely the poor performers ones. Weak quality institutions lead to slower growth and weak redistributive policies, explaining that countries are poor precisely because they have weak institutions. Such instruments are admittedly correlated with aid, but as well with the quality of institutions.

Better instrumental variables should isolate the variations in aid due to external factors. Tavares (2003) used such instruments to investigate the effect of aid on corruption. Aid from the largest donors, weighted by variables capturing cultural and geographical proximity with donors was used as instrument. According to this study, when a donor country increases its total aid outflows, recipient countries that are culturally and geographically closer to that donor exogeneously receive more aid. Alesina and Dollar (2002) also show that aid inflows in recipients countries are strongly correlated with cultural and historic proximity with donors, while being weakly related to their economic performance.

We use a similar procedure taken from Brun, Chambas, and Guerineau (2008) to construct our first set of instruments for aid. First, the five main donors countries are identified for each recipient country and each year. Then, the amount of aid (in constant US dollar) from those donors are weighted by the reverse bilateral geographic distance between the recipient countries and Washington (for Canada and the US), Brussels (for european donors), Tokyo (for Japan) and Canberra (for Australia and New Zealand). Linguistic and religious proximity are repectively proxied by a dummy indicating if there is a common official language between the donors and the recipient country and a correlation coeficient between the donor and the recipient countries' religious structure.

Official Development Assistance from a country could also be determined by its public finances. The more that finances are good, the more willing is the country to give aid (Faini, 2006). Following this idea, our second set of instrumental variables are made of: the conventional deficit and the total outstanding debt of the donor (GDP ratios), weighted by the reverse bilateral distance from the donor[12]. The scatters below give a sense of the strong correlation between aid and some of the constructed instruments for our sample countries. Aid inflows in a recipient country seem to be very correlated with the cultural proximity and the public finances of its main donors[13].

[12] See Brun, Chambas, and Guerineau (2008) for details

[13] The same graphical evidence (not shown for reasons of space, but available upon request) comes out for the other constructed instruments (cultural proximity regarding religion, aid and grants from the main donors weighted by the geographic distance).

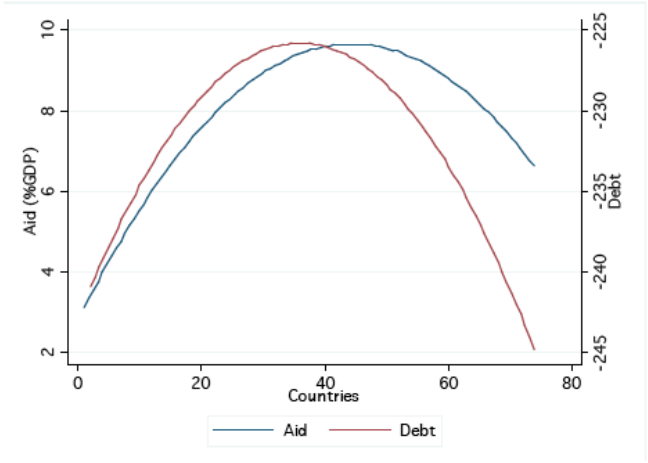

Figure 1: Aid and donors' public finances (outstanding debt –GDP ratio–). *x* axis, countries are represented, *y* left axis, numbers refer to Aid (%GDP) (1984-2004 average), *y* right axis, numbers refers to the total outstanding debt of the five main donors (adjusted in a such way that an increase mean an improvement).

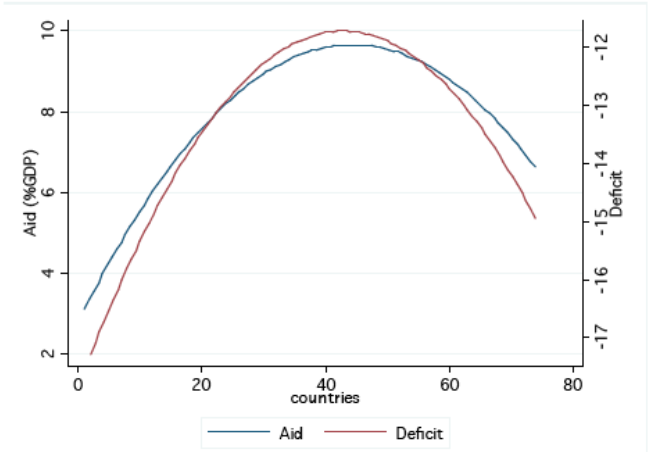

Figure 2: Aid and donors' public finances (conventional deficit –GDP ratio–). *x* axis, countries are represented, *y* left axis, numbers refer to Aid (%GDP) (1984-2004 average), *y* right axis, numbers refers to the conventional deficit of the five main donors (adjusted in a such way that an increase mean an improvement).

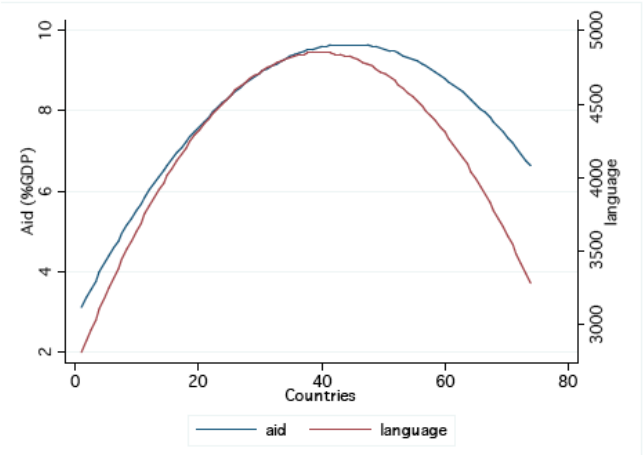

Figure 3: Aid and cultural proximity with donors (common official language). *x* axis, countries are represented, *y* left axis, numbers refer to Aid (%GDP) (1984-2004 average), *y* right axis, numbers refers to the language proximity.

Table 2 presents results using the corruption index as the dependent variable, with cross section data (1984-2004 average). Columns 1 and 2 report respectively Ordinary Least Squares (OLS) and Two-Stage Least Square (IV) regression results, testing the effect of aid/GDP ratio on the level of corruption. Consistent with some studies in the litterature (including Tavares (2003)), a strong positive effect of aid dependency is found: *ceteris paribus* aid decreases corruption. The coefficient of aid increases from .045 to .149 from the Ordinary Least Squares (OLS) estimation to the Instrumental Variables (IV) estimation and is significant at 5%. These results fail to support the "voracity effect" found in Svensson (2000); Alesina and Weder (2002). As underlined above in this section, we make use of a new set of instrumental variables suggested by Tavares (2003) and Faini (2006), which are "outside" of the recipient countries, and which seem to be much more convincing than the traditional instruments (infant mortality, population size, income, etc.). We use as instruments for aid/GDP the cultural proximity with the main donors and the quality of their public finances as explained above. The usual overidentification statistics confirms the quality of the instrumental variables. The Hansen p-value is largely above .10 and indicates that the instruments are good.

Why aid may decrease corruption? If more corrupt countries receive more aid (according to the findings of Alesina and Weder (2002)) the effect of aid on corruption is negatively biased by reverse causation. According to Tavares (2003), even if aid is associated with less corruption, the fact that less corrupt countries tend to receive less aid biases the size of the coefficient, and properly instrumenting for aid uncover the real relationship. Since we build upon his procedure to construct our instruments, this negative effect is what we were expecting to get.

The oil exporter dummy, population size, africa dummy and urban population enter insignificantly in the 2SLS regression. Only ethnolinguistic fractionalization enters counter-intuitively with a positive sign (but only at 10%). This result is not expected since the more diverse a country is, the more corrupt it should be, according to the litterature (Svensson, 2000). Summarizing the main findings, when instrumenting for aid with a new set of instrumental variables from "donor side", we find that on average, foreign aid dependency is negatively associated with corruption, that is to say, aid decreases corruption.

Table 2: Aid dependency and corruption (cross-section).

Variable	Coefficient (Std. err.)	
	OLS	2SLS
Aid(% GDP)	0,045**(0,019)	0,149**(0,077)
Log(income)	1,448***(0,447)	2,627***(1,154)
Oil export.	0,126 (0,324)	0,956 (0,615)
Log(pop.)	0,066 (0,082)	0,245 (0,198)
Africa	0,266 (0,244)	0,065 (0,328)
Eth. frac.	-0,006 (0,004)	0,20*(0,1)
Log(pop. urb.)	0,19*(0.10)	-0,005 (0,005)
Intercept	-0.603 (2.133)	-7,915 (5,611)
Obs	66	50
R^2	0.25	0,92
	Instruments quality statistics	
Cragg-Donald Wald F statistic	–	0,893
Hansen J statistic	–	1,231
Hansen p-value	–	0,873

Beside the coefficient value, the Std. Errors, which are computed using heteroskedastic-consistent standard deviations, are reported in parentheses. *** Denotes significance at the 1 percent level whereas ** and * Denote significance at the 5 percen and 10 percent levels respectiveley.

4.3 Aid unpredictability and corruption

4.3.1 Measuring aid unpredictability

Economic uncertainty has been widely studied in the economic development litterature. Several studies have investigated the empirical relationship between macroeconomic uncertainty and other economic variables. From a statistical viewpoint, uncertainty over an economic variable is in most of the studies proxied by unconditional measures such as the standard deviation or the variance of the variable's movements. It's worthy to note that simply using such proxies is questionable on both economic and statistical grounds. Variability does not necessarily imply unpredictability. As underlined by Knack (2001) when estimating the effect of aid volatility (using the coefficient of variation of aid) on the quality of governance, a high variability of aid should not be linked to uncertainty since it could be the result of a strong and steady upward or downward trend in aid levels over time. Dehn (2000) also points out that simply using the standard deviation of a series to proxy it's uncertainty yield to overestimate the unpredictable part and underestimate the predictable part since the variable's trend is not taken into account. A high volatility can be anticipated or not and what matter from a political economy prospect is unpredictability. A political leader facing a bad-contained risk is not expected to have the same behavior than another one who has much more information on the future movement of a variable. So conditional measures of volatility are better proxies of the uncertainty faced by economic agents. GARCH-based

approaches[14] are well fitted to estimate uncertainty. The variance of aid conditional on the information available in the past periods is specified to follow this GARCH (p,q) model:

$$\sigma_{it}^2 = \gamma_{i0} + \gamma_{i1}\varepsilon_{i,t-1}^2 + \mathrm{L} + \gamma_{ip}\varepsilon_{i,t-p}^2 + \beta_{i1}\sigma_{i,t-1}^2 + \mathrm{L} + \beta_{iq}\sigma_{i,t-q}^2 \quad (1)$$

where σ^2_t denotes the variance of the residuals ε from the forecasting equation conditional on information up to period *t*. *i* stands for the countries and *t* for the time. The fitted σ^2_{it} from the equation above is then taken as the measure of uncertainty.
However, GARCH-based aproaches are most appropriate with high frequency data, which are not available to us. We then make use of alternative measures of uncertainty, following Aizenman and Marion (1993) and Lensink and Morrissey (2000) and consisting of two steps. First we estimate the following forecasting equation specified as a second-order autoregressive process and extended with a time trend[15]:

$$Aid_t = \alpha + \beta Aid_{t-1} + \gamma Aid_{t-2} + \kappa T + \upsilon_t \quad (2)$$

where *Aid* is total Official Development Assistance net disbursements, ν is the forecast error, *T* is a time trend, *i* stands for individual countries and *t* for the years. We then measure aid uncertainty by calculating for each country in our sample and for each subperiod[16] the standard deviations of the residuals of equation equation 2. This measure of aid unpredictability measure is intended to separate simple variation from uncertainty and thus to capture the unaticipated changes in aid.

4.3.2 How unpredictable is aid?

The scatters below present the evolution of the aid forecasts errors over the period 1982-2001, for a set of 12 countries out of our sample[17], which are the most aid-dependent (the dependecy ratio used is net ODA/GDP). These countries are Comoros, Djibouti, Guyana, Honduras, Liberia, Lesotho, Madagascar, Mali, Mozambique, Mauritania, Malawi, Niger, Rwanda, Sierra Leone, Zambia, Uganda, Tanzania and Chad. The errors forecasts are computed from the equation 2. The *x* axis represents year and the *y* axis the residuals of which the variability is considered as a proxy of aid uncertainty. The scatters show that for all the selected countries, the residuals vary a lot around zero, and computations indicate that the mean standard deviation of the residuals for this subset of countries is relatively high and about 4.31.

[14] See Bollerslev (1986); Engle (1982)
[15] It is also possible to iclude a quadratic form of the trend and to estimate the model in difference
[16] Our data are computed as two ten-years periods averages
[17] figure 5

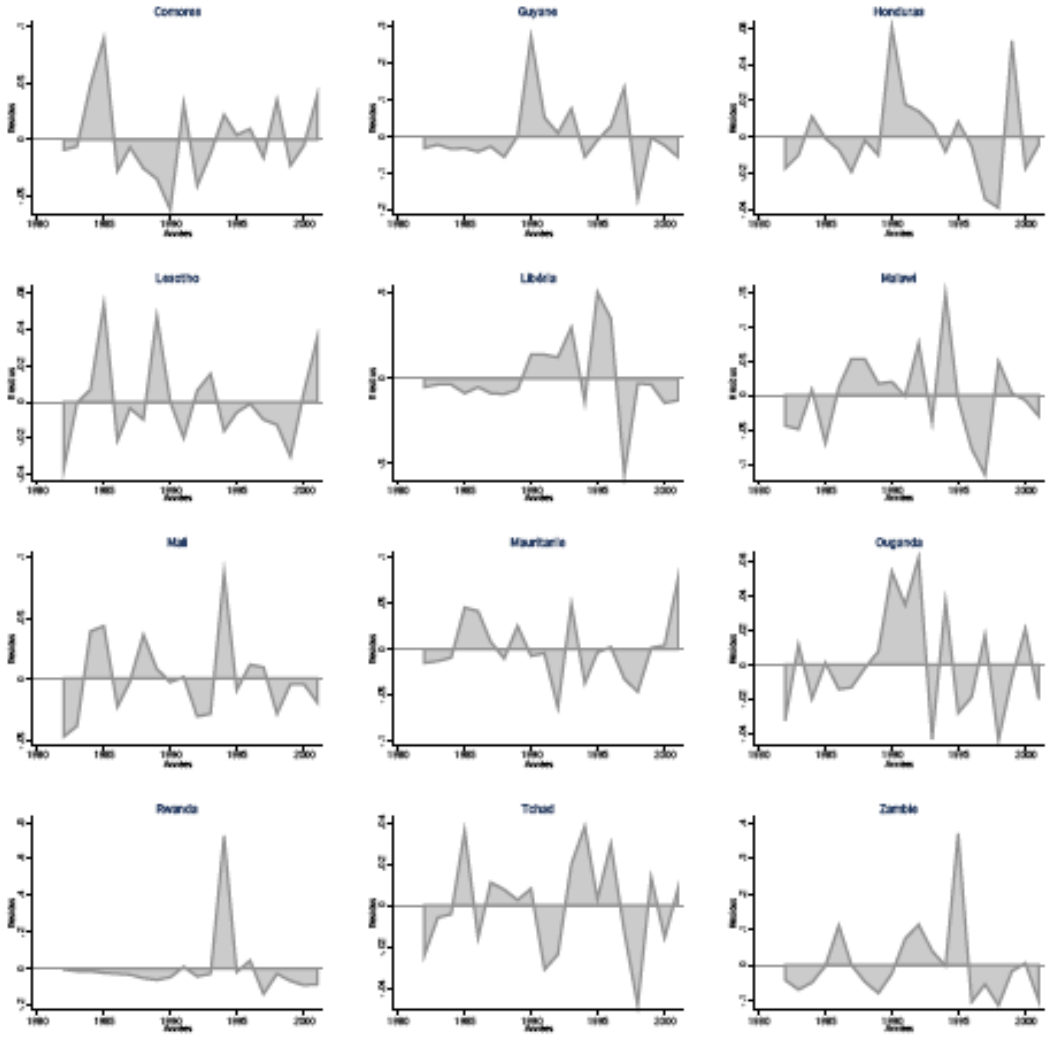

Figure 4: High aid-dependent countries' net ODA errors forecasts. *(Author)*

4.3.3 The identification strategy

Baseline estimations and results

In order to investigate the effect of aid unpredictability on corruption, we specify the following equation:

$$corruption_{it} = \alpha + \beta Aid_{it} + \gamma uncert_{it} + \zeta X_{it} + \tau_g + \eta_{it} \quad (3)$$

where *corruption* is the average level of rent-seeking (proxied by the ICRG index of corruption) in period t[18] for country i, Aid_{it} is foreign aid, *uncert* is a proxy variable of aid unpredictability, X is a vector of controls including income, oil exporter dummy, population size, urbanization, etholinguistic fractionalization, legal origin and an africa dummy. i stands

[18] Data are averaged over four periods: 1984-1989, 1990-1994, 1995-1999 and 2000-2004.

for countries and *t* for the periods. τ is a time trend. Consistent with section 4.2, the models suggest that *Aid* should be treated as an endogeneous variable and we instrument for it using the same set of instrumental variables.

Table 3 summarizes the results using ICRG averaged index of corruption as the dependent variable. All the three columns report two-stage least squares (2SLS) regression results, testing the effects of aid unpredictability on corruption. All our regressions include regional fixed effects to take into account the unobserved heterogeneity accross regions. In all the specifications, the aid coefficients are positive and significant at 5%, confirming that on average, other things being equal, aid decreases coruption. As expected, we found that aid unpredictability increases rent-seeking proxied by corruption in a statistically significative way. A one percent increase in the aid uncertainty measure is associated with a .17 percent increase in corruption index. From column 1 to columns 2 and 3, we gradually include in the regression additional controls that are legal origin, urbanization and an Africa dummy, which are supposed to have a effect on corruption. All of them enter insignificantly and do not change the aid and uncertainty coefficients size and significativity. Income is found to have a positive and significant effect (at 10% in the specification with all controls) on the index of corruption, supporting that higher income is associated with more corruption. This result call for some comments. One would have expected the opposite effect. Indeed if good quality institutions are considered as a "superior good", higher income should favor them (Lipset1959, Acemoglu2008). This regression result is probably due to a sample bias. Our sample countries is made of developing countries, having on average bad institutions. Finding with a such sample that the higher that income is, the higher there is corruption is not surprising because when income increases in these countries there are more opportunities for corruption because of the weak quality of institutions.

Table 5 presents results using cross-section data (average over the 1984-2004 period) and shows that the previous findings are not very sensitive to such a change in the data structure. Using averaged data over the whole period of the study in order to focus on the "between" variation of corruption, we found that aid uncertainty keep being harmful in terms of corruption, whereas aid reduces it. The first column shows the effect of aid unpredictability on corruption without any control variable. The coefficient of the uncertainty measure is negative and significant at 1%, albeit being very weak. This regression gives a basic sense of the effect of aid uncertainty on corruption, but fail to have a good explanatory power (R^2 is only about .09). The second column of the table shows regression results controling for the other determinants of corruption. The coefficient of the aid uncertainty variable is about .26 and is significant at 5% . Out of the controls, only the size of the population proves to be significant at 5%, while having a counterintuitive sign. The R^2 of .92 is reasonably high for a cross-section data set.

Table 3: Aid unpredictability and corruption (time-series cross section)

Variable	**Coefficient (Std. err.)**		
	2SLS	*2SLS*	*2SLS*
Uncertainty	-0.18**(.0859)	-.174** (.0841)	-.1611**(.0772)
Aid(% GDP)	.171** (.081)	.168** (.0794)	.158** (.0733)
Log(income)	.728** (.394)	.715* (.3861)	.734* (.393)
Oil export.	.153 (.389)	.132 (.3838)	.1685 (.3769)
Log(pop.)	.203 (.1608)	.195 (.1566)	.192 (.1498)
Eth. frac.	-.00655 (.0051)	-.0061 (.0051)	-.0055 (.0048)
british		-.084 (.2374)	-.0955 (.2311)
Log(pop. urb.)			-.0040 (.008)
Africa			-.482 (.4981)
Intercept	-7.27 (5.29)	-7.048 (5.16)	-6.90 (4.93)
regional dummies	yes	yes	yes
Obs	142	142	142
R^2	0.884	0.886	0.895
	Instruments quality statistics		
Cragg-Donald Wald F statistic	3.131	3.195	3.427
Hansen/Sargant J statistic	0.005	0.029	0.133
p-value	0.94	0.8641	0.7158

Beside the coefficient value, the Std. Errors, which are computed using heteroskedastic-consistent standard deviations are reported in parentheses. *** Denotes significance at the 1 percent level whereas ** and * Denote significance at the 5 percen and 10 percent levels respectiveley. All the estimations include regional controls, which are not reported for reasons of space.

Dealing with the potential endogeneity of the uncertainty variable

The previous results could suffer from error measurement bias in the uncertainty variable we used following Aizenman and Marion (1993) and Lensink and Morrissey (2000).
Pagan and Ullah (1988) proposed a Instrumental Variable (IV) non-parametric estimor, with instruments constructed from the information set.
The conditional variance of aid is taken as the unobserved volatility of aid and can be written as:

$$\text{var}_{prev}(A_{it}) = E_{prev}(A_{it}^2) - E_{prev}(A_{it})^2 = \sigma_{it}^2 \quad (4)$$

where $var_{prev}()$ and $E_{prev}()$ are respectively the expectation and the variance conditional on the previous time period information. From equation 2, we can write that[19]:

$$E_{prev}(A_{it}) = 0 \quad (5)$$

[19] The scatters in section 4.3.2 give a sense of the zero sample mean of residuals)

So, equation 4 can be rewritten as:

$$E_{prev}(A_{it}^2) = \sigma_{it}^2 \quad (6)$$

To account for the potential endogeneity of the uncertainty variable, we first re-estimate aid uncertainty with a nonparametric estimator, which takes advantage of the yearly availability of aid data and the period-based structure we give to our data[20]. The estimator was introduced by Schwert and Seguin (1990) and used in Andersen and Bollerslev (1998). The unobserved variability of aid in equation 5 is estimated with:

$$\hat{\sigma}_{it}^2 = \sum_{t=1}^{10} A_{tip}^2 \quad (7)$$

where A_{tip} is aid residuals from the forecasting equation in year *t* and period *p* for country *i*. This estimator has been demonstrated to be consistent for a general conditional variance specification for cases where *t* are high (Andersen and Bollerslev, 1998). Contrary to these authors who estimated daily exchange-rate volatility from intraday returns, we estimate aid volatility for each period and each country using yearly data. Ten-years periods is the structure giving the highest frequency of aid data while keeping a panel structure.
We then rely on the Pagan and Ullah (1988) instrumental variable, which correct for the large sample bias due to the weak number of subintervals (10 years). The first step of the procedure consists in proxying σ^2_{it} (the residuals from equation 4) with A^2_{it}, since $E_{prev}(A^2_{it}) = \sigma^2_{it}$ (equation 5). Our baseline regression equation is then rewritten as:

$$corruption_{it} = \alpha + \beta Aid_{it} + \gamma A_{it}^2 + \zeta X_{it} + \tau_g + \eta_{it} \quad (8)$$

where $\eta_{it} = \zeta_{it} + \gamma(\sigma^2_{it} - A^2_{it})$. The proxy A^2_{it} being correlated with η_{it} and assuming that $E(A^2_{it} \bullet \zeta_{it}) = 0$, Pagan and Ullah (1988) show that :

$$E(A_{it}^2 \cdot \eta_{it}) = E(\sigma_{it}^2) - E(A_{it}^4) \neq 0 \quad (9)$$

The second step of the instrumental procedure consists in instrumenting A^2_{it} with $\hat{\sigma}^2_{it}$ (in equation 6), which is computed with a set of information correlated with σ^2_{it} This procedure has an additional advantage in that $\hat{\sigma}^2_{it}$ should be quite strongly correlated with σ^2_{it} in spite of the weak number of subintervalls (10 years in our case). We checked and confirmed that with our sample data.

Table 4 presents the results of the regression using the instrumented measure of aid unpredictability. Uncertainty and aid still enter significantly, respectively with a negative and positive sign. The new coefficient of the uncertainty variable is lower and about .0057 while aid's one is a bit larger and about .224. Income level keeps increasing corruption, with a

[20] For this purpose, we averaged our data over the 1984-1994 and 1995-2004 ten-years periods

coefficient of 1.56 significant at 1%. The oil exporter dummy enters positively and significantly, supporting the hypothesis that is oil production is a source of rents favoring rent-seeking behaviors and corruption.

Table 4: Aid unpredictability and corruption (times series cross-section, instrumenting for unpredictability)

Variable	**Coefficient (Std. err.)**
	2SLS
Uncertainty	-.0057** (.0028)
Aid(% GDP)	.224*** (.092)
Log(income)	1.56*** (.528)
british	-.395 (.339)
Oil export.	.943** (.451)
Log(pop.)	.3736* (.225)
Africa	-.636 (.543)
Eth. frac.	-.0043 (.0057)
Log(pop. urb.)	-.466 (.452)
Intercept	-13.93* (7.33)
Obs	94
R^2	0.855
Instruments quality statistics	
Cragg-Donald Wald F statistic	0.820
Hansen J statistic	1.253
Hansen p value	0.939

Beside the coefficient value, the Std. Errors, which are computed using heteroskedastic-consistent standard deviations are reported in parentheses. *** Denotes significance at the 1 percent level whereas ** and * Denote significance at the 5 percen and 10 percent levels respectiveley. All the estimations include regional controls, which are not reported for reasons of space. Data are averaged over two ten-years periods (1984-1994 and 1995-2004).

4.3.4 Sensivity analysis and discussion

We conducted several sensitivity analysis. We already shown that the results are robust to the use of a different structure of data (cross-section dataset *versus* panel dataset). Another important question is about their sensitivity regarding the use of different types of aid. We broke up aid into loans *versus* grants, bilateral *versus* multilateral and project *versus* program. Table 6 in Appendix C presents the results. The first two columns (loans *versus* grants) show that the effect of aid unpredictability does not seem to vary from loans to grants, even thought the coefficient for grants are more significant (1%). Aid/GDP ration have a greater (positive) effect on corruption, with a coefficient of .56 for loans.

The third and the fourth columns reveal that multilateral aid unpredictability has a greater negative effect (coefficient is about .263 and significant at 1%) on corruption as compared with bilateral aid uncertainty (coefficient is about .137 and significant at 1%). This result is

consistent with the work of Pallage and Robe (2001) who shown that the instability of multilateral aid is greater than for bilateral aid (both net receipts and commitments), even though volatily does not necessarily mean unpredictability.

The three last columns of the table show the evidence for program aid, project aid and financial program aid. Based on data from 37 IMF desk economists, the work of Bulir and Hamann (2003) mentions that program aid is more unpredictable than project aid. The regression results in columns 5 and 6 seem to be consistent with that point. The coefficient of program aid unpredictability is about .22 and is larger than the coefficient of project aid unpredictability. Both are significant at 10%. Financial program aid unpredictability is however not significant. All our overidentification tests statistics indicate that the instruments for aid are good.

In table 7, we test the robustness of our findings to the use of different measures of aid. Columns (1) and (2) respectivey show regression results for Aid/GNI and Aid/Importations ratios. Aid unpredictability still enters negatively and significantly and Aid/GDP ratio significantly positively for both measures of aid. The coefficient of Aid/GNI unpredictability (.235) is larger than the one of Aid/importations unpredictability, which is about .144. Consistent with previous findings, the income level and the oil exporter dummy increase corruption. The Africa dummy enters negatively (even though weakly significant), meaning that on average, the african countries in our sample are more corrupt.

Our main results call for some comments. We have found that aid is on average associated with less corruption, indicating that aid decreases corruption; meanwhile, aid unpredictability has been found to increase corruption. The first result is consistent with the litterature (Tavares, 2003) promoting the use of new instrumental variables from donors side (and no longer instruments based on recipients needs that are probably correlated with their insitutional performances), and allowing to uncover the real relationship between aid and corruption. Tavares (2003) explains that the "conditionality" and "liquidity" effects of aid can partly explain that effect. The "conditionality" effect operates through the rules and conditions (from the donor) going with aid regarding political reforms[21]. The "liquidity" effect of aid takes place by alleviating public revenues shortages and by allowing public sectors to implement reforms. However, how can aid decrease corruption while aid unpredictabilty increases it? We relied on a political economy approach to explain that aid shares some common characteristics with rents from natural resources and how this could be a source a rent-seeking activities from the political leaders. Aid would succeed in limiting rent-seeking through donor's conditions, but other things being equal, in case of unpredictability of aid, [corrupt] leaders get incentives or extra incentives to engage in rent-seeking activities. These empirical results suggest that the uncertainty of aid weaken the "conditionality" effect. In a theoretical framework where aid aims to "buy" political and institutional reforms, the stability and the predictability of aid matter. By being unpredictable, aid would fail to keep recipient governments committed to reform. Moreover, aid uncertainty also obviously weakens the "liquidity" effect by failing to provide recipient governments with stable resources. As a results, rent-seeking activities and corruption increase.

Some implications for the African Development Bank Group's strategy

[21] This type of conditionality has been critized in the litterature. See Collier, Guillaumont, Guillaumont Jeanneney, and Gunning (1997)

The African Development Bank Group has been taking important steps to combat corruption and rent-seeking through governance initiatives for some years. Indeed, between 2000 and 2006, the Bank Group invested 2.5 billion US dollars to strengthen African governance structures and institutional capacity[22]. In may 2008, the Bank launched his Governance Strategic Directions and Action Plan (GAP) for the period 2008-2012 in order to help member countries improve their governance performances and reduce corruption. The Bank has also committed with other multilateral and bilateral donors to improve the management and the delivery of aid, with the aim to improve the long-term predictability of aid. The findings of this study connect well these two large initatives since evidence has been made that aid unpredictability can provide incentives for rent-seeking on top of having adverse macroeconomic effects (making fiscal planing difficult, complicating the implementation of development agenda difficult for aid dependent countries, increasing fiscal and monetary instability, etc.).

The Bank's anti-corruption initatives are concentrated around the prevention and the controling of corruption in Bank-financed projects and programs, the reducing of the opportunities for rent-seeking and corrupt practices, the support of civil society capacity building, the policy dialogue and the sensitization of the Regional Member Countries in order to assist their efforts at combating corruption (Governance Strategic Directions and Action Plan (GAP) 2008-2012). As the Bank puts it, there is a strong need for developing countries to have stronger public sector institutions and improved country systems for the management of public resources, that will contribute to strenghten states capacity, civil societies and to improve accountability and transparency.
From a policy point of view, the findings from this paper imortantly appear to be a supplementary advocacy for the Bank to keep committed in aid delivery improvement programs and to pursue it's governance initiatives; Improving performance-based allocation systems by prioritizing the countries that have good governance in place is a good policy option that need to be fostered. Putting an emphasis on cooperation and coordination with other multilateral donors is also of great importance.

5 Concluding remarks and policy implications

Recently a number of studies have emphasized the need to improve aid predictability, focusing their analysis on the macroeconomics effects of aid unpredictability in recipient countries and particularly in high aid dependent countries. This paper adressed the issue of foreign assistance uncertainty from a political economy prospect, by investigating the effect of aid unpredictability on rent-seeking behaviors in aid recipient countries. We proxied rent-seeking activities by corruption mainly due to the weak availability of data and to the fact that corruption is one of the main symptoms of rent-seeking activities. Consistent with the litterature, statistical analysis in the paper evidences a high unpredictability of aid flows, computed from a forecasting econometric model. Our major empirical findings are threefold: (1) there is a robust statistical relationship between aid unpredictability and corruption in aid recipients countries; (2) there is a similarly strong relationship between higher levels of aid and a lower corruption, particularly when we correct for endogeneity; and (3) the effect of aid unpredictability on corruption varies from project aid to program aid, the latter effect being a bit more severe.

[22] Governance Strategic Directions and Action Plan for 2008-2012

Findings of this analysis suggest that donors must keep on improving the management and the delivery of aid flows, since on top of complicating the fiscal planning and the implementation of the development agenda in aid-dependent countries, aid unpredictability might have a detrimental effect on institutions through increased corruption. However the policy implications must be phrased delicately. Aid predictability need to be improved not with the intention to reduce corruption, but with the aim to reduce the negative macroeconomic consequences in countries dependent on aid inflows. The unpredictabilty of aid is associated with higher corruption not because it directly causes corruption, but because the political institutions are weak. Increased rent-seeking activities resulting from uncertainty is aid flows should rather be interpreted as a symptom of weak institutions and weak checks and balances on the political power. This is an avenue for futur researches. Coming back to development funding strategies options, if the policy option to invest directly in the improvement of institutions and to make aid an instrument of such an investment plan is retained, this paper then provides supplementary recommendations to improve the predictability of aid since building and improving institutions through time require stable and sustained ressources.

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Appendixes

A Data definition and sources

Official development assistance (ODA), total net disbursements include grants and loans with a grant element of more than 25%. *(Source: OECD/DAC).*
Uncertainty: see section 4.3.1 for calculation details*(Sources: Author's calculation)*.
Aid%GDP): ODA measured as a percentage of GDP*(Sources: Author's calculation from OECD/DAC aid statistics and World Development Indicators 2008)*.
Loans: net ODA loans, current US$ millions *(Source: OECD/DAC statistics)*.
Grants: ODA grants, current US$ millions *(Source: OECD/DAC statistics)*.
Multilateral aid: ODA from multilateral donors, current US$ millions *(Source: OECD/DAC statistics)*.
Bilateral aid: ODA from bilateral donors, current US$ millions *(Source: OECD/DAC statistics)*.
Project aid: total net of project ODA, current US$ millions *(Source: Ouattara (2005))*.
Programme aid: total net of programme ODA, current US$ millions *(Source: Ouattara (2005))*.
Financial programme aid: total net of programme ODA minus food aid, current US$ millions *(Source: Ouattara (2005))*.
APD%GNI: Aid (% of gross capital formation). Aid includes both official development assistance (ODA) and official aid. Ratios are computed using values in U.S. dollars converted at official exchange rates. *(Source: OECD/DAC statistics and World Bank estimates)*.
APD%imp.: Aid (% of imports of goods and services). Aid includes both official development assistance (ODA) and official aid. Ratios are computed using values in U.S. dollars converted at official exchange rates.*(Source: World Development Indicators 2007*).
Income: gross domestic product (GDP) divided by midyear population (constant 2000 US$) *(Source: Word Development Indicators 2008)*.
Corruption: indicator of corruption as reported by international consultants. Scaled from 0 to 6, higher values denote less corruption*(Source: International Country Risk Guide)*.
Eth. Frac.: the probability that two random selected individuals within the country belong to the same religious and ethnic group *(Source : Atlas Narodov Mira)*.
Oil exporter: dummy taking the value 1 for oil exporting countries *(Source : World Development Indicators, 2008)*.
Legal origin: origin of country legal system. Dummy variables taking the value 1 for each British, French and 0 otherwise *(Source: Global Development Network Growth Database)*.
Population: population, total *(Source : World Development Indicators, 2008)*.
Urban population: urban population (% of total). Urban population refers to people living in urban areas as defined by national statistical offices *(Source : World Development Indicators, 2008)*.
Africa: dummy taking the value 1 for african countries *(Source: author)*.
Regions: dummies indicating whether the country is part of East Asia and Pacific, East Europe and Central Asia, Middle East and North Africa, South Asia, Sub-saharan Africa or Latin America and Caribbea *(Source: Global Development Network Growth Database)*.

B The sample countries

1. Angola	16. Egypt	31. Jordan	46. Pakistan	61. Uganda
2. Argentina	17. Ethiopia	32. Kenya	47. Panama	62. Uruguay
3. Burkina Faso	18. Gabon	33. Liberia	48. Peru	63. Venezuela
4. Bolivia	19. Ghana	34. Sri Lanka	49. Philippines	64. Vietnam
5. Brazil	20. Guinea	35. Morocco	50. Papua New Guinea	65. Congo Dem. Rep.
6. Botswana	21. Gambia	36. Madagascar	51. Sudan	66. Zambia
7. Chile	22. Guinea-Bissau	37. Mexico	52. Senegal	67. Zimbabwe
8. Cote d'Ivoire	23. Guatemala	38. Mali	53. Sierra Leone	
9. Cameroon	24. Guyana	39. Mozambique	54. El Salvador	
10. Congo (Rep.)	25. Honduras	40. Malawi	55. Suriname	
11. Colombia	26. Haiti	41. Malaysia	56. Syria	
12. Costa Rica	27. Indonesia	42. Niger	57. Togo	
13. Dominican Rep.	28. India	43. Nigeria	58. Thailand	
14. Algeria	29. Iran	44. Nicaragua	59. Tunisia	
15. Ecuador	30. Jamaica	45. Oman	60. Turkey	

C Additionnal results

Table 5: Aid unpredictability and corruption (cross-section)

Variable	**Coefficient (Std. err.)**	
	2SLS	*2SLS*
Uncertainty	-0.045*** (0.019)	-.260** (.125)
Aid(% GDP)		.259*** (.100)
Log(income)		1.123 (.838)
british		-.131 (.363)
Oil export.		.799 (.505)
Log(pop.)		.311** (.158)
Africa		.055 (.286)
Eth. frac.		-.00021 (.0049)
Log(pop. urb.)		.0484 (.338)
Intercept		-11.01** (5.38)
Obs	67	47
R^2	0.09	0.92
	Instruments quality statistics	
Cragg-Donald Wald F statistic	-	0.445
Hansen J statistic	-	3.871
Hansen p value	-	0.568

Beside the coefficient value, the Std. Errors, which are computed using heteroskedastic-consistent standard deviations are reported in parentheses. *** Denotes significance at the 1 percent level whereas ** and * Denote significance at the 5 percen and 10 percent levels respectiveley. All the estimations include regional controls, which are not reported for reasons of space.

Table 6: Aid unpredictability and corruption (time-series cross section, by aid types (2SLS))

Variable	**Coefficient (Std. err.)**						
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
	Loans	*grants*	*bilateral*	*multilateral*	*project*	*prog.*	*fin. prog.*
Uncertainty	-.187 *(.1108)	-.1692 ***(.062)	-.1379 ***(.038)	-.2637 ***(.121)	-.164 *(.090)	-.222 *(.131)	-.186 (.131)
Aid(% GDP)	.568 ***(.243)	.171 ***(.0684)	.1942 ***(.0656)	.212 ***(.092)	.224 *(.132)	.267 *(.150)	.310 (.196)
Log(income)	.588 **(.276)	.8841 ***(.3507)	.7639 ***(.2657)	.374 (.2302)	.786 **(.393)	.428 **(.210)	.355 *(.194)
Oil export.	.333 (.289)	.6210 ***(.2797)	.5134 **(.2421)	.0363 (.347)	.064 (.367)	-.151 (.304)	-.117 (.286)
Log(pop.)	.0348 (.1101)	.0583 (.1118)	.0469 (.087)	-.0298 (.086)	.200 (.1507)	.054 (.096)	.060 (.0939)
Eth. frac.	-.0108 (.0049)	-.0080 *(.0045)	-.0075 (.0045)	.0019 (.0055)	-.012 ***(.004)	-.016 ***(.004)	-.016 ***(.004)
british	-.3105 (.348)	-.3383 (.3104)	-.0423 (.2108)	-.0311 (.2611)	.138 (.298)	.098 (.2605)	-.0185 (.261)
Log(pop. urb.)	.526 (.419)	-.6422 (.465)	-.2977 (.306)	.3763 (.344)	-.134 (.347)	-.3069 (.365)	-.356 (.389)
Africa	-.345 (.337)	-.5903 (.3819)	-.3919 (.356)	-.493 (.482)	-.1151 (.366)	-.177 (.419)	-.044 (.455)
Intercept	-4.22 (4.10)	-2.11 (3.737)	-2.56 (3.07)	-2.60 (3.02)	-5.71 (5.389)	.451 (2.445)	1.153 (2.199)
regional dummies	yes	yes	yes	yes	yes	yes	yes
Obs	163	163	163	125	126	126	126
R^2	0.855	0.864	0.906	0.905	0.893	0.894	0.897
	Instruments quality statistics						
Cragg-D. Wald F stat	1.855	1.863	3.210	1.96	2.830	5.702	5.630
Hansen/Sarg. J stat.	2.747	3.016	3.903	7.29	0.801	2.237	3.265
p value	0.6010	0.3891	0.2722	0.199	0.3707	0.1347	0.070

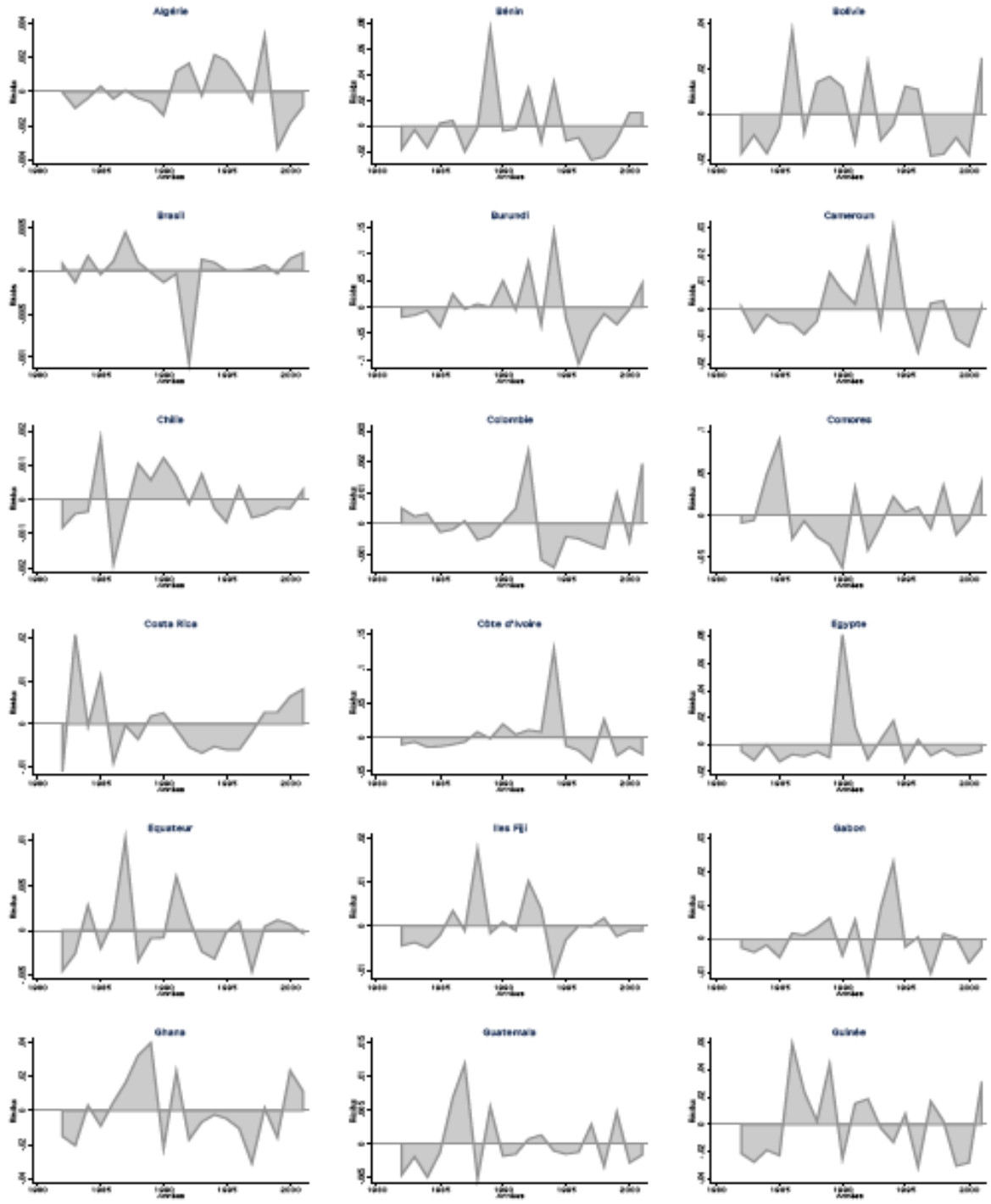
Beside the coefficient value, the Std. Errors, which are computed using heteroskedastic-consistent standard deviations are reported in parentheses. *** Denotes significance at the 1 percent level whereas ** and * Denote significance at the 5 percen and 10 percent levels respectiveley. All the estimations include regional controls, which are not reported for reasons of space.

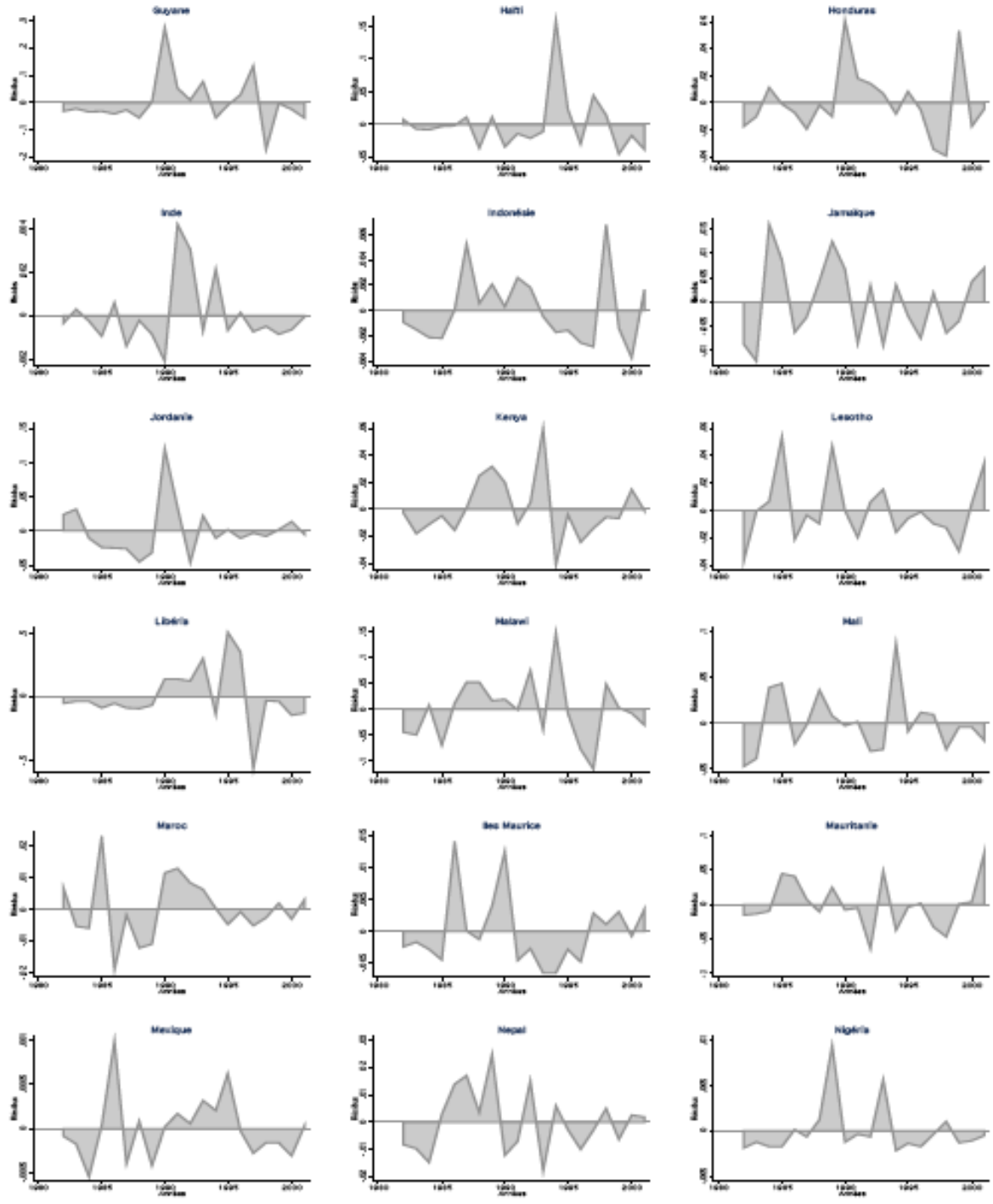
Table 7: Aid uncertainty and corruption (aid types, robustness).

Variable	**Coefficient (Std. err.)**	
	(1)	*(2)*
	Aid(%GNI)	*Aid(%import.)*
Uncertainty	-.235** (.127)	-.144** (.064)
Aid(% GDP)	.190* (.096)	.1002*** (.034)
Log(income)	.893*** (.385)	.840*** (.310)
Oil export.	.986** (.484)	1.343***(.496)
Log(pop.)	.048 (.114)	-.040 (.079)
Africa	-.768* (.468)	-.403 (.442)
Eth. frac.	-.010* (.0053)	-.0099 (.0052)
Log(pop. urb.)	.0626 (.460)	1.038* (.577)
Intercept	-4.992 (4.648)	-7.24 (4.52)
Obs	137	134
R^2	0.861	0.892
	Instruments quality statistics	
Cragg-Donald Wald F statistic	1.367	2.056
Hansen J statistic	6.124	4.903
Hansen p value	0.1901	0.4279

Beside the coefficient value, the Std. Errors, which are computed using heteroskedastic-consistent standard deviations are reported in parentheses. *** Denotes significance at the 1 percent level whereas ** and * Denote significance at the 5 percen and 10 percent levels respectiveley. All the estimations include regional controls, which are not reported for reasons of space.

D ODA forecasts errors, whole sample countries

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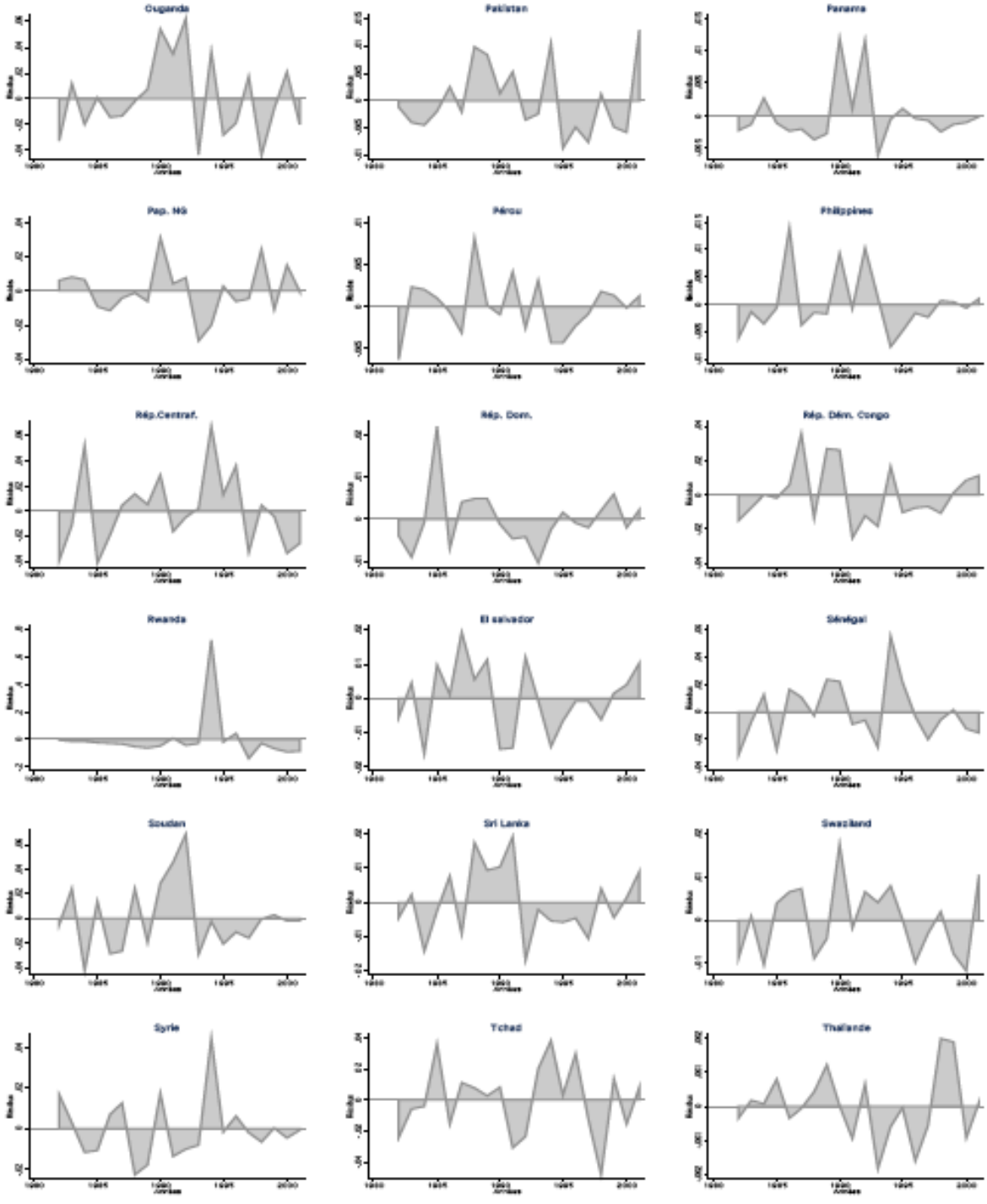
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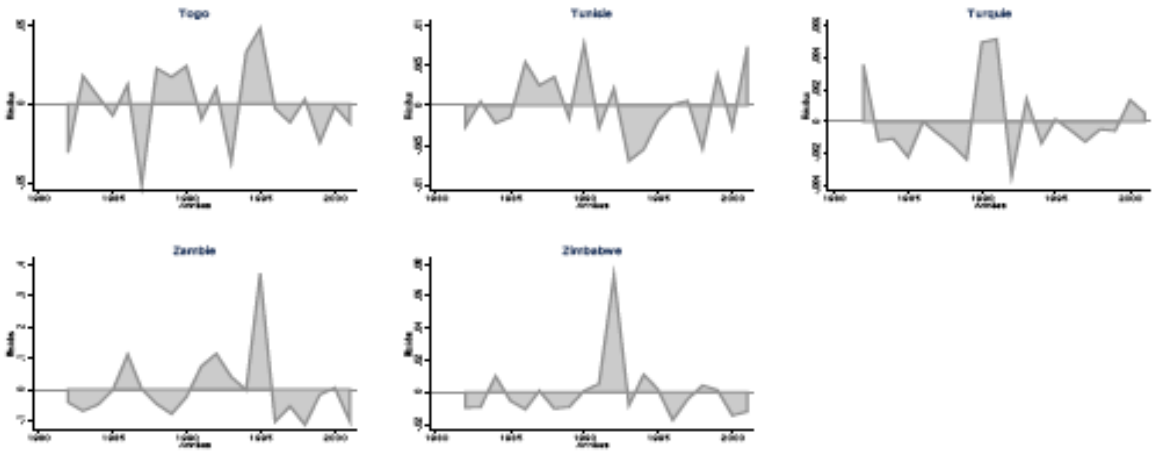

Figure 5: ODA(%GDP) forecasts errors, whole sample countries *(Source: author's calculation.See section 4.3.1)*

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