AIDING AND ABETTING THE LOOTING OF NATIONS: THE IMPACT OF AID ON GROWTH IN AUTOCRACIES

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Aiding and Abetting the Looting of Nations: the Impact of Aid on Growth in Autocracies[*]

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Abstract

We examine the link between international aid, political instability and economic growth in autocratic countries. First, we discuss the manner in which externally provided liquidity can affect looting and instability in an autocratic country, through the generation of outside options for a dictator who has property rights over the resource wealth of the country. We then use a treatment-effects approach to analyze empirically the role of natural resource wealth and aid on instability and, in turn, on growth. We find that the interaction of natural resources with most forms of international aid results in increased political instability and reduced growth. Interestingly, some forms of government aid (principally humanitarian aid) do not have this effect. We explore the reasons behind the interaction between resources and specific flows of aid, and find that both flows of aid and *the structure of those flows* depend upon the presence of resource wealth. Specifically, we find that aid flows toward poor countries (in terms of resources, income and indebtedness), but that aid structured as loans is more likely to flow toward resource-rich countries. We conclude that aid can generally have the effect of inducing instability in resource-rich autocratic countries, and that this instability is the instrument through which growth is reduced.

Keywords: Foreign Aid; Economic Growth; Dictatorship; Looting; Resource Curse

JEL Classification: O11; O13; F35

1 INTRODUCTION

The literature on aid and growth demonstrates that aid's effects on countries can vary widely. It is argued that aid can have a positive impact upon growth, or not, depending upon the policies and governance of the recipient country.[1] The empirical studies identify numerous policies which determine the impact of aid: exchange rates (Rajan and Subramanian (2011)); fiscal, monetary and trade policies (Burnside and Dollar (2000)). With regard to governance, the primary divide is between aid provided to democratic countries and autocracies. When aid flows toward democracies with some degree of political and civil liberties, it has been found to have a positive impact upon growth (Svensson (1999); Kosack (2003)). Conversely, the same authors have found that aid that flows toward autocracies has a demonstrably negative impact upon growth (Svensson (2000)). Our results agree with these earlier analyses to a large extent, and we provide both an analytical framework for considering the problem of aid to autocracies as well as empirical evidence regarding the impact of aid on growth in such countries; however, it is our conclusion that it is the policies and governance of aid provided by the *donor countries* that determines the ultimate impact of aid in autocracies.

The impact of many sorts of external interventions in such a framework is likely to be destabilising. Given the uncertainty surrounding continuing tenure, the only way in which autocrats can be incentivised to invest in their countries is to eliminate most other outside options. External agents who provide or enhance any outside option, such as the provision of some sort of liquidity to the autocrat, place an enhanced value on the choice of departure, and hence increase its likelihood. This phenomenon of induced departures has been termed "the looting of nations", and evidence has been provided that the occurrence of commercial lending to autocracies may result in heightened political instability and consequent reduced growth (Sarr et al. (2011a)).

In this paper we explore the capacity for inter-governmental aid to function in the same way as commercial lending in this story. Will the increased liquidity from aid payments also function to enhance the benefits from looting? Aid is of course very different from commercial lending in many respects, in that it may target circumstances (such as poverty, crisis or conflict) other than collateral. In addition, commercial loans will always result in greater debt burdens while aid may arrive in the form of interest-free grants. Clearly, commercial lending and inter-governmental aid potentially constitute very different flows of funding, in terms of source and motivation. In our theorising about autocratic resource-rich states, however, these differences should not matter much in determining the domestic outcome. Any source of enhanced liquidity under the control of the autocrat would heighten the perceived attraction of the looting strategy.

Our analysis is related to, but quite distinct from, the literature on the general "effectiveness" of aid. This literature has focused on the issues of aid ineffectiveness on account of pre-existing (and poor) domestic governance institutions.[2] This literature also surveys the direct but marginal impacts of aid on internal prices and incentives.[3] Our argument is different: we argue that, for a small set of governance situations (resource-rich autocracies), aid can have major impacts and non-marginal outcomes. That is, aid can be highly effective in substantially undesirable ways.[4]

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[1]The seminal reference for this proposition is Burnside and Dollar (2000). There is a significant amount of debate concerning various aspects of the empirical findings in this literature (Easterly et al. (2004); Hansen and Tarp (2001)). We find the argument that aid can potentially have positive impact persuasive, if sufficient structure and governance is put into place.

[2]Although the aid effectiveness literature is inconclusive, many studies find that aid often has little positive impact. For instance Knack (2001) finds a deterioration of the risk profile of a country with increasing aid flows. Brautigam and Knack (2004) identify several reasons why aid could demonstrate little positive impact on growth: first and foremost aid can reduce the internal pressure for change in the context of poor governance.

[3]Aid transfers may also have deleterious impacts by reason of distorting internal prices and incentives. Project based funding may siphon the most capable workers away from other positions by offering better salaries and future opportunities. Prices of resources and activities may be generally distorted because of the external demand represented by aid funds. It has even been argued that prices may be rendered uncompetitive externally, due to a potential impact of aid flows on real exchange rate appreciation (Rajan and Subramanian (2005)). Moreover, aid has been argued to distort incentive structures and creates moral hazard problems, the so called "Samaritan's dilemma" (Buchanan (1975)). Governments are then able to spend money without precise budget constraints, effectively insured by the contributions from foreign donors. This distorted governance structure can create dependence upon aid, so that the state becomes incapable of performing many of its core functions.

[4]This places our paper within the literature that relates aid to the resource curse. It has been found that aid acts as another form of non-tax revenue for developing countries that has often been associated to poor growth and development outcomes (Morrison (2009)). In the literature, the so called "resource curse" (Sachs and Warner (1995)) has been explained related to both external and internal factors. On the one hand, resource-richness may be associated with many phenomena that arise externally: increased indebtedness (Manzano and Rigobon (2003)), volatile revenues (Humphreys and Sandbu (2007)), or the so called "Dutch disease", an appreciation of the exchange rate due to the export of the resource, which

Finally, our paper is also related to the literature on the strategic motivations for aid. One of the conclusions of the aid and growth literature is that aid is often poorly targeted at the needs of recipients (McGillivray (1989)). This has been argued to be the case because aid has been motivated more by the strategic interests of the donors than the needs of the beneficiaries (Maizels and Nissanke (1984)). Aid is not channelled toward countries with better governance, i.e. more democratic countries (Svensson (1999)). It is not targeted at those with good policy environments (Burnside and Dollar (2000)). The most common explanations for aid flows are more strategic, and based in the interests of the donor. Fundamental factors determining these strategic flows include colonial and political linkages (Alesina and Dollar (2000)). We show here that another important factor in motivating some flows of aid is the presence of natural resources in the recipient country, and the potential for aid to translate into claims upon those resources.

In this paper we attempt to demonstrate that aid can have substantial impacts in some countries and yet still very negative outcomes, political and economic. We show this by demonstrating that aid may have a direct and negative impact upon the operation of institutions in a particular set of developing countries (autocratic, resource rich ones) and for particular categories of aid (sectoral and resource-driven aid). In these cases, aid does not simply operate as a benign influence in the presence of poor domestic governance institutions, nor does aid simply act to introduce marginal distortions in the price system of a developing economy. Aid can be a very effective way of generating very poor outcomes, institutional and economic, in autocratic countries.[5] We argue that this is not an unintended consequence of aid in these countries, but more likely driven by the strategic interest of the donors concerned.

The paper proceeds as follows: in section 2 we briefly set out our theory of liquidity-based instability in autocracies. In section 3 we set out our hypotheses regarding the relationship between inter-governmental aid, instability and growth, and review the evidence regarding each of these. In section 4, we discuss the manner in which different flows of aid are structured, and what this means for the impact of aid flows. Finally, in section 5, we perform some robustness checks, using a different dataset which includes alternative measures of political instability and oil wealth and oil discoveries as a measure of the resource stock. Section 6 concludes.

2   BACKGROUND: THE DICTATOR'S CHOICE MODEL

We restrict our analysis here to that set of countries that are controlled by an unchecked autocrat. We theorise concerning the perilous position of this "transient dictator": someone who is subject to potential displacement each day of his dictatorship. While in this position, he will sit as an unchecked monopolist over all of the resources within that country and over all of its productive capacity. However, if he has not departed before a coup displaces him, then he receives no pay-off from this position of power. His choice then concerns when to "loot" the country given his perilous position.

Specifically, we have described the "dictator's choice" as comprising a situation in which this autocrat faces a series of decisions described by the decision tree in Figure 1.[6] The autocrat could elect to depart the country immediately with whatever liquidity his status makes available, or the autocrat could decide to remain in office for one more period for the purpose of consuming from state resources and extracting greater liquidity in the future. If he elects to stay, he faces the prospect of a coup, and removal from office without receiving any returns from that office, neither liquidity nor consumption. For this reason, the basic calculus of such an autocrat is to compare the returns available from placing immediately available liquidity into foreign investments (foreign bank accounts) against appropriately risk-discounted domestic investments (domestic investment and production). Liquidity is assumed to be conferred at the time of the decision, so there is no risk attached to the looting decision (i.e. the decision to depart immediately),

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penalises domestic industries by inflows of cheap imports and unfavourable conditions for exports (Sachs (2007)). On the other hand, the curse could hinge more on things internal: higher rent-seeking and corruption (Leite and Weidmann (2002)), domestic conflict and political instability (Collier and Hoeffler (2004)), autocratic regimes and poor institutions (Ross (2001); Isham et al. (2005)) and in general with weaker accountability of the political leadership (Ross (2001)). Our analysis, here and elsewhere, finds that the resource curse is sometimes sourced in the combined phenomenon of poor internal governance and strong external intervention (Sarr et al. (2011a)).

[5]We are not the first to note that aid may have a negative impact on institutions. Djankov et al. (2008) conclude that aid has an even more detrimental impact on institutions than revenues from oil. We provide a specific mechanism for examining how poor institutions can be generated by some forms of aid.

[6]The dictator's choice model is depicted in Appendix A. For more detail, see Sarr and Swanson (2012).

while the decision to take the higher rates of return from productive domestic investments takes time and hence incurs the risk of removal in the interim. For this reason the dictator is seen to sit on the cusp of a decision about departure at all times—the incentives to loot loom large.

External agencies can influence the autocrat's decision (intentionally or inadvertently) by means of any intervention that might either a) enhance the liquidity immediately available to the dictator; or b) reduce the prospects for current or future consumption from the economy. If an external agent increases the proportion of liquefiable assets in a given period, or decreases the expected level of future flows from the economy, then the dictator is more likely to depart immediately. The analytics of the model are straightforward. Any conferment of enhanced liquidity available immediately increases the prospects for immediate departure. Hence, we have demonstrated that "the looting of nations" is occasioned in autocracies by the provision of liquidity levels that are "too high" in the sense described in our Dictator's Choice model (attached in Appendix A). The dictator's choice to loot is aided by any external agency that provides un-structured liquidity, available for immediate taking by the autocrat. (Sarr and Swanson 2012)

For example, we found evidence in our earlier analysis that commercial lending enhanced the likelihood of political instability (on account of increased liquidity) while increased debt levels had the same effect (on account of reduced consumption prospects). We further demonstrated that the presence of liquidity-linked instability detracted from growth prospects in autocratic countries, resulting in an institution-linked explanation for the resource curse. (Sarr et al. 2011a)

In the remainder of this paper we wish to examine whether governmentally-supplied liquidity has the same effect as commercially-supplied liquidity on the existence of political instability within autocratic countries and, if so, we also wish to investigate whether there are similar implications for the growth prospects in these countries. That is, do inter-governmental aid flows aid the looting of nations? We turn to the examination of the evidence on this question in the next section.

3   EMPIRICAL ANALYSIS

The empirical analysis of the theory's implications, in the context of aid transfers, requires an examination of the manner in which aid-based liquidity directly impacts political instability and through this growth. In this section, we wish to test two claims similar to those made in Sarr et al. (2011a); specifically:

Claim 1) Larger amounts of inter-governmental aid transfers (at a fixed level of natural resource wealth) enhance the likelihood of political instability in an autocratic resource-rich country.

Claim 2) The occurrence of liquidity-driven irregular turnover generates an environment of political instability, which results in reduced economic growth in the autocratic resource-rich state.

Our empirical analysis is therefore focused on the links between offers of liquidity, existence of instability and evidence of reduced growth in autocracies. We do not make any attempt to measure looting directly. This is because it is difficult to view all but the most notorious instances of looting, and also because the incentives for looting create an increased likelihood of a wide range of departures by the dictator. Enhanced incentives for looting generate a situation in which the autocrat is investing less resources in securing its own tenure, and hence any type of irregular departure becomes more likely. In particular, once the incentives to elect early departure are increased, any sort of contest over leadership is more likely to be successful. This means that there may be numerous ways in which the insecure autocrat may in fact depart (selected date, unanticipated coup, replacement by confederate, extended stay overseas, selection of replacement) but in all cases the changeover is going to be irregular, i.e. not part of any scheduled political procedure. Furthermore, once one incident of looting has occurred within a dictatorship, the prospects for future early departures are enhanced (on account of the lower level of investment and higher indebtedness bequested by the previous regime). For these reasons, we would anticipate a higher level of political instability, measured by the enhanced occurrence of irregular turnover of leadership, to be the measurable outcome from enhanced incentives for looting within a particular autocracy.

3 EMPIRICAL MODEL

3.1.1 Empirical strategy

Our empirical strategy follows from the treatment regressions approach developed in Sarr et al. (2011a), to which we refer the reader to for a detailed account. Our baseline model features political instability as the treatment equation and growth as the outcome equation. In order to address the possible problem of selection bias due to unobservable characteristics (e.g. unobservable forces that drive both growth and political instability), we jointly estimate the treatment and outcome equations by maximising a bivariate normal likelihood function. In doing so, we allow for the correlation of the error terms of the two equations to be modelled directly, thereby eliminating the omitted variable bias. These equations are specified as follows:

$$\Delta log(GDPcap)_{it} = \alpha_0 + \alpha_1 Turnover + \alpha_2 Aid_{it} + \alpha_3 NRStock_{it} + \alpha_4 \mathbf{X}_{1it} + u_{it} \tag{1}$$

$$Turnover_{it}^* = \begin{cases} 1 & \text{if } Turnover > 0 \\ 0 & \text{otherwise} \end{cases} \tag{2}$$

$$Turnover_{it}^* = \beta_0 + \beta_1 NRStock_{it} + \beta_2 Aid_{it} + \beta_3 \left(NRStock_{it} \times Aid_{it} \right)$$
$$+ \beta_5 \mathbf{X}_{2it} + \eta_{it}$$

where *NRStock*, *Turnover* and *Aid* denote respectively the resource stock, the proxy for political instability and aid (more precisely, aid sector or aid type). $\mathbf{X}$'s are the vectors of control variables in each equation. Practically, the joint estimation will be performed using the Stata program cmp developed by Roodman (2011).

Claim 1 hypothesises that the marginal effect of foreign aid on the likelihood of political instability (here, measured by occurrence of irregular turnover) is positive and increases with the level of natural resource wealth. That is:

$$\frac{\partial Pr(Turnover = 1|Aid_{it}, NRStock_{it}, \mathbf{W}_{1it})}{\partial Aid_{it}} = (\beta_2 + \beta_3 NRStock_{it}) \phi \left(\beta \mathbf{W}_{it} \right) > 0 \tag{3}$$

where ϕ is the standard normal density function. This requires that $\beta_2 + \beta_3 NRStock_{it} > 0$ and $\beta_3 > 0$. Thus, the interaction between aid and resources is of particular importance because its sign will indicate whether aid to resource-rich developing countries produces enhanced political instability.

We further hypothesise in Claim 2 that political instability adversely affects economic growth in resource-rich states that are recipients of aid, i.e. we are interested in the *indirect* effect of aid and resources on growth due to irregular turnover, that is:

$$\frac{\partial E(\Delta log(GDPcap)_{it}|Turnover(Aid_{it}, NRStock_{it}) = 1)}{\partial Aid_{it}} = \alpha_1 \frac{\partial Pr(Turnover = 1|Aid_{it}, NRStock_{it})}{\partial Aid_{it}} \tag{4}$$

If the evidence supports our hypotheses, then foreign aid could well be another channel through which the resource curse operates in the same manner as imperfect lending markets are showed to be a critical factor generating the resource curse in Sarr et al. (2011a).

In addition to including the irregular turnover variable in the growth equation, we also incorporate a proxy for human capital accumulation (the number of years of schooling), investment, inflation, a measure of trade openness as well as year and country dummies. We also test for the presence of the Dutch Disease, by including the level of resource stock relative to GDP. To ensure that the model is duly identified, exclusion restrictions assumptions are made. We control for the rulers' length of tenure (in years), institutional quality and ethnic polarisation. We assume that these variables only affect growth via the impact on looting-led political instability.

Finally, in ensuing sections, we undertake a further analysis to investigate the reasons why resources might interact negatively with liquidity, by adding a third stage exploring the motivations for aid transfers to the model presented above. The third equation is specified as follows:

$$Aid_{it} = \gamma_0 + \gamma_1 NRStock_{it} + \gamma_2 \mathbf{X}_{3it} + \varepsilon_{it} \tag{5}$$

The Stata program cmp developed by Roodman (2011) is also used to estimate our three-equation mixed-process model.

3.1.2 Data

We conduct our analysis on a panel of 74 countries, over the period 1970-2003. The main variables and sources are listed in Table 1.

The dependent variable of the probit model, the irregular turnover variable *Turnover*, is our proxy for political instability. This is a binary variable that is equal to 1 if the executive has been changed through irregular means, i.e. if a ruler or regime has been deposed or forced from power in a non-constitutional manner. Because looting is often unobservable, we have argued above that enhanced incentives for looting will engender an increased incidence of irregular turnover in general. This is because incentives for looting decrease all investments in securing tenure (or in the economy), and hence leave the regime generally vulnerable. Many types of irregular departure are then more likely to occur.[7]

The proxy was constructed using data from Archigos (which spans until 2004), a database of political leaders developed by Goemans et al. (2009). In our baseline sample there are 140 country-year observations out of 2320 when *Turnover* equals 1 in autocratic countries. The explanatory variables of interest for the treatment equation regarding political instability are the stock of natural resources and foreign aid. The natural resources data are provided by the World Bank Environment Department (K. Hamilton and G. Ruta), while the aid *commitment* series come from the OECD-DAC aid statistics.[8] In our analysis, bilateral aid *commitments* from the Creditor Reporting System (CRS) are disaggregated according to the broad sectors targeted by the aid funds (infrastructure, industry, program assistance, multi-sector and humanitarian) [9] The disaggregated data are only available since 1973. This disaggregation enables us to analyse whether different categories of aid flows yield different incentives. Importantly, we control for past commitments (one year lag) of either category of aid because these are likely to generate actual liquidity in the near future. We also use another dataset from the OECD-DAC (available since 1970) which distinguishes between bilateral grants and loans commitments.

Our analysis focuses on the behaviour of autocratic leaders. For this reason, we restrict our baseline sample to the years in which a given country is ruled by autocratic regimes since 1970. For instance, if a country transitions from autocracy to democracy (e.g. Chile, Argentina, Mexico), then the years following the transition will be dropped from the baseline sample. For robustness purposes however, we do investigate how different the outcome would be should we limit the sample to democratic regimes only (see section 5). The classification of authoritarian regimes is obtained from Cheibub et al. (2010).

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[7]In addition, once these incentives inhere, they are dynamically attractive - one incident of looting increases the likelihood of further incidents on account of higher indebtedness and reduced investment. In a given dictatorship, we would expect enhanced incentives for looting to increase political instability within that dictatorship, even after the departure of a given dictator and into the indefinite future.

[8]A limitation of this dataset is that only countries and institutions that voluntarily report their aid levels are present. These include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland UK and USA. Less regular time series are available for non-DAC countries: Chinese Taipei, Czech Republic, Estonia, Hungary, Iceland, Israel, Kuwait, Poland, Saudi Arabia, Slovak Republic, Slovenia Thailand, Turkey, United Arab Emirates.

[9]It is important to point out that, for sectoral aid data, *commitments* are preferred to *disbursements* due to availability and reliability of the former. The OECD CRS User's Guide advises that *"in general data on a commitment basis is of a better quality than based on disbursement [...]. Analysis on CRS disbursements [...] is not recommended for flows before 2002, because the annual coverage is below 60%"* (User's Guide to the CRS Aid Activities Database 2012 http://www.oecd.org/development/aidstatistics/usersguidetothecreditorreportingsystemcrsaidactivitiesdatabase.htm)

3 RESULTS: THE IMPACT OF AID ON GROWTH IN AUTOCRACIES

Tables 3 to 8 report the results of our empirical analysis. Much of our discussion pertains to the baseline model which accommodates country and time fixed effects as shown in Tables 3 to 4. Our analysis considers the impact of inter-governmental transfers in aggregate (Total Aid) and disaggregated along various sectoral and motivational lines. We initially consider all forms of transfer in aggregate (both loans and grants) and then later further disaggregate these databases to demonstrate the difference in effects between grants and loans. We commence with a treatment-effects two-stage analysis in order to investigate whether aid-sourced liquidity has a direct impact upon political instability, and instability upon growth.

3.2.1 Aid and political instability

We commence with a discussion of the impact of aid on political instability in all autocratic countries (with instability measured as the incidence of "irregular turnover" in government). Panel B of Table 3 shows the impact on political instability for each category of aid. Our initial finding is that aid commitments (Total Aid and the disaggregated sectoral aid transfers) do not induce increased instability in general across autocracies. In fact, aggregate aid commitments have a negative but not statistically significant impact on irregular turnover, as shown in Column 1. It is also interesting to consider this relationship across various categories of aid.[10] We find negative but statistically significant results (at the 5% and 10% level of significance) for all sectoral aid commitments considered here except for humanitarian aid. So aid appears to have differing impacts upon stability in autocratic countries, depending upon the category under which the aid event is listed, but in aggregate the effect is almost nonexistent.

To this point we have little evidence to report in support of our initial claim regarding the impact of aid-based liquidity on political instability. We now consider how aid impacts autocratic states when *resource-richness* is an important characteristic of the country concerned. Panel B of Table 3 demonstrates this effect—the interaction of aid with natural resource stocks generates statistically significant (at the 5% level) increases in political instability for Total Aid. In effect, the impact of aid is reversed when total aid is interacted with substantial resource stocks. In general, aid transfers to resource-rich states are destabilising whereas there is no sign of such a relationship in the absence of resources. We examine the possible explanations for this difference in section 4.

It is also interesting to note that this relationship is not the case for all categories of aid transfers. It is found for aid transfers categorised as Infrastructure, Program Assistance, Multi-sector aid and Industry (the latter being significant only at the 12% level). On the other hand, the interaction coefficient is negative for transfers classified as Humanitarian aid. This finding hints at a relationship between types of aid and their impacts. Again, we will return to examine this relationship further in section 4.

In order to illustrate the impact of these findings in regard to Claim 1, we calculate the marginal effect of the aid measures on the probability of irregular turnover, given natural resource wealth (and all other controls). To do so, we consider the impact of an increase of aid by one standard deviation from the mean and fix all the right hand side variables in the probit model at their sample mean. Figure 6 illustrates these marginal effect for Total Aid. It shows that for sufficiently large levels of resource wealth (158% of GDP, i.e. the 74th percentile), the marginal effect is positive and statistically significant at the 5% level. In addition, Table 5 demonstrates that the value of the resource wealth threshold varies across sectoral aid categories from 108% of GDP (70th percentile) for Program Assistance to 294% of GDP (84th percentile) for Industry aid. For humanitarian aid however, the effect of aid is always negative since the interaction effect reinforces the main effect of aid on political instability. These results provide clear and robust evidence in support of our hypothesis that the provision of increased amounts of foreign aid to resource-rich dictators has the potential to generate the political instability associated with looting. We will now turn to the impact of aid on growth, via this mechanism of instability.

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[10]The categories of aid for which we have data are: Infrastructure, Industry (assistance to extractive and manufacturing industries), Program Assistance (mostly budget support and food aid) Multi-sector (mostly environmental, and general developmental aid) and Humanitarian.

3.2.2 Aid, instability and growth

We now examine the evidence regarding the impact of aid on growth (through the mechanism of induced instability) in autocracies. The findings pertaining to our Claim 2 are reported in (upper) Panel A of Table 3. As predicted, irregular turnover has a strong and significantly negative impact on economic growth for Total Aid, and for each of the disaggregated categories of aid.[11]

The size of the impact is substantial. The point estimate indicates that output per capita drops by 4 to 5 percent in the event of one unconstitutional political change. Put differently, the indirect effect of 1% increase in aid to autocratic states through looting-led political instability suggests that a country - that is average in all respects except in regard to its resource wealth (we use Nigeria's resource-richness as an example) - would result in a loss of up to 0.75 percentage point of economic growth (see Table 4).[12] In short, for the set of autocratic countries, liquidity-linked instability appears to be an important vehicle for explaining reduced growth prospects in these countries.[13]

We believe that these findings support our claims that an offer of liquidity to dictators may tend to increase looting-led political instability, which in turn may result in reduced economic growth. There are two fundamental caveats to our findings: liquidity-induced instability is only a problem for resource-rich countries[14] and only for some (but not all) categories of aid (all except Humanitarian). We turn to investigate these exceptions in section 4, below.

4 DISCUSSION: THE STRUCTURE OF AID FLOWS

We have found that inter-governmental aid flows have significantly negative effects on growth in autocracies, but only in regard to those countries which are *resource-rich* and only for some *categories of aid* (specifically, Infrastructure, Programme Assistance, Multi-Sector and marginally Industry but not Humanitarian). The fact that aid does not always operate to enhance the rate of departure is important. We are left to explain how it is that sometimes the external provision of liquidity has the expected impact on instability and growth, and in other cases liquidity does not.

The most straightforward explanation would be that it is the outcome of a different structure supplied to some forms of transfers, and not to others.[15] It is only *unstructured liquidity* that creates incentives for political instability. That is, if liquidity is structured by donors in such a way that they must be invested in the domestic economy, then liquidity would not have the effect of inducing instability.[16] Hence, we wish to investigate whether there is any evidence to indicate that there is a different structure provided to aid flowing toward those categories of states evincing instability (i.e. those states that are resource-rich).

This part of our investigation is related to the literature on the motivations for aid transfers. That literature has demonstrated that aid flows may be explained more by strategic motivations on the part of the donor state than

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[11] However, this negative impact on growth cannot be linked to positive humanitarian aid flows which as we have seen earlier tend to reduce political instability.

[12] Our analysis indicates that this relationship does not hold true for countries that are not resource-rich. A country that is average in all respects and possess a median natural resource wealth does not demonstrate this effect; in fact, an autocratic state that is not resource-rich experiences heightened though minimal political stability, which in turn would translate into a very marginal increase of 0.002 percentage point in growth. This points to the role that resources play in attracting the "wrong sorts of transfers", as will be examined further below.

[13] Tables 9-12 repeat the analysis with respect to democratic countries, and demonstrate that the analysis does not hold for non-autocratic countries. It is important that countries are both autocratic and resource-rich for our expected results to apply, supporting the looting-based model for analysing the incentive-based impacts of offers of liquidity.

[14] And the only manner in which resource-richness translates into reduced growth prospects, for our sub-sample of autocratic states, is via induced instability. In our sample, there is no evidence of any directly negative effect of resources on growth - the effect of natural resource stocks on growth is almost never distinguishable from zero. The other determinants of growth mostly provide expected results. Investment has the expected positive effect while inflation has a negative one. Meanwhile education remains statistically insignificant although positive.

[15] There may be two competing hypotheses - one is that resources act as attractors for poorly-structured transfers and the second is that resource-richness proxies for some other problem that is internal to the autocratic country such as conflict or poor governance. We examine both here.

[16] We define *structured liquidity* as being the transfer of funds with conditions requiring its investment in specific sunk assets retained within the state concerned. This might be the case, for example, if a flow funding is provided to a country contingent upon its investment in a specific project, such as a dam or a transport project. Unstructured liquidity results when funding is supplied without such contingencies, or in the absence of their monitoring and enforcement (Sarr et al. (2011b)).

demonstrable needs on the part of the beneficiary (Maizels and Nissanke (1984); Alesina and Dollar (2000)).[17] Our investigation explores whether both the *flows* and the *structure* of aid transfers might be strategically determined by the motivations of the donors concerned.[18]

In order to investigate this hypothesis, we perform a three-stage analysis in which we jointly estimate the instability and growth equations together with the aid allocation equation, in which we control for per capita GDP, debt service, institutional quality, British and French colonial ties as well as natural resource wealth. The results of the estimation of this three-equation system are reported in Table 7 (total and sectoral aid) and Table 8 (aid in the form of loans and grants). The results are striking.

First, the results demonstrate that the aggregate flows under all categories of aid are determined more by the needs of beneficiaries than by the strategic objectives of the donors. Panel C of Table 7 suggests that natural resource wealth is not a major attractor of aid. Most of the natural resource coefficients are insignificant indicating that donors tend to provide aid to countries that are less well endowed in natural resources. This is true across all categories of sectoral aid, and for Total Aid as well except for those flows dedicated to infrastructure and multi-sector purposes. Instead, it is low per capita incomes, high indebtedness, and long-standing political ties that explain all categories of aid flows. Therefore we find that, in general, aid is motivated to generate transfers in the direction of more needy countries (in terms of income), those that are facing challenges in terms of servicing their debt, and those countries with colonial ties irrespective of institutional quality. These flows of aid continue to have a deleterious impact upon instability and, through this, on growth, but it would appear from this analysis to be an unintended effect of the liquidity provided.

There is an important exception to this general finding. This difference is demonstrated when we disaggregate aid transfers between *loans* and *grants*, where the impact of resource-richness on aid flows is clarified. This is demonstrated in Tables 8 and 8, where the structure of aid flows is taken into account. As before, aid structured as grants flow toward needy countries that are not particularly resource-rich, as indicated in Table 8 Column 2. However, in the context of aid structured as loans, resource-rich countries attract significantly greater aid flows. The impact of resource wealth on aid transfers becomes positive and statistically significant at the 10% level. (Table 8 Column 1)

Aid transfers that are *structured as loans* are responding positively to resource-richness, while grants are not responding to resource wealth. The remainder of the results between the aggregated and the disaggregated analyses are nearly identical. Although the coefficients are somewhat reduced, the significance and signs for income and debt burdens remain the same. This indicates that aid continues to flow toward poorer countries in general, but it is *structured* in different ways by the donor state, depending upon the circumstances of the recipient state. Therefore, poorer states with substantial resource-riches are receiving aid structured as loans, while similarly situated states without resources are not; the only exception being in the case of Humanitarian aid flows.

Donor states determine both the amount of aid flows, as well as the structure of those flows. We have presented evidence on the motivations for aid flows that demonstrates that, in aggregate, these flows respond to the needs of beneficiary country (in terms of resource wealth, national income, indebtedness as well as colonial ties). These flows of aid still have the expected effects on instability and growth, but they are likely to be inadvertent. More interestingly, we find that the structure of aid flows also varies with the presence resources, but the effect here is the opposite. Aid flows are structured as loans when resource-richness is a factor, providing the basis for claims on assets if instability and indebtedness results. The motivations for this impact of resources on the structuring of aid are more dubious. This liquidity-induced instability may then redound to the benefit of the donor state, in terms of providing the basis for reverse flows of resources in future. We find that the only category of aid for which this impact is never present is Humanitarian. There is little evidence that this form of aid ever produce instability.[19]

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[17]The alternative motivations for aid flows include: a) needs of the beneficiary; b) political and colonial ties between the beneficiary and donor; or c) the strategic pursuit of assets on the part of the donor.

[18]Our hypothesis is that both aid flows and the structure provided those flows will be determined by the presence of resource-richness in beneficiaries.

[19]This exception, to our mind, is more evidence to prove the rule: donors are able to structure aid in the manner that they intend, and achieve the results that they pursue in the provision of aid transfers. Sometimes aid transfers are structured to produce humanitarian outcomes, and other times they are structured to produce the possibility of future claims and reverse transfers.

5 ROBUSTNESS: OIL AND AID, ALTERNATE MEASURES OF INSTABILITY

5 ALTERNATE MEASURES OF KEY VARIABLES

In order to assess the robustness of our results, we perform a number of checks to see if the effect of aid in interaction with resource wealth remains the same under various specifications of our key variables. First, we perform a similar analysis, but using data relating to oil wealth and oil discoveries rather than natural resource endowments (inspired by the work of Cotet and Tsui (2013)).[20] Second, we incorporate an alternative measure of political instability (irregular change of power) using data from Colgan (2012). Third, aid *disbursements* are used rather than aid *commitments* used in our earlier analysis.

The structure of the empirical model remains the same.We consider the impact of oil resources in relation to this new index of political instability as well as our looting index, as originally defined.

The explanatory variables of interest for the treatment are oil discoveries per capita, oil wealth per capita, and foreign aid. The oil data are provided by Cotet and Tsui (2013). Their original data (which cover the period 1930-2003) are obtained from the Association for the Study of Peak Oil (ASPO), a nonprofit organisation that is devoted to gathering industrial data to study on the volume of production of world oil. They are also complemented with data from BP Statistical Review of World Energy (BP), Oil and Gas Journal (OGJ), and CIA factbook. The total aid disbursements series come from the OECD-DAC aid statistics.

5 RESULTS: OIL, AID AND INSTABILITY

Our results are set forth in Tables 13 (with oil discoveries as the indicator of resources) and 14 (with oil wealth as the indicator of resources). Both tables report results for the full sample, as well as results for sub-samples consisting only of autocracies and of democracies. They also report results for the different measures of political instability (our original looting index and the new Colgan measure).

The first result to note is a new one - the manner in which oil wealth attracts aid. We see in our sub-sample estimations that in autocracies actual aid disbursements are attracted by oil wealth. Note that this result holds only for autocracies, and not for democracies.[21] Likewise, the result for oil discoveries is not quite significant for autocracies under the Colgan measure (just below the 10% level of significance) but wholly insignificant for democracies. The result for oil discoveries is statistically significant using our previous looting index, again only for autocracies. In sum, the robustness analysis on the oil data demonstrates an even more interesting relationship between resources and aid, where oil wealth is itself found to attract aid in autocracies.

Resource-related aid when received then has the usual outcome for the countries receiving it. Our previous results go through, i.e. that (in autocracies) the interaction of oil discovery and aid increases political instability, which in turn reduces growth. The impact of resource-attracted aid is to reduce growth in the countries receiving it.

For a further robustness check, we also run these two sets of regressions with aid commitments as well as disbursements, obtaining very similar results (See Tables 15 and 16).

Finally, as noted, we also use two different indicators of instability: one is an updated version of our irregular turnover measure (first three columns of Table 13 and Table 14 below) and the other measure is irregular regime change from Colgan (last three columns of the same tables below). Results seem generally robust to these two different measures of instability although the former usually provides better results. Finally, the results are robust in terms of the natural resource measures: use of oil discovery and oil wealth. It is worth noting that oil discovery provides better results than oil wealth.

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[20]We would like to thank an anonymous reviewer for suggesting this reference and suggesting the use of alternative definitions of resource wealth (in dollars per capita) to assess the robustness of our findings.

[21]With the entire sample in the analysis, the overall results tend to tilt in the same direction as in autocracies although with attenuated effects. This is because of the weight of autocratic countries in the sample, which constitute a much larger group than democracies.

6 CONCLUSION

We have found that, in many cases, aid impacts negatively upon growth in autocratic countries that possess substantial natural resources. Our contribution is to have provided a framework for explaining why this might be the case. We have hypothesised that aid operates as a source of liquidity for autocrats, enticing them to depart more quickly, and resulting in consequentially increased instability and reduced growth prospects. It is this phenomenon of liquidity-induced looting by autocrats that is our fundamental explanation for how aid is capable of generating poor economic outcomes. Our first empirical finding of note is that aid is related to instability, but that this is the case only for resource-rich countries. We believe that this is evidence in support of our hypothesis concerning liquidity-induced instability, but note that there are exceptions that limit the applicability of our analysis.

Our second empirical finding of note is that liquidity-induced instability occurs for most, but not all, categories of aid. Humanitarian aid flows do not result in significantly increased instability. Again, we find this to be broad support for our hypothesis concerning the impact of liquidity, and indicative of the limits of its applicability. For some reason, liquidity has a destabilising impact only on some autocratic countries and for some categories of aid, but not otherwise.

So, our first point is that aid-based liquidity to resource-rich autocracies does in many cases result in heightened instability, and consequentially in reduced growth prospects, and we interpret this to be broad evidence in support of our looting framework. The impact of such aid-induced instability is significant; the indirect impact of a 1% increase in aid results in a 0.75 percentage point decrease in growth prospects. Aid to such autocracies does indeed generate significantly reduced growth via this mechanism of liquidity-induced instability.

Our second point concerns the reasons for the exceptions that we have found - restricting the applicability of our framework to those autocracies that are resource-rich and to some but not all categories of aid. We have argued that it is likely that these differences in impacts can be attributed to differences in the *structuring* of aid flows by the donors concerned. Our third empirical finding of note is that resource-richness is an attractor of aid structured as *loans*. This indicates to us that the motives of the donors are determining the structure of aid, and hence fundamentally determining the impact of aid on instability and growth in resource-rich autocracies.

Our robustness checks, looking in particular at the impact of oil wealth on autocracies, tend to support these findings. In this context we are able to see that the existence of oil wealth attracts aid flows, but only in autocracies. This once again indicates that the presence of resources combined with particular forms of governance generates many of the results that we see. Aid is flowing to autocracies, we believe, in the knowledge that political instability is the likely result.

Our conclusion is that aid to resource-rich autocracies has generally poor impacts on growth in those countries. Our contribution is to demonstrate that this is *not* because aid acts as a benign instrument working through poor domestic political institutions to generate poor quality outcomes. Rather, poorly structured aid itself can contribute directly to producing the enhanced instability and poor economic performance frequently observed in resource-rich autocracies. Nations who provide unstructured liquidity to autocratic resource-rich countries are enhancing the prospects for unplanned departures, corruption and poor growth: nations aiding and abetting the looting of nations.

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APPENDIX

A1. GENERALISED MODEL OF THE DICTATOR'S CHOICE [22]

AUTOCRATIC RESOURCE-RICH STATES

We are restricting our analysis to states endowed with substantial stocks of natural resources, and led by un-checked autocrats. The states concerned, and thus the autocrats, hold these fixed natural resource stocks as sovereign assets; there are no intermediate entities (corporations, individuals) holding rights to these resources. Once in power, the autocrat has the unchecked authority to mine the resources or to enter into all forms of contracts on behalf of the state in regard to the natural resource assets. These natural resources are sunk assets, but are assumed to be capable of providing a constant stream of revenues into the indefinite future. The autocrat makes all decisions concerning the exploitation of the state's resources, the investment or consumption of their rents, and the financial structure of that resource development.

Consider such an autocratic resource-rich state, with a small open economy producing output y_t according to the function $y_t = f(k_t) + \varphi(Z)$, where f and φ are two increasing, concave, and continuously differentiable functions of capital k_t and resources Z. $\varphi(Z)$ is the flow of resource rents deriving from the state's sunk resource wealth Z. We will assume here that the flow of rents from resources remains constant throughout the program, while the productivity of the economy may be enhanced by means of investment in capital. In this economy, investment in capital is given by $i_t = k_{t+1} - (1 - \delta)k_t$, where i_t and δ represent the current gross investment and the depreciation rate. The capital stock k_t evolves according to the transition equation $k_{t+1} = (1 - \delta)k_t + i_t$.

EXTERNAL AGENCIES

External agents (foreign banks, foreign firms, foreign states or international donors) can make liquidity available to the resource-rich states in recognition of expected future flows of value from the resource base. These parties recognise the authority of rulers of autocratic resource-rich states to enter into contracts on behalf of the states in regard to these resources. Any contracts entered into by a ruler continue as obligations of that state beyond the individual tenure of that ruler. These contracts may take the form of either debt or something more like equity (such as concessions or licenses to exploit the natural resources of the state). Hence foreign lenders may offer liquidity to the current leader for purposes of securing future rights of access to flows from the state's natural resources.

These external agencies provide an *immediate* source of liquidity, in contrast to the more standard source of revenue flows deriving from a capital base which relies on production and revenues received over time from these prior investments. This immediate liquidity is available without any production. Thus, the autocrat receives liquidity, l_t, in the form of transfers from outside agents at the beginning of each period so that it faces the following budget constraint: $c_t + i_t + rd_t = y_t + l_t$, where r is the interest rate paid on accumulated debt, d_t. Only a proportion of liquidity $(1 - g)l_t$ adds to the stock of debt. In other words, the proportion gl_t is received as grants or transfers in return for interests other than debt contracts. Hence, the country's stock of debt evolves according to the following transition equation:

$$d_{t+1} = d_t + (1 - g)l_t$$

The interest on the debt must be paid each period. So, the cost of servicing the debt (implicit or explicit) rd_t is incurred each period. Other transfers of interests from the autocratic state may give more direct rights in the resources

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[22]Based on Sarr and Swanson 2012

(contracts, concessions). Hence, foreign entities have pre-existing rights to capture the rental flows from αZ of resource stocks, due to outstanding contracts, licenses and concessions. That is, the "collateral" value of the economy for the autocrat is reduced to $(1-\alpha)Z$ by reason of all prior commitments of resources to external agents.

Note that natural resources (more specifically the so-called "point source" resources such as oil and minerals) differ from other forms of capital such as physical infrastructure, hospitals, schools or factories in that they may attract more ready liquefication i.e. flows of current funds. We capture this notion by assuming that the liquidity parameter θ_z for the natural resource capital is larger than for other forms of capital, θ_k, i.e., $\theta_z > \theta_k \geq 0$. In short, physical capital is more "sunk" in nature than natural capital.

Liquidity always remains available in the form of secured loans so long as the economy retains positive "collateral value". Outside lenders recognise that adverse selection can result from price-based lending and so limit lending levels instead (Stiglitz and Weiss 1981). Credit rationing here is limited by both the immediate and aggregate flows from the resource base available for repayment (Bulow and Rogoff 1989). This means that, so long as the state is not in default (i.e., prior commitments and debts are serviced), the lenders are willing to provide a maximum amount of aid in any given period in proportion to the total amount of longer term resources still available. The first point indicates that there is a certain proportion of resource-based capital and physical capital that is liquefiable in any given period, i.e., $(1-\alpha)\theta_z Z + \theta_k k_t$ $[l_t \leq (1-\alpha)\theta_z Z + \theta_k k_t]$. The second point captures the idea of a credit ceiling (Eaton and Gersovitz 1981). We assume that the aggregate debt level is limited to the amount serviceable by the present value of the stream of liquidity derivable from all capital stocks.

$$d_{t+1} \leq \frac{(1+r)}{r}\left((1-\alpha)\theta_z Z + \theta_k k_t\right) \tag{6}$$

THE DICTATOR

The ruler of the state concerned is a dictator in that he has unchecked power over the resource wealth and other assets of the state for the duration of his tenure. His problem is to determine how best to appropriate maximum utility from his period of tenure over these resources. These resources are sunk, so that there is only a fixed proportion of the resources realisable in any given period of his tenure. These flows may then be consumed immediately or invested in the productive capacity of the economy, which makes them available for future consumption. The ruler can affect the length of his tenure by means of investments in societal betterment (shared consumption) and repression, but there remains uncertainty in each period concerning whether the regime will end at that time. With the availability of immediate liquidity from outside agents, the ruler has the option of liquefying some additional proportion of the state's resource wealth in any given period (through the international transfers of some sort), at the cost of either an increase in the state's debt or a transfer of a share of remaining collateral value.

The dictator's choice. The above discussion is sufficient for establishing the structure of our autocrat's choice problem, which is built upon the premise that the ruler is pursuing his own agenda after assuming control of the state (Acemoglu et al. 2004). We assume that the self-interested dictator is faced with the problem of maximizing his own life-time utility largely by means of making the decision concerning his optimal length of tenure.

$$V(k_t, d_t, \varepsilon_t) = \max_{\chi_t \in \{stay, loot\}} E_t\left[\sum_{j=0}^{\infty} \beta^j U(k_{t+j}, d_{t+j}, \varepsilon_{t+j}, \chi_{t+j})\right] \tag{7}$$
$$\text{s.t. } \chi_t \geq \chi_{t-1}$$

where χ_t is the dictator's binary choice between staying ($\chi_t = 0$) and looting ($\chi_t = 1$); and ε_t is an unobservable state variable for the analyst.[23] Time is discrete and the dictator faces an infinite time horizon.

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[23]The state variables k_t and d_t are observable unlike ε_t.

In each period, the incumbent dictator decides whether to stay in power or to loot the country and leave immediately (Sarr et al. (2011a); Sarr and Swanson 2012). The dictator's choice resembles that of the manager of a firm who selects strategically the point in time of the liquidation of a limited liability corporation (Mason and Swanson 1996), but it is occurring at the level of the nation-state. The basic decision comes down to whether to abscond with maximum immediate liquidity available today, or whether to stay and invest in tenure, productivity and repression in order acquire a return from holding control over the productive capacities of the enterprise in the future. If the dictator decides to stay, he captures part of the benefits from production, and then faces the decision regarding looting again in the next period. By staying, the dictator faces the possibility that he will be ousted, and lose everything along with his loss of control. The optimal stopping decision whether to stay one more period or to loot is a recursive discrete choice problem described by the following equation:

$$V(k_t, d_t, \varepsilon_t) = \max_{\chi_t \in \{stay, loot\}} \left[v^\chi(k_t, d_t) + \varepsilon_t(\chi_t) \right] \tag{8}$$

This equation relies on the assumption of additive separability (AS) of the utility function between observed and unobserved state variables. We will also assume that 1) ε_t follows an extreme value distribution; and 2) ε_{t+1} and ε_t are independent conditional on the observed state variables k_t and d_t. These assumptions follow Rust 1987 and Rust 1994) and greatly simplify this complex problem.

The decision to retain control. Given a decision to stay and maintain control, the dictator will choose current period consumption c_t, capital level k_{t+1}, debt level d_{t+1} and repression level s_t to secure his rule. He enjoys an instantaneous utility $u(c_t)$ where $u > 0$, $u' > 0$ and $u'' < 0$, and an expected stream of future utilities should he remain in power. He decides the investment level in productive capital each period by choosing k_{t+1} according to the following law of motion:

$$k_{t+1} = f(k_t) + \varphi((1-\alpha)Z) + (1-\delta)k_t - c_t - rd_t + l_t - cost(s_t) \tag{9}$$

where s_t measures the repression level chosen by the dictator (e.g. expenditures on secret services, police and army) and $cost(s_t)$ are the associated costs.

The risk from retaining control. Within each period t, the dictator experiences the realization of a discrete random variable $\xi_t = \{0, 1\}$, where $\xi_t = 1$ indicates that the dictator is toppled, and $\xi_t = 0$ indicates that the dictator remains in power. We assume that the realization of the shock depends both on the choice of next period's capital stock and repression level. This specification captures the idea that both consumption-sharing and repression are strategies for maintaining control over the economy. Let $\rho(k_{t+1}, s_t) = \rho(\xi_t = 1 \mid k_{t+1}, s_t)$ denote the probability of the dictator being deposed next period given that he was in power this period; $\rho(k_{t+1}, s_t)$ is assumed to be strictly decreasing and strictly convex in both arguments - see Overland et al. (2005) for a similar idea. That is, increased k_{t+1} and s_t decrease the probability of being toppled at a decreasing rate. The idea here is that the dictator may invest in repression to secure his tenure and may also attempt to buy peace by sharing some of the output with the population (k_{t+1}). This dilemma has also been analysed by Azam (1995).

The recursive problem faced by the dictator does not depend on time *per se*, so that the programme is written as:

$$v^{stay}(k, d) = \max_{c, k', d', s \in \Gamma(k, d)} \left(1 - \rho(k', s) \right) \left[u(c) + \beta E_{\varepsilon'} V(k', d') \right] \tag{10}$$

$$\text{s.t. } \Gamma(k,d) = \begin{cases} k' = f(k) + \varphi\left((1-\alpha)Z\right) + (1-\delta)k - c - \left(\dfrac{1}{1-g}+r\right)d + \dfrac{d'}{1-g} - cost(s) \\ d' = d + (1-g)l \\ d' \leq \dfrac{(1+r)}{r}\left((1-\alpha)\theta_z Z + \theta_k k\right) \\ l \leq (1-\alpha)\theta_z Z + \theta_k k \\ c \geq 0; \ s \geq 0 \\ k \geq 0; \ d \geq 0; \\ k(0) = k_0; \ d(0) = d_0 \end{cases} \tag{11}$$

where β is the discount factor, and k', d', and ε' represent next period's state variables.

The Decision to Exit. The dictator also has the choice to loot the economy's riches and exit. Conditional on looting, the dictator leaves with the maximum loan amount he can contract, i.e. the share of non-sunk capital $\theta_z(1-\alpha)Z + \theta_k k$ representing the current value of the liquefied natural and physical capital assets. It is assumed that the dictator absconds with this maximum amount of liquidity, without making any effort at retaining power, paying debts or investing in the economy. On departure, he invests the looted sum to live off a constant flow of consumption c^{exit}. The value of looting is then given by:

$$v^{exit}(k,d) = \frac{u(c^{exit})}{1-\beta} \quad \text{where } c^{exit} = \frac{rW_0}{1+r} = \frac{r}{1+r}\left((1-\alpha)\theta_z Z + \theta_k k\right) \tag{12}$$

Figure 1 illustrates the dictator's decision tree.

The dictator compares the returns from the two distinct options and chooses the strategy with the highest pay-off. Hence, the optimal solution solves:

$$\chi^*(k,d,\varepsilon) = argmax\left[v^{stay}(k,d) + \varepsilon(0), \ v^{exit}(k,d) + \varepsilon(1)\right] \tag{13}$$

where the value of staying $v^{stay}(k,d)$ and the value of exiting $v^{exit}(k,d)$ are defined above. This amounts to an optimal stopping problem, where the decision to exit is an absorbing state. We have discussed the nature of the solutions to the "Dictator's Choice" problem elsewhere. (Sarr and Swanson 2012)

IMPLICATIONS OF THE DICTATORS CHOICE MODEL

We demonstrated in our earlier analysis that the factors determining the dictator's choice between staying and looting are likely to be as follows:

a) the degree of liquidity proferred to the dictator in any given time period (l);

b) the amount of debt (d) and share of the economy (α) under control of external agents;

c) the returns on domestic investments relative to the returns on funds deposited elsewhere ($f'(k)$ and r); and

d) the likelihood of a coup or other event that would remove resource rights from the autocrat (ρ).

In essence, in the Dictator's Choice model, an autocrat sits at the cusp of a dilemma - choosing between looting the proferred liquidity (and the lower returns available on its investment elsewhere) or staying and consuming the returns from the natural resources through the domestic economy. The additional element that focuses the mind of the autocrat is the likelihood of a coup that would result in the immediate termination of the dictator's choice. The greater the amount of liquidity on offer in a given period, the more difficult it is for the dictator to resist the temptation to "loot and run".

Given the minor modifications made here to our previous model, the trade-offs faced by the dictator will be the same as in Sarr and Swanson (2012), and will hold irrespective of the external source of the liquidity (bank, firm, state or other donor). That is, the supply of liquidity from any source (whether it is commercial bank loans or inter-governmental

transfers) should enhance the likelihood of looting in resource rich autocracies. In particular, we would anticipate that inter-governmental aid transfers would have much the same effect as commercial lending, i.e. increased instability and reduced growth. In the remainder of this paper we investigate the empirical basis for these claims.

<figure>

$v^{exit}(k, d; \varepsilon)$

Exit

Dictator in power at states k, d, ε

$v^{regime\ change} = 0$

$\rho(k', s)$

Stay

$v^{exit}(k', d'; \varepsilon')$

$1 - \rho(k', s)$

$v^{stay}(k', d'; \varepsilon')$

Time t **Time $t+1$**

</figure>
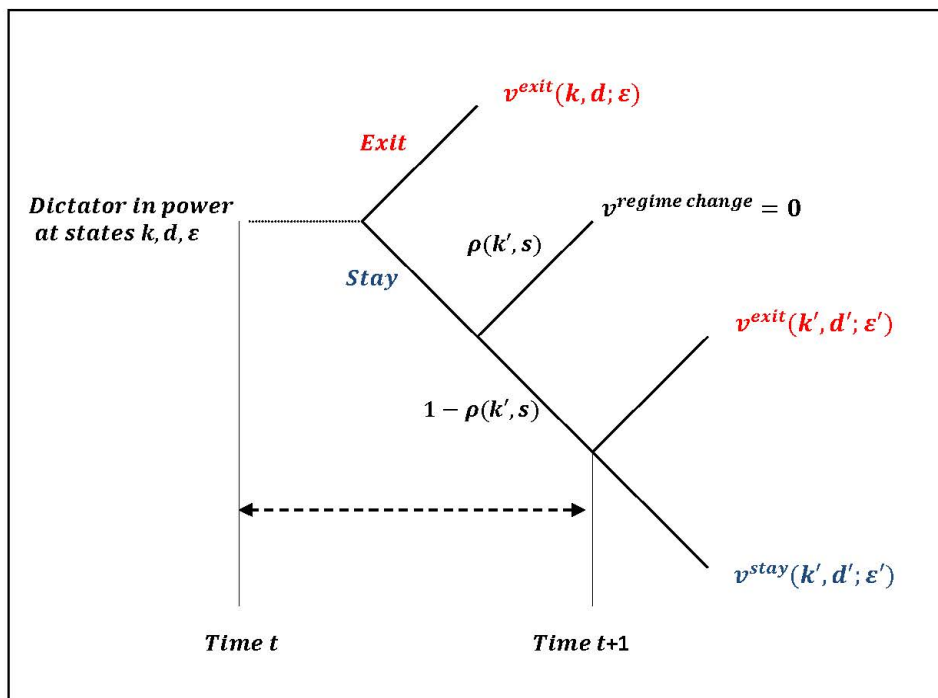
Figure 1: Dictator's decision tree

A2. DATA AND RESULTS

Table 1: Definitions of Variables and Source

VARIABLES	DEFNITION	TIME SPAN	DATA SOURCE
Turnover Index	Section 3.1.2	1970 - 2004	Sarr et al (2011a) update from Archigos 2009
Irregular transition	Irregular leadership transition	1970 - 2004	Colgan 2012
Oil Discovery	Oil Discovery per capita (in log)	1970 - 2003	Cotet and Tsui 2013
Oil Reserves	Oil Reserves per capita (in log)	1970 - 2003	Cotet and Tsui 2013
Foreign Aid	Aid commitments by sector as % of GNI	1973 - 2004	OECD-Creditor Reporting System (CRS)
	Aid commitments loans and grants as % of GNI	1970 - 2004	OECD-DAC
	Aid disbursements as % of GNI	1970 - 2004	OECD-DAC
Total Debt Service (% GNI)	Ratio of debt service over GNI	1970 - 2004	World Development Indicator 2012
Real per capita GDP (log)	Real per capita GDP (PPP-adjusted)	1970 - 2004	Penn World Tables 7
Real per capita GDP Growth (%)	Real per capita GDP Growth (PPP-adjusted)	1970 - 2004	Penn World Tables 7
Inflation (%)	Annual consumer price index	1970 - 2004	World Development Indicator 2012
Average Years of Schooling	Years of Schooling	1970 - 2004	Barro-Lee 2013
Investment (% GDP)	Investment share of real GDP	1970 - 2004	Penn World Tables 7
Trade (% GDP)	Export+Import over real GDP	1970 - 2004	Penn World Tables 7
Ethnic polarisation	Ethnic polarisation index	1970 - 2004	Montalvo and Reynal-Querol 2005
Institutional quality	Measure of institutional quality	1988	Hall and Jones 1999
Tenure	Leaders' length of tenure in years	1970 - 2004	Authors' calculation from Colgan 2012
Intensity civil conflict	The intensity level of civil conflicts	1970 - 2004	Themnér and Wallensteen 2012
	1: minor armed conflict (> 25 deaths)		
	2: war (> 1000 deaths).		

Years of schooling has a 5-year frequency. Each data point is applied on a yearly basis in the 4 preceding years.

Table 2: Summary Statistics

	(1) Autocracies			(2) Democracies		
	Obs	Mean	Std dev	Obs	Mean	Std dev
Irregular Turnover (or Turnover Index)	2320	0.045	0.21	1158	0.027	0.16
Irregular change (Colgan measure)	2070	0.06	0.23	895	0.03	0.18
Resource stock (% GDP)	2207	162.42	266.40	1160	80.97	146.87
Log oil discovery per capita	1772	-13.14	8.80	705	-12.38	8.26
Log oil reserves per capita	1772	-7.67	10.61	705	-8.23	9.69
Total Aid (% GNI)	1786	3.98	5.96	1082	3.79	7.31
Economic Infrastructure Aid (% GNI)	1538	0.75	1.31	987	0.53	1.06
Social Infrastructure Aid (% GNI)	1642	1.02	1.67	1022	1.19	2.29
Industry Aid (% GNI)	1345	0.18	0.55	935	0.11	0.50
Program Assistance (% GNI)	1551	0.90	1.64	854	1.05	2.34
Multi-sector Aid (% GNI)	1326	0.26	0.51	921	0.21	0.42
Humanitarian Aid (% GNI)	1206	0.33	1.69	846	0.25	1.48
Log GDP per capita	2217	7.71	1.17	1160	8.28	0.98
Growth GDP per capita	2217	1.53	8.93	1160	1.79	5.41
Investment (% GDP)	2227	23.17	13.44	1160	21.86	9.06
Trade (% GDP)	2227	73.29	53.30	1160	67.11	35.91
Inflation rate (%)	1789	58.29	842.33	1105	49.45	411.24
Debt service (% GNI)	1729	4.99	5.61	983	6.03	7.18
Schooling (years)	2003	4.10	2.13	1105	5.96	2.44
Institutional quality	1982	0.51	0.12	1097	0.54	0.12
Ethnic polarisation	2140	0.56	0.21	1113	0.57	0.21
Leaders' tenure (years)	2097	18.27	10.81	894	5.85	4.37
Intensity civil conflict	2328	0.25	0.56	1160	0.33	0.59

Table 3: Growth and Political Instability in **Autocracies**: Impact of Sectoral ODA (Commitments)

	(1) Total Aid	(2) Infrastructure Aid	(3) Industry Aid	(4) Program Assistance	(5) Multi-sector Aid	(6) Humanitarian Aid
Panel A: Growth Equation						
Political Instability	-5.919***	-5.313***	-4.756***	-5.703***	-5.542**	-4.748**
	(1.350)	(1.437)	(1.801)	(1.551)	(2.257)	(2.128)
Aid (% GNI)	0.0670	0.548	0.701	-0.166	-1.808	-1.555**
	(0.0829)	(0.528)	(0.464)	(0.341)	(1.487)	(0.664)
Aid^2 (% GNI)	-0.00112	-0.0210	-0.0937	0.0104	0.148	0.0923**
	(0.00135)	(0.0584)	(0.0577)	(0.0253)	(0.295)	(0.0418)
Resource stock (% GDP)	0.00256	0.00264	0.00149	0.00686**	0.000534	0.00440
	(0.00318)	(0.00357)	(0.00383)	(0.00334)	(0.00390)	(0.00374)
Lag log GDP per capita	-7.467***	-6.408***	-6.613***	-7.451***	-8.031***	-9.429***
	(1.631)	(1.805)	(1.615)	(1.755)	(2.107)	(2.597)
Investment (% GDP)	0.239***	0.220***	0.274***	0.249***	0.225***	0.179***
	(0.0457)	(0.0409)	(0.0497)	(0.0546)	(0.0468)	(0.0577)
Trade (% GDP)	-0.0557**	-0.0628**	-0.0587*	-0.0952***	-0.0753*	-0.0959**
	(0.0284)	(0.0318)	(0.0327)	(0.0306)	(0.0387)	(0.0458)
Inflation rate	-0.000929**	-0.000947**	-0.000927**	-0.000988**	-0.00104**	-0.00112**
	(0.000417)	(0.000422)	(0.000430)	(0.000403)	(0.000445)	(0.000505)
Schooling	0.644	0.194	0.868*	0.121	-0.127	-0.0237
	(0.477)	(0.547)	(0.498)	(0.459)	(0.513)	(0.840)
Intensity civil conflict	-1.595***	-1.361***	-1.483***	-1.472***	-1.735***	-1.636**
	(0.484)	(0.507)	(0.532)	(0.529)	(0.607)	(0.679)
Panel B: Political Instability						
Aid (% GNI)	-0.0271	-0.198**	-0.735**	-0.127*	-0.788**	-0.120
	(0.0189)	(0.0907)	(0.363)	(0.0754)	(0.366)	(0.133)
Resource stock (% GDP)	0.0000562	-0.000333	0.000162	-0.000455	-0.000187	0.0000123
	(0.000296)	(0.000328)	(0.000525)	(0.000428)	(0.000336)	(0.000868)
Aid $\times$ Resource stock	0.000171**	0.00123*	0.00250$^+$	0.00117***	0.00415*	-0.0152*
	(0.0000823)	(0.000716)	(0.00159)	(0.000378)	(0.00228)	(0.00857)
Lag log GDP per capita	-0.178	-0.0889	-0.229	-0.128	-0.193	0.130
	(0.137)	(0.146)	(0.189)	(0.137)	(0.193)	(0.189)
Institutional quality	-1.019	-0.889	-0.703	-1.226*	-0.640	-2.522***
	(0.683)	(0.743)	(0.849)	(0.718)	(0.816)	(0.890)
Ethnic polarisation	-0.391	-0.869***	-0.620*	-0.300	-0.890**	-0.516
	(0.262)	(0.271)	(0.338)	(0.278)	(0.399)	(0.473)
Intensity civil conflict	0.304***	0.340***	0.375***	0.298***	0.296**	0.306**
	(0.0962)	(0.107)	(0.143)	(0.103)	(0.136)	(0.142)
Leader's tenure	-0.103***	-0.101***	-0.112***	-0.107***	-0.0976***	-0.119***
	(0.0115)	(0.0131)	(0.0152)	(0.0123)	(0.0167)	(0.0180)
Sub-Saharan Africa	0.185	0.189	0.157	0.0740	0.00481	0.305
	(0.213)	(0.237)	(0.242)	(0.190)	(0.245)	(0.293)
North Africa & Middle East	-0.145	-0.212	-0.0678	-0.336	-0.301	-0.489
	(0.353)	(0.390)	(0.422)	(0.380)	(0.513)	(0.509)
Latin America	-0.0557	0.0816	0.0818	-0.309	-0.0359	-0.167
	(0.282)	(0.329)	(0.332)	(0.296)	(0.385)	(0.377)
Obs Growth Eq	1095	957	856	970	798	736
Obs Instability Eq	1179	1001	756	1082	781	708
Number of Countries	73	73	73	72	68	72
Log Pseudo-Likelihood	-3715.5	-3212.5	-2823.9	-3297.4	-2665.9	-2459.0
Error Correlation Growth/Instability	0.346*	0.292**	0.204**	0.334*	0.186*	0.152
	(0.190)	(0.142)	(0.0934)	(0.205)	(0.110)	(0.127)

Standard errors in parentheses clustered at at country level. $^+$ $p < 0.12$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variables: GDP growth in Panel A and Instability in Panel B.

Country and time fixed effects controlled for in the Growth equations

The probit equations control only for regional dummies: country fixed effects produce

inconsistent estimates in a standard probit model due to the incidental parameters problem.

Table 4: Indirect Effect of aid on growth

Indirect Effect of aid on growth	Mean Resource 162% of GDP	Nigeria Resource 750% of GDP	Median Resource 24% of GDP
Coefficient Turnover	-5.919***	-5.919***	-5.919***
Pr(Turnover=1—Mean total aid, other controls)	0.00130	0.014	0.0011
Pr(Turnover=1—Mean total aid+std dev, other controls)	0.00182	0.141	0.0007
Increase in probability of Turnover	0.00052**	0.127 **	-0.0004
Indirect Effect	-0.00310	-0.75	+0.0023

In Column (1) all variables are set at their mean level (average country). Note mean resource levels is 162% GDP.

In Column (2) all variables are set at their mean level (average country) except for resource levels,

which are set as in Nigeria in the year 1998 at the end of Abacha's dictatorship (750% of GDP)

We test whether the partial effect of lending on the probability of looting is different from 0.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
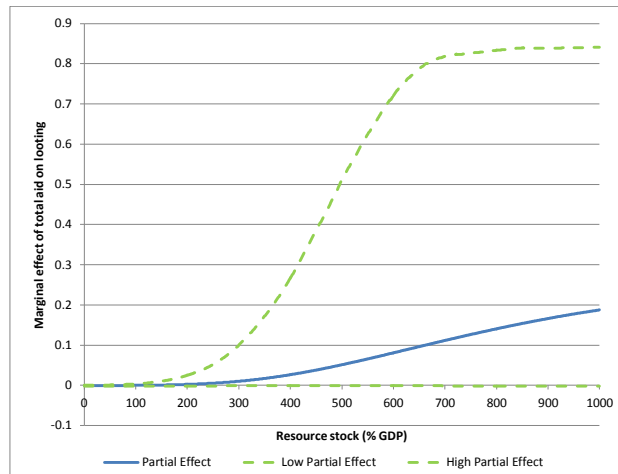
Figure 2: Marginal Effect of Total Aid on Turnover

The full line represents the marginal effect of Total Aid on the probability of Turnover as the resource stock increases from 0 to 1000% of GDP.

The dotted lines represent the confidence interval at 5% level. This graph relates to the Total Aid regression performed in Table 3.

Table 5: Natural resource threshold for increased political instability

	Total Aid	Infrastructure Aid	Industry Aid	Program Assistance	Multi-sector Aid	Humanitarian Aid	Loans	Grants
Coefficient: Aid (% GNI)	-0.027100	-0.19800	-0.73500	-0.12700	-0.78800	-0.1200	-0.0113	-0.0165
Coefficient: Aid $\times$ Resource stock	0.000171	0.00123	0.00250	0.00117	0.00415	-0.0152	0.000213	0.0000533
Resource stock threshold	158.48	160.98	294.00	108.55	189.88	-7.89	53.05	309.57
Percentile	74	75	84	70	77	NA	59	85

The coefficients for aid and the interaction term come from Table 3 and Table 6.

Table 6: Growth and Political Instability in **Autocracies**: Impact of Grants and Concessional Loans (Commitments)

	(1)	(2)
	Loans	Grants
Panel A: Growth Equation		
Political Instability	-7.911***	-8.025***
	(1.973)	(1.974)
Aid (% GNI)	0.148	0.114
	(0.193)	(0.138)
Aid^2 (% GNI)	-0.00184	-0.00286
	(0.0145)	(0.00351)
Resource stock (% GDP)	-0.00117	-0.00105
	(0.00372)	(0.00377)
Lag log GDP per capita	-7.838***	-7.710***
	(1.507)	(1.517)
Investment (% GDP)	0.222***	0.221***
	(0.0432)	(0.0439)
Trade (% GDP)	-0.0529*	-0.0530*
	(0.0281)	(0.0277)
Inflation rate	-0.000907**	-0.000924**
	(0.000461)	(0.000451)
Schooling	0.456	0.557
	(0.455)	(0.476)
Intensity civil conflict	-1.473***	-1.492***
	(0.494)	(0.494)
Panel B: Political Instability Equation		
Aid (% GNI)	-0.0113	-0.0165
	(0.0458)	(0.0177)
Resource stock (% GDP)	0.000308	0.000366
	(0.000281)	(0.000383)
Aid × Resource stock	0.000213**	0.0000533
	(0.0000935)	(0.0000979)
Lag log GDP per capita	-0.0983	-0.152
	(0.122)	(0.142)
Institutional quality	-0.621	-0.634
	(0.725)	(0.745)
Ethnic polarisation	-0.510*	-0.384
	(0.265)	(0.268)
Intensity civil conflict	0.356***	0.347***
	(0.0988)	(0.0943)
Leader's tenure	-0.0950***	-0.0957***
	(0.0105)	(0.0107)
Sub-Saharan Africa	0.0925	0.107
	(0.216)	(0.223)
North Africa & Middle East	-0.346	-0.315
	(0.354)	(0.395)
Latin America	-0.105	-0.0986
	(0.283)	(0.291)
N	1445	1462
Obs Growth Eq	1123	1135
Obs Instability Eq	1182	1225
Number of Countries	73	73
Log Pseudo-Likelihood	-3845.6	-3890.2
Error Correlation Growth/Instability	0.485**	0.504**
	(0.238)	(0.233)

Standard errors in parentheses clustered at at country level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variables: GDP growth in Panel A and Instability in Panel B.

Country and time fixed effects controlled for in the Growth equations

The probit equations control only for regional dummies: country fixed effects produce

inconsistent estimates in a standard probit model due to the incidental parameters problem.

Table 7: Growth and Political Instability with endogenous sectoral ODA (Commitments) in **Autocracies**

	(1)	(2)	(3)	(4)	(5)	(6)
	Total Aid	Infrastructure Aid	Industry Aid	Program Assistance	Multi-sector Aid	Humanitarian Aid
Panel A: Growth Equation						
Political Instability	-5.866***	-5.313***	-4.748***	-5.682***	-5.313**	-5.104**
	(1.370)	(1.484)	(1.831)	(1.537)	(2.363)	(2.588)
Aid (% GNI)	0.0753	0.346	0.862*	0.260	-2.833	-2.132
	(0.130)	(0.484)	(0.498)	(0.518)	(2.974)	(1.761)
Aid^2 (% GNI)	-0.00112	-0.0232	-0.0909	0.0109	0.140	0.114
	(0.00135)	(0.0596)	(0.0596)	(0.0252)	(0.297)	(0.0839)
Resource stock (% GDP)	0.00256	0.00273	0.00154	0.00695**	0.000853	0.00440
	(0.00317)	(0.00358)	(0.00385)	(0.00328)	(0.00382)	(0.00377)
Lag log GDP per capita	-7.433***	-6.390***	-6.583***	-6.978***	-8.011***	-9.791***
	(1.671)	(1.803)	(1.617)	(1.763)	(2.107)	(2.582)
Investment (% GDP)	0.239***	0.220***	0.274***	0.251***	0.226***	0.179***
	(0.0457)	(0.0411)	(0.0497)	(0.0543)	(0.0473)	(0.0579)
Trade (% GDP)	-0.0557**	-0.0629**	-0.0587*	-0.0964***	-0.0753*	-0.0957**
	(0.0284)	(0.0320)	(0.0328)	(0.0307)	(0.0387)	(0.0460)
Inflation rate	-0.000929**	-0.000946**	-0.000918**	-0.000967**	-0.00103**	-0.00112**
	(0.000418)	(0.000421)	(0.000430)	(0.000408)	(0.000454)	(0.000502)
Schooling	0.642	0.199	0.865*	0.108	-0.128	-0.0222
	(0.479)	(0.548)	(0.498)	(0.460)	(0.513)	(0.838)
Intensity civil conflict	-1.595***	-1.360***	-1.480***	-1.470***	-1.737***	-1.626**
	(0.482)	(0.506)	(0.530)	(0.526)	(0.606)	(0.678)
Panel B: Political Instability Equation						
Aid (% GNI)	-0.0334	-0.202	-1.227*	-0.163	-1.375***	-0.0342
	(0.0260)	(0.176)	(0.710)	(0.106)	(0.464)	(0.268)
Resource stock (% GDP)	0.0000407	-0.000333	0.000223	-0.000474	-0.000283	-0.00000113
	(0.000301)	(0.000328)	(0.000505)	(0.000440)	(0.000318)	(0.000852)
Aid $\times$ Resource stock	0.000172**	0.00123*	0.00240*	0.00120***	0.00374*	-0.0149*
	(0.0000831)	(0.000719)	(0.00143)	(0.000376)	(0.00206)	(0.00817)
Lag log GDP per capita	-0.197	-0.0904	-0.312	-0.154	-0.320	0.184
	(0.147)	(0.156)	(0.197)	(0.152)	(0.212)	(0.218)
Institutional quality	-1.019	-0.887	-0.606	-1.262*	-0.288	-2.566***
	(0.683)	(0.747)	(0.799)	(0.724)	(0.841)	(0.902)
Ethnic polarisation	-0.394	-0.869***	-0.594*	-0.305	-0.810**	-0.515
	(0.261)	(0.272)	(0.355)	(0.277)	(0.402)	(0.476)
Intensity civil conflict	0.304***	0.339***	0.340**	0.298***	0.290**	0.306**
	(0.0957)	(0.108)	(0.159)	(0.103)	(0.134)	(0.141)
Leader's tenure	-0.103***	-0.101***	-0.104***	-0.106***	-0.0905***	-0.120***
	(0.0117)	(0.0135)	(0.0208)	(0.0122)	(0.0167)	(0.0180)
Sub-Saharan Africa	0.184	0.190	0.154	0.0550	0.0812	0.303
	(0.212)	(0.238)	(0.229)	(0.194)	(0.240)	(0.295)
North Africa & Middle East	-0.133	-0.211	0.0308	-0.325	-0.166	-0.537
	(0.357)	(0.393)	(0.417)	(0.383)	(0.518)	(0.526)
Latin America	-0.0352	0.0825	0.168	-0.294	0.201	-0.246
	(0.282)	(0.335)	(0.333)	(0.293)	(0.405)	(0.418)

	(1)	(2)	(3)	(4)	(5)	(6)
	Total Aid	Infrastructure Aid	Industry Aid	Program Assistance	Multi-sector Aid	Humanitarian Aid
Panel C: Aid Equation						
Lag log GDP per capita	-3.216***	0.136	-0.165**	-1.186***	0.0637	-0.818*
	(1.195)	(0.282)	(0.0827)	(0.371)	(0.0939)	(0.482)
Lag resource stock	0.000875	0.00112**	-0.0000610	0.000295	0.000257*	0.000140
	(0.00160)	(0.000455)	(0.000229)	(0.000636)	(0.000144)	(0.000448)
2-year Lag resource stock	-0.000407	-0.000556	-0.0000546	-0.0000448	0.000276	0.0000504
	(0.00183)	(0.000597)	(0.000242)	(0.000409)	(0.000298)	(0.000281)
Institutional quality	-11.55**	1.944*	1.068	-2.872*	-1.096	-2.385*
	(5.480)	(1.030)	(0.965)	(1.522)	(0.812)	(1.305)
Lag debt service	0.131***	-0.00447	0.0295	0.0797***	-0.00226	0.00703
	(0.0327)	(0.00827)	(0.0183)	(0.0274)	(0.00240)	(0.00989)
Egypt	0.510	0.914***	0.308	0.823**	-0.0168	-1.038*
	(1.465)	(0.278)	(0.202)	(0.396)	(0.131)	(0.575)
British colony	4.503**	-0.648*	-0.0568	1.269**	0.136	1.292*
	(1.952)	(0.381)	(0.245)	(0.563)	(0.181)	(0.713)
French colony	1.109**	0.0725	0.262***	0.713***	-0.0984*	0.262
	(0.499)	(0.158)	(0.100)	(0.219)	(0.0567)	(0.169)
Obs Growth Eq	1095	957	856	970	798	736
Obs Instability Eq	1179	1001	756	1082	781	708
Obs Aid Eq	1280	1145	976	1202	977	880
Number of Countries	74	74	74	73	69	73
Log Pseudo-Likelihood	-7230.3	-4733.4	-3557.3	-5225.1	-3066.6	-3519.9
Error Correlation Growth/Instability	0.340*	0.292**	0.186**	0.325+	0.177	0.183
	(0.188)	(0.144)	(0.0918)	(0.204)	(0.125)	(0.156)
Error Correlation Instability/Aid	0.0416	0.00559	0.347	0.0632	0.336	-0.148
	(0.100)	(0.172)	(0.500)	(0.126)	(0.241)	(0.345)
Error Correlation Growth/Aid	-0.00511	0.0343	-0.0173	-0.0876	0.0663	0.0518
	(0.0715)	(0.0724)	(0.0384)	(0.0787)	(0.184)	(0.102)

Standard errors in parentheses clustered at at country level. $^+ p < 0.11$, $^* p < 0.10$, $^{**} p < 0.05$, $^{***} p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions.

The probit equations control only for regional dummies: country fixed effects produce inconsistent estimates in a standard

probit model due to the incidental parameters problem.

Table 8: Growth and Political Instability with endogenous Concessional Loans and Grants (Commitments) in **Autocracies**

	(1)	(2)
	Loans	Grants
Panel A: Growth Equation		
Political Instability	-7.949***	-8.082***
	(1.973)	(1.957)
Aid (% GNI)	0.189	0.0706
	(0.502)	(0.265)
Aid^2 (% GNI)	-0.00154	-0.00281
	(0.0147)	(0.00350)
Resource stock (% GDP)	-0.00118	-0.00106
	(0.00371)	(0.00377)
Lag log GDP per capita	-7.828***	-7.865***
	(1.501)	(1.766)
Investment (% GDP)	0.222***	0.220***
	(0.0432)	(0.0439)
Trade (% GDP)	-0.0529*	-0.0530*
	(0.0281)	(0.0278)
Inflation rate	-0.000904*	-0.000936**
	(0.000461)	(0.000456)
Schooling	0.454	0.565
	(0.458)	(0.479)
Intensity civil conflict	-1.470***	-1.496***
	(0.495)	(0.492)
Panel B: Political Instability Equation		
Aid (% GNI)	0.0385	-0.00522
	(0.0978)	(0.0252)
Resource stock (% GDP)	0.000284	0.000393
	(0.000296)	(0.000375)
Aid $\times$ Resource stock	0.000215**	0.0000544
	(0.0000891)	(0.0000964)
Lag log GDP per capita	-0.0775	-0.113
	(0.127)	(0.151)
Institutional quality	-0.557	-0.640
	(0.748)	(0.748)
Ethnic polarisation	-0.527*	-0.388
	(0.272)	(0.271)
Intensity civil conflict	0.365***	0.347***
	(0.102)	(0.0955)
Leader's tenure	-0.0957***	-0.0965***
	(0.0104)	(0.0111)
Sub-Saharan Africa	0.121	0.0865
	(0.221)	(0.221)
North Africa & Middle East	-0.336	-0.352
	(0.344)	(0.400)
Latin America	-0.0971	-0.144
	(0.285)	(0.294)

	(1)	(2)
	Loans	Grants
Panel C: Aid Equation		
Lag log GDP per capita	-0.486	-3.352**
	(0.397)	(1.364)
Lag resource	0.00142*	0.000206
	(0.000795)	(0.00132)
2-year Lag resource	-0.000900	-0.00261
	(0.000589)	(0.00170)
Institutional quality	7.021***	-9.864**
	(1.590)	(4.369)
Lag debt service	0.0474**	0.150***
	(0.0187)	(0.0565)
Egypt	2.839***	-0.541
	(0.480)	(1.498)
British colony	-1.754***	5.053***
	(0.652)	(1.925)
French colony	-0.450**	1.940***
	(0.204)	(0.582)
Obs Growth Eq	1123	1135
Obs Instability Eq	1182	1225
Obs Aid Eq	1318	1331
Number of Countries	74	74
Log Pseudo-Likelihood	-6268.5	-7409.6
Error Correlation Growth/Instability	0.488**	0.508**
	(0.240)	(0.228)
Error Correlation Instability/Aid	-0.105	-0.0719
	(0.170)	(0.130)
Error Correlation Growth/Aid	-0.0116	0.0227
	(0.118)	(0.128)

Standard errors in parentheses clustered at at country level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions.

The probit equations control only for regional dummies: country fixed effects produce

inconsistent estimates in a standard probit model due to the incidental parameters problem.

Table 9: Growth and Political Instability in **Democracies**: Impact of Sectoral ODA (Commitments)

	(1)	(2)	(3)	(4)	(5)	(6)
	Total Aid	Infrastructure Aid	Industry Aid	Program Assistance	Multi-sector Aid	Humanitarian Aid
Panel A: Growth Equation						
Political Instability	0.715	3.339	0.311	2.305	0.988	0.126
	(.)	(3.313)	(1.615)	(4.100)	(3.082)	(2.304)
Aid (% GNI)	0.216*	-0.0104	0.0727	0.0733	2.467*	2.823
	(0.130)	(0.471)	(0.923)	(0.219)	(1.345)	(2.131)
Aid^2 (% GNI)	-0.00605	-0.00667	0.133	-0.00269	-0.499	-0.850
	(0.00577)	(0.0361)	(0.211)	(0.0138)	(0.513)	(0.760)
Resource stock (% GDP)	0.000958	-0.00283	0.00264	-0.0171**	0.00196	-0.0170
	(0.0114)	(0.0117)	(0.0113)	(0.00817)	(0.0123)	(0.0123)
Lag log GDP per capita	-8.603***	-9.445***	-9.069***	-9.761***	-8.789***	-8.846***
	(1.690)	(1.988)	(1.745)	(2.466)	(1.946)	(1.813)
Investment (% GDP)	0.153*	0.181**	0.196***	0.216***	0.176**	0.253***
	(0.0862)	(0.0795)	(0.0737)	(0.0732)	(0.0807)	(0.0692)
Trade (% GDP)	0.00903	-0.00222	-0.00592	0.0235	-0.00374	0.0252
	(0.0166)	(0.0218)	(0.0213)	(0.0194)	(0.0233)	(0.0227)
Inflation rate	-0.000666	-0.000638	-0.000769	-0.000652	-0.000698	-0.000804*
	(0.000599)	(0.000531)	(0.000518)	(0.000516)	(0.000577)	(0.000419)
Schooling	0.141	0.0213	-0.241	-0.133	-0.495	-0.153
	(0.672)	(0.830)	(0.663)	(0.875)	(0.715)	(0.718)
Intensity civil conflict	0.0878	-0.00742	-0.00106	0.228	-0.568	-0.0117
	(0.493)	(0.525)	(0.506)	(0.540)	(0.495)	(0.493)
Panel B: Political Instability Equation						
Aid (% GNI)	-0.0248	-0.226	0.0382	0.0711	-0.488	-0.339
	(0.0329)	(0.233)	(0.416)	(0.0699)	(0.598)	(0.542)
Resource stock (% GDP)	-0.00115	-0.000550	-0.000986	-0.000155	-0.000000712	-0.00623***
	(0.00128)	(0.00182)	(0.00162)	(0.00147)	(0.00188)	(0.00198)
Aid × Resource stock	-0.00107**	-0.0453***	-0.0333*	-0.00244	-0.0325**	0.00177
	(0.000532)	(0.0117)	(0.0193)	(0.00173)	(0.0149)	(0.00924)
Lag log GDP per capita	-0.548*	-0.547*	-0.740***	-0.559*	-0.877**	-0.590**
	(0.284)	(0.294)	(0.277)	(0.310)	(0.381)	(0.275)
Institutional quality	-2.096**	-2.669**	-1.296	-1.822*	-2.525**	-1.518
	(0.890)	(1.171)	(0.934)	(1.013)	(1.151)	(0.942)
Ethnic polarisation	1.531***	1.250*	1.882***	1.588*	2.072***	1.703**
	(0.565)	(0.741)	(0.568)	(0.929)	(0.656)	(0.690)
Intensity civil conflict	-0.219	-0.228	-0.213	-0.00839	-0.211	-0.184
	(0.160)	(0.172)	(0.174)	(0.173)	(0.195)	(0.190)
Leader's tenure	-0.237***	-0.262***	-0.256***	-0.250***	-0.284***	-0.225***
	(0.0637)	(0.0640)	(0.0666)	(0.0607)	(0.0836)	(0.0563)
Sub-Saharan Africa	-0.00810	-0.418	-0.428	-0.277	-0.409	-0.259
	(0.299)	(0.360)	(0.355)	(0.378)	(0.412)	(0.368)
North Africa & Middle East	1.188**	0.962*	1.651***	1.199*	2.060***	1.256**
	(0.530)	(0.525)	(0.490)	(0.632)	(0.737)	(0.530)
Latin America	-0.108	-0.382	-0.405	-0.251	-0.144	-0.167
	(0.406)	(0.494)	(0.352)	(0.439)	(0.450)	(0.538)
Obs Growth Eq	810	728	674	658	661	597
Obs Instability Eq	558	517	461	410	455	461
Number of Countries	49	49	49	49	49	49
Log Pseudo-Likelihood	-2399.1	-2146.8	-1916.6	-1901.4	-1891.9	-1680.9
Error Corr Growth/Instability	-0.0203	-0.443	-0.146	-0.344	-0.204	0.0146
	(0.140)	(0.468)	(0.259)	(0.667)	(0.506)	(0.353)

Standard errors in parentheses clustered at at country level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variables: GDP growth in Panel A and Instability in Panel B.

Country and time fixed effects controlled for in the Growth equations

The probit equations control only for regional dummies: country fixed effects produce

inconsistent estimates in a standard probit model due to the incidental parameters problem.

Table 10: Growth and Political Instability in **Democracies**: Impact of Grants and Concessional Loans (Commitments)

	(1) Loans	(2) Grants
Panel A: Growth Equation		
Political Instability	3.123	3.628
	(3.059)	(2.505)
Aid (% GNI)	0.0833	-0.216
	(0.382)	(0.296)
Aid^2 (% GNI)	0.0131	0.0245
	(0.0510)	(0.0184)
Resource stock (% GDP)	-0.000974	0.000768
	(0.00987)	(0.00865)
Lag log GDP per capita	-8.323***	-8.517***
	(1.709)	(1.718)
Investment (% GDP)	0.160**	0.169**
	(0.0794)	(0.0758)
Trade (% GDP)	0.00576	0.00980
	(0.0182)	(0.0179)
Inflation rate	-0.000712	-0.000742
	(0.000589)	(0.000608)
Schooling	0.0827	-0.000692
	(0.662)	(0.577)
Intensity civil conflict	0.319	0.378
	(0.516)	(0.511)
Panel B: Political Instability Equation		
Aid (% GNI)	0.0134	-0.163***
	(0.0912)	(0.0558)
Resource stock (% GDP)	-0.00137	-0.00281
	(0.00142)	(0.00229)
Aid × Resource stock	-0.0199***	-0.000363
	(0.00646)	(0.000855)
Lag log GDP per capita	-0.488*	-0.923***
	(0.273)	(0.346)
Institutional quality	-2.459**	-1.537
	(0.996)	(0.948)
Ethnic polarisation	1.402**	1.589**
	(0.672)	(0.700)
Intensity civil conflict	-0.247	-0.211
	(0.186)	(0.170)
Leader's tenure	-0.254***	-0.221***
	(0.0592)	(0.0518)
Sub-Saharan Africa	-0.209	0.455
	(0.363)	(0.351)
North Africa & Middle East	0.965*	1.787***
	(0.494)	(0.644)
Latin America	-0.205	0.416
	(0.433)	(0.487)
Obs Growth Eq	824	838
Obs Instability Eq	553	565
Number of Countries	49	49
Log Pseudo-Likelihood	-2433.0	-2462.7
Error Corr Growth/Instability	-0.373	-0.452
	(0.437)	(0.335)

Standard errors in parentheses clustered at at country level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variables: GDP growth in Panel A and Instability in Panel B.
Country and time fixed effects controlled for in the Growth equations
The probit equations control only for regional dummies: country fixed effects produce
inconsistent estimates in a standard probit model due to the incidental parameters problem.

Table 11: Growth and Political Instability with endogenous sectoral ODA (Commitments) in **Democracies**

	(1)	(2)	(3)	(4)	(5)
	Total Aid	Infrastructure Aid	Program Assistance	Multi-sector Aid	Humanitarian Aid
Panel A: Growth Equation					
Political Instability	3.951	2.722	3.521*	-3.599	0.586
	(2.602)	(2.678)	(2.088)	(3.013)	(2.735)
Aid (% GNI)	0.105	-0.249	-0.214	10.49*	1.980
	(0.202)	(0.901)	(0.315)	(5.951)	(2.389)
Aid^2 (% GNI)	-0.00761	0.0133	-0.0143	-0.0467	-1.009
	(0.00561)	(0.0674)	(0.0120)	(0.510)	(0.808)
Resource stock (% GDP)	0.00123	-0.00287	-0.0195**	-0.00396	-0.0174
	(0.0116)	(0.0118)	(0.00946)	(0.0124)	(0.0126)
Lag log GDP per capita	-9.426***	-9.498***	-10.26***	-6.678**	-9.305***
	(1.880)	(1.969)	(2.581)	(2.902)	(2.114)
Investment (% GDP)	0.157*	0.180**	0.217***	0.204**	0.252***
	(0.0817)	(0.0800)	(0.0710)	(0.0804)	(0.0692)
Trade (% GDP)	0.00708	-0.000632	0.0257	0.00156	0.0237
	(0.0178)	(0.0210)	(0.0184)	(0.0217)	(0.0230)
Inflation rate	-0.000671	-0.000644	-0.000686	-0.000694	-0.000824*
	(0.000619)	(0.000534)	(0.000552)	(0.000520)	(0.000420)
Schooling	0.231	0.0460	-0.000395	-0.290	-0.153
	(0.684)	(0.770)	(0.904)	(0.765)	(0.731)
Intensity civil conflict	0.213	0.0138	0.341	-0.610	0.0240
	(0.542)	(0.528)	(0.546)	(0.486)	(0.502)
Panel B: Political Instability Equation					
Aid (% GNI)	-0.0659	-0.831***	-0.350***	-0.0286	-1.267
	(0.0683)	(0.267)	(0.135)	(0.839)	(1.303)
Resource stock (% GDP)	-0.00208	-0.000414	-0.00113	-0.000211	-0.00645***
	(0.00172)	(0.00129)	(0.00159)	(0.00166)	(0.00234)
Aid × Resource stock	-0.000831	-0.0455***	-0.00292	-0.0275*	0.00905
	(0.000554)	(0.0116)	(0.00276)	(0.0152)	(0.00992)
Lag log GDP per capita	-0.693*	-0.613**	-0.767***	-0.580	-0.593**
	(0.388)	(0.259)	(0.218)	(0.383)	(0.294)
Institutional quality	-1.952**	-2.941***	-1.283	-2.113*	-1.454
	(0.922)	(1.048)	(0.822)	(1.279)	(0.923)
Ethnic polarisation	1.434**	1.538***	1.757***	1.863***	1.643**
	(0.566)	(0.573)	(0.524)	(0.681)	(0.770)
Intensity civil conflict	-0.198	-0.278	-0.00386	-0.155	-0.184
	(0.161)	(0.177)	(0.139)	(0.162)	(0.189)
Leader's tenure	-0.214***	-0.239***	-0.135**	-0.253***	-0.218***
	(0.0694)	(0.0725)	(0.0654)	(0.0911)	(0.0562)
Sub-Saharan Africa	0.0259	-0.582	-0.0414	-0.381	-0.277
	(0.324)	(0.370)	(0.314)	(0.414)	(0.358)
North Africa & Middle East	1.378**	0.817	1.313***	1.309*	1.231**
	(0.601)	(0.521)	(0.421)	(0.743)	(0.563)
Latin America	0.147	-0.621	-0.0233	-0.476	-0.134
	(0.519)	(0.477)	(0.302)	(0.455)	(0.547)

	(1)	(2)	(3)	(4)	(5)
	Total Aid	Infrastructure Aid	Program Assistance	Multi-sector Aid	Humanitarian Aid
Panel C: Aid Equation					
Lag log GDP per capita	-5.108**	-0.349**	-1.030	-0.332***	-0.422**
	(2.268)	(0.149)	(0.975)	(0.0903)	(0.201)
Lag resource	-0.00796*	0.000211	-0.00894*	0.000282	-0.000420
	(0.00473)	(0.000671)	(0.00530)	(0.000384)	(0.000404)
2-year Lag resource	-0.00515	0.000616	-0.00791*	0.000295	-0.000335
	(0.00496)	(0.000691)	(0.00415)	(0.000230)	(0.000565)
Institutional quality	64.45***	1.899	65.91***	-0.535	1.385
	(10.51)	(1.765)	(11.45)	(0.575)	(1.376)
Lag debt service	0.246**	0.0101	0.102**	0.0127***	0.00488
	(0.121)	(0.0103)	(0.0429)	(0.00390)	(0.00776)
British colony	2.259***	1.154***	-0.189	0.331***	0.0478
	(0.799)	(0.0837)	(0.812)	(0.0470)	(0.0905)
French colony	-1.792	-0.350**	-1.934	0.214*	-0.437*
	(2.649)	(0.175)	(1.266)	(0.111)	(0.260)
Obs Growth Eq	810	728	658	661	597
Obs Instability Eq	558	517	410	455	461
Obs Aid Eq	720	670	619	629	594
Number of Countries	49	49	49	49	49
Log Pseudo-Likelihood	-4233.5	-2630.1	-3137.9	-1968.1	-2081.7
Error Correlation Growth/Instability	-0.444*	-0.291	-0.109	0.744	-0.105
	(0.268)	(0.354)	(0.210)	(0.527)	(0.386)
Error Correlation Instability/Aid	0.290	0.545*	1.337**	-0.501*	-0.243
	(0.499)	(0.325)	(0.615)	(0.299)	(0.232)
Error Correlation Growth/Aid	0.142	0.0247	0.241*	-0.658*	0.190
	(0.167)	(0.112)	(0.134)	(0.349)	(0.252)

Standard errors in parentheses clustered at at country level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions. Aid Industry equation is dropped due to non-convergence.

The probit equations control only for regional dummies: country fixed effects produce inconsistent estimates in a standard

probit model due to the incidental parameters problem.

Table 12: Growth and Political Instability with endogenous Concessional Loans and Grants (Commitments) in **Democracies**

	(1)	(2)
	Loans	Grants
Panel A: Growth Equation		
Political Instability	3.534	3.599
	(2.353)	(2.784)
Aid (% GNI)	-0.211	-0.261
	(0.566)	(0.310)
Aid^2 (% GNI)	0.0248	0.0228
	(0.0576)	(0.0204)
Resource stock (% GDP)	-0.000626	0.000748
	(0.00985)	(0.00873)
Lag log GDP per capita	-8.615***	-8.800***
	(1.768)	(1.808)
Investment (% GDP)	0.160**	0.167**
	(0.0791)	(0.0746)
Trade (% GDP)	0.00502	0.00992
	(0.0181)	(0.0182)
Inflation rate	-0.000699	-0.000737
	(0.000591)	(0.000616)
Schooling	0.125	-0.0120
	(0.657)	(0.582)
Intensity civil conflict	0.356	0.404
	(0.523)	(0.540)
Panel B: Political Instability Equation		
Aid (% GNI)	-0.271	-0.159**
	(0.250)	(0.0654)
Resource stock (% GDP)	-0.00164	-0.00283
	(0.00142)	(0.00235)
Aid $\times$ Resource stock	-0.0147**	-0.000364
	(0.00702)	(0.000865)
Lag log GDP per capita	-0.562**	-0.892**
	(0.272)	(0.412)
Institutional quality	-2.756***	-1.538
	(0.990)	(0.951)
Ethnic polarisation	1.549***	1.576**
	(0.584)	(0.695)
Intensity civil conflict	-0.235	-0.210
	(0.180)	(0.168)
Leader's tenure	-0.238***	-0.222***
	(0.0610)	(0.0522)
Sub-Saharan Africa	-0.476	0.433
	(0.387)	(0.363)
North Africa & Middle East	0.914*	1.732**
	(0.484)	(0.745)
Latin America	-0.289	0.375
	(0.383)	(0.642)

| | (1) | (2) |
	Loans	Grants
Panel C: Aid Equation		
Lag log GDP per capita	-1.025**	-3.358**
	(0.441)	(1.541)
Lag resource	0.00232	-0.00721
	(0.00165)	(0.00536)
2-year Lag resource	-0.00221*	-0.00522
	(0.00130)	(0.00346)
Institutional quality	-9.903***	81.43***
	(2.034)	(11.00)
Lag debt service	0.0747***	0.347*
	(0.0164)	(0.206)
British colony	0.712***	2.849***
	(0.205)	(1.076)
French colony	-1.883***	3.909**
	(0.564)	(1.665)
Obs Growth Eq	824	838
Obs Instability Eq	553	565
Obs Aid Eq	725	737
Number of Countries	49	49
Log Pseudo-Likelihood	-3352.7	-4281.9
Error Correlation Growth/Instability	-0.388	-0.453
	(0.299)	(0.376)
Error Correlation Instability/Aid	0.394	-0.0610
	(0.396)	(0.354)
Error Correlation Growth/Aid	0.0757	0.0717
	(0.0790)	(0.230)

Standard errors in parentheses clustered at at country level

$*\ p < 0.10$, $**\ p < 0.05$, $***\ p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions.

The probit equations control only for regional dummies: country fixed effects produce

inconsistent estimates in a standard probit model due to the incidental parameters problem.

Table 13: Robustness: Growth, Political Instability and Oil Discoveries: Impact of Bilateral ODA Disbursement

	Turnover index Autocracies Only	Turnover index Democracies Only	Turnover index Entire Sample	Irregular change Autocracies Only	Irregular change Democracies Only	Irregular change Entire Sample
Panel A: Growth Equation						
Political Instability	-10.64***	2.648	-8.240***	-9.119***	4.051*	-6.947***
	(1.528)	(1.906)	(1.534)	(1.477)	(2.413)	(1.472)
Aid (% GNI)	-0.321	-0.552*	-0.257	-0.305	-0.538*	-0.234
	(0.382)	(0.312)	(0.297)	(0.380)	(0.311)	(0.277)
Aid^2 (% GNI)	-0.0132***	-0.00207	-0.0118***	-0.0130***	-0.000761	-0.0114***
	(0.00362)	(0.0142)	(0.00390)	(0.00374)	(0.0137)	(0.00409)
Log oil discovery	0.0420	0.141***	0.0525	0.0443	0.136***	0.0567
	(0.0589)	(0.0525)	(0.0481)	(0.0570)	(0.0497)	(0.0452)
Lag log GDP per capita	-8.534***	-7.656***	-7.669***	-8.844***	-7.798***	-7.474***
	(1.950)	(2.016)	(1.511)	(2.042)	(2.056)	(1.421)
Investment (% GDP)	0.138***	0.168**	0.128***	0.144***	0.171**	0.131***
	(0.0483)	(0.0830)	(0.0400)	(0.0452)	(0.0834)	(0.0396)
Trade (% GDP)	-0.0341	0.0114	-0.0183	-0.0409*	0.0120	-0.0213
	(0.0218)	(0.0229)	(0.0135)	(0.0227)	(0.0233)	(0.0130)
Inflation rate	-0.00105***	-0.000902	-0.000858*	-0.00101***	-0.000897*	-0.000778
	(0.000274)	(0.000605)	(0.000442)	(0.000249)	(0.000544)	(0.000503)
Schooling	0.415	-1.184**	-0.190	0.631	-1.138**	-0.0606
	(0.421)	(0.507)	(0.360)	(0.445)	(0.457)	(0.382)
Intensity civil conflict	-0.991**	0.323	-0.613	-1.006**	0.265	-0.580
	(0.440)	(0.523)	(0.387)	(0.400)	(0.521)	(0.378)
			0.341			0.439
			(0.528)			(0.526)
Panel B: Political Instability Equation						
Aid (% GNI)	0.158***	-0.0929	0.0711**	0.0711*	-0.0130	0.0125
	(0.0458)	(0.0760)	(0.0333)	(0.0400)	(0.0843)	(0.0301)
Log oil discovery	-0.0110	-0.0122	0.000472	-0.00562	0.0149	0.00135
	(0.0113)	(0.0269)	(0.00843)	(0.0114)	(0.0189)	(0.00939)
Aid ×Log oil discovery	0.00757***	-0.00257	0.00263*	0.00482***	-0.00403	0.00130
	(0.00207)	(0.00409)	(0.00151)	(0.00178)	(0.00473)	(0.00143)
Lag log GDP per capita	-0.0664	-0.863*	-0.160	-0.367**	0.222	-0.232*
	(0.141)	(0.484)	(0.144)	(0.143)	(0.342)	(0.135)
Institutional quality	-1.557**	-1.715	-1.528**	-1.445*	-2.748	-1.425*
	(0.773)	(1.410)	(0.630)	(0.763)	(1.777)	(0.771)
Ethnic polarisation	-0.507	0.824	-0.410	-0.552*	-1.452**	-0.731**
	(0.327)	(0.683)	(0.282)	(0.318)	(0.586)	(0.310)
Intensity civil conflict	0.214**	-0.407**	0.0942	0.198**	0.0376	0.157*
	(0.0860)	(0.160)	(0.0724)	(0.0896)	(0.194)	(0.0813)
Leader's tenure	-0.111***	-0.235***	-0.117***	-0.111***	-0.174***	-0.108***
	(0.0152)	(0.0607)	(0.0137)	(0.0115)	(0.0479)	(0.0120)
Sub-Saharan Africa	-0.313	-0.353	-0.258	-0.187	0.866*	0.0655
	(0.280)	(0.432)	(0.186)	(0.307)	(0.477)	(0.280)
North Africa & Middle East	-0.165	1.847***	0.0678	0.320	-0.0132	0.285
	(0.344)	(0.700)	(0.284)	(0.358)	(0.360)	(0.303)
Latin America	-0.291	0.0573	-0.215	0.321	0.278	0.307
	(0.305)	(0.663)	(0.224)	(0.282)	(0.446)	(0.251)
Autocracy			0.721***			0.729***
			(0.146)			(0.148)

	Turnover index Autocracies Only	Turnover index Democracies Only	Turnover index Entire Sample	Irregular change Autocracies Only	Irregular change Democracies Only	Irregular change Entire Sample
Panel C: Aid Equation						
Lag log GDP per capita	-3.587***	-3.064**	-4.737***	-3.588***	-3.012**	-4.721***
	(1.240)	(1.432)	(1.141)	(1.232)	(1.391)	(1.139)
Log oil discovery	0.0286*	-0.0159	0.0154	0.0278*	-0.0150	0.0145
	(0.0167)	(0.0280)	(0.0174)	(0.0161)	(0.0273)	(0.0172)
1-year Lag log oil discovery	0.0153	-0.0220	0.00917	0.0211	-0.0266	0.0130
	(0.0149)	(0.0260)	(0.0142)	(0.0149)	(0.0257)	(0.0146)
Institutional quality	5.782***	6.285	6.761***	4.948***	6.200	6.423**
	(1.747)	(4.183)	(2.552)	(1.795)	(4.082)	(2.531)
Debt service (% GNI)	0.130**	0.456**	0.243***	0.130**	0.456**	0.244***
	(0.0563)	(0.185)	(0.0895)	(0.0568)	(0.186)	(0.0899)
Egypt	1.471		0.996*	1.421		0.985*
	(0.933)		(0.586)	(0.923)		(0.587)
British colony	1.679	1.897**	2.537***	1.823	1.891**	2.594***
	(1.157)	(0.902)	(0.830)	(1.161)	(0.909)	(0.841)
French colony	1.508**	3.988**	2.421***	1.428**	4.098**	2.377***
	(0.651)	(1.598)	(0.806)	(0.636)	(1.616)	(0.804)
Autocracy			-1.041*			-1.061*
			(0.604)			(0.607)
Obs Growth Eq	1042	639	1681	1018	640	1658
Obs Instability Eq	1148	393	1863	1173	359	1858
Obs Aid Eq	1188	607	1795	1188	607	1795
Number of Countries	64	40	72	63	40	71
Log Pseudo-Likelihood	-6611.4	-3249.9	-10159.4	-6532.0	-3264.3	-10086.4
Error Correlation Growth/Instability	1.062***	-0.215	0.801***	0.945***	-0.575*	0.673***
	(0.177)	(0.221)	(0.152)	(0.195)	(0.358)	(0.178)
Error Correlation Instability/Aid	0.129	0.153	0.0505	0.237**	-0.275*	0.175*
	(0.123)	(0.250)	(0.0964)	(0.112)	(0.156)	(0.100)
Error Correlation Growth/Aid	0.354**	0.297*	0.269*	0.340**	0.273	0.248*
	(0.168)	(0.179)	(0.150)	(0.168)	(0.179)	(0.142)

Standard errors in parentheses clustered at at country level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions.

The probit equations control only for regional dummies: country fixed effects produce inconsistent estimates in a standard

probit model due to the incidental parameters problem.

Table 14: Robustness: Growth, Political Instability and Oil wealth: Impact of Bilateral ODA Disbursement

	(1)	(2)	(3)	(4)	(5)	(6)
	Autocracies Only	Democracies Only	Entire Sample	Autocracies Only	Democracies Only	Entire Sample
Panel A: Growth Equation						
Political Instability	-10.60***	2.593	-8.300***	-9.199***	4.312*	-7.112***
	(1.467)	(2.103)	(1.486)	(1.429)	(2.437)	(1.444)
Aid (% GNI)	-0.349	-0.461	-0.263	-0.339	-0.447	-0.233
	(0.378)	(0.339)	(0.298)	(0.376)	(0.338)	(0.277)
Aid^2 (% GNI)	-0.0132***	-0.00565	-0.0118***	-0.0128***	-0.00424	-0.0114***
	(0.00360)	(0.0151)	(0.00386)	(0.00376)	(0.0145)	(0.00404)
Log oil wealth	-0.110	0.712	-0.0901	-0.145**	0.733	-0.101
	(0.0696)	(0.506)	(0.0874)	(0.0700)	(0.520)	(0.0912)
Lag log GDP per capita	-8.624***	-7.276***	-7.595***	-9.003***	-7.432***	-7.406***
	(1.977)	(1.981)	(1.557)	(2.044)	(2.017)	(1.451)
Investment (% GDP)	0.136***	0.156*	0.128***	0.144***	0.159*	0.132***
	(0.0478)	(0.0851)	(0.0396)	(0.0434)	(0.0850)	(0.0388)
Trade (% GDP)	-0.0354	0.0103	-0.0193	-0.0427*	0.0111	-0.0225*
	(0.0219)	(0.0243)	(0.0136)	(0.0230)	(0.0246)	(0.0132)
Inflation rate	-0.00109***	-0.000862	-0.000859*	-0.00106***	-0.000847	-0.000773
	(0.000253)	(0.000611)	(0.000455)	(0.000230)	(0.000547)	(0.000526)
Schooling	0.348	-1.166**	-0.247	0.566	-1.126**	-0.109
	(0.434)	(0.493)	(0.368)	(0.461)	(0.457)	(0.393)
Intensity civil conflict	-0.956**	0.311	-0.614	-0.957**	0.255	-0.563
	(0.447)	(0.518)	(0.389)	(0.403)	(0.514)	(0.375)
Autocracy			0.297			0.413
			(0.531)			(0.529)
Panel B: Political Instability Equation						
Aid (% GNI)	0.0876**	-0.0847	0.0509*	0.00548	0.0613	-0.00181
	(0.0375)	(0.0629)	(0.0260)	(0.0314)	(0.0617)	(0.0249)
Log oil wealth	0.0114	-0.0178	0.00895	0.0156*	0.00460	0.00917
	(0.0105)	(0.0248)	(0.00764)	(0.00894)	(0.0197)	(0.00939)
Aid ×Log oil wealth	0.00308**	-0.00210	0.00123	0.000486	0.000489	0.000123
	(0.00148)	(0.00389)	(0.00100)	(0.00141)	(0.00374)	(0.000899)
Lag log GDP per capita	-0.103	-0.847*	-0.160	-0.410***	0.139	-0.234*
	(0.146)	(0.471)	(0.144)	(0.151)	(0.353)	(0.139)
Institutional quality	-1.785**	-1.657	-1.653***	-1.704**	-2.275	-1.512**
	(0.751)	(1.508)	(0.606)	(0.758)	(1.635)	(0.755)
Ethnic polarisation	-0.766**	1.004	-0.564*	-0.768**	-1.489**	-0.879***
	(0.361)	(0.681)	(0.320)	(0.314)	(0.600)	(0.317)
Intensity civil conflict	0.191**	-0.419***	0.0815	0.202**	0.0513	0.150*
	(0.0891)	(0.159)	(0.0750)	(0.0882)	(0.187)	(0.0816)
Leader's tenure	-0.107***	-0.243***	-0.115***	-0.108***	-0.170***	-0.107***
	(0.0144)	(0.0635)	(0.0135)	(0.0116)	(0.0446)	(0.0120)
Sub-Saharan Africa	-0.348	-0.355	-0.263	-0.176	0.845*	0.0642
	(0.280)	(0.439)	(0.183)	(0.303)	(0.488)	(0.280)
North Africa & Middle East	-0.275	1.889***	0.00311	0.233	0.0748	0.217
	(0.354)	(0.715)	(0.289)	(0.354)	(0.378)	(0.298)
Latin America	-0.213	0.0168	-0.196	0.423	0.346	0.327
	(0.314)	(0.654)	(0.223)	(0.301)	(0.422)	(0.256)
Autocracy			0.709***			0.720***
			(0.143)			(0.146)

	(1)	(2)	(3)	(4)	(5)	(6)
	Autocracies Only	Democracies Only	Entire Sample	Autocracies Only	Democracies Only	Entire Sample
Panel C: Aid Equation						
Lag log GDP per capita	-3.489***	-3.005**	-4.685***	-3.496***	-2.941**	-4.675***
	(1.249)	(1.500)	(1.145)	(1.244)	(1.469)	(1.146)
Log oil wealth	0.176**	-0.00189	0.185**	0.172**	-0.0649	0.179**
	(0.0818)	(0.448)	(0.0894)	(0.0824)	(0.428)	(0.0896)
1-year Lag log oil wealth	-0.165**	-0.184	-0.177**	-0.159**	-0.153	-0.171*
	(0.0796)	(0.500)	(0.0872)	(0.0797)	(0.527)	(0.0870)
Institutional quality	3.910***	5.387	6.109***	3.255***	5.088	5.800**
	(1.091)	(6.738)	(2.358)	(1.149)	(6.704)	(2.325)
Debt service (% GNI)	0.133**	0.453**	0.244***	0.133**	0.454**	0.245***
	(0.0561)	(0.190)	(0.0894)	(0.0567)	(0.192)	(0.0899)
Egypt	1.338		0.973	1.278		0.952
	(1.003)		(0.624)	(0.993)		(0.626)
British colony	1.875	-0.913	2.585***	2.014	-1.459	2.650***
	(1.242)	(9.379)	(0.854)	(1.240)	(9.416)	(0.867)
French colony	1.364**	1.242	2.351***	1.324**	0.831	2.323***
	(0.644)	(9.334)	(0.807)	(0.634)	(9.372)	(0.809)
Autocracy			-1.046*			-1.068*
			(0.603)			(0.606)
Obs Growth Eq	1042	639	1681	1018	640	1658
Obs Instability Eq	1148	393	1863	1173	359	1858
Obs Aid Eq	1188	607	1795	1188	607	1795
Number of Countries	64	40	72	63	40	71
Log Pseudo-Likelihood	-6612.4	-3253.8	-10159.6	-6532.5	-3268.5	-10086.7
Error Correlation Growth/Instability	1.010***	-0.217	0.799***	0.918***	-0.601*	0.681***
	(0.169)	(0.251)	(0.148)	(0.184)	(0.371)	(0.174)
Error Correlation Instability/Aid	0.0543	0.156	0.0228	0.173*	-0.264	0.147
	(0.117)	(0.235)	(0.0988)	(0.103)	(0.163)	(0.105)
Error Correlation Growth/Aid	0.372***	0.302*	0.274*	0.355**	0.276	0.248*
	(0.159)	(0.188)	(0.148)	(0.159)	(0.187)	(0.140)

Standard errors in parentheses clustered at at country level. $^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions.

The probit equations control only for regional dummies: country fixed effects produce inconsistent estimates in a standard

probit model due to the incidental parameters problem.

Table 15: Robustness: Growth and Political Instability in Autocracies: Impact of Bilateral ODA Disbursement

	Aid Loan Oil Discoveries	Aid Loan Oil Wealth	Grant Oil Discoveries	Grant Oil Wealth
Panel A: Growth Equation				
Political Instability	-8.040***	-8.010***	-10.46***	-10.52***
	(1.814)	(1.751)	(1.552)	(1.498)
Aid (% GNI)	-0.561	-0.732	0.312**	0.307**
	(1.017)	(1.070)	(0.157)	(0.156)
Aid^2 (% GNI)	-0.00849	-0.00843	-0.0141***	-0.0138***
	(0.0203)	(0.0206)	(0.00285)	(0.00294)
Log Oil Resource	0.0143	-0.0683	0.0233	-0.0904
	(0.0596)	(0.0717)	(0.0595)	(0.0728)
Lag log GDP per capita	-6.296***	-6.353***	-6.300***	-6.311***
	(1.355)	(1.411)	(1.193)	(1.213)
Investment (% GDP)	0.162***	0.162***	0.139***	0.140***
	(0.0497)	(0.0495)	(0.0495)	(0.0489)
Trade (% GDP)	-0.0408	-0.0413	-0.0310	-0.0318
	(0.0255)	(0.0255)	(0.0213)	(0.0214)
Inflation rate	-0.000781***	-0.000810***	-0.00101***	-0.00105***
	(0.000254)	(0.000255)	(0.000285)	(0.000268)
Schooling	0.289	0.244	0.286	0.211
	(0.425)	(0.443)	(0.446)	(0.465)
Intensity civil conflict	-1.419***	-1.387***	-0.986**	-0.952**
	(0.531)	(0.537)	(0.438)	(0.445)
Panel B: Political Instability Equation				
Aid (% GNI)	0.248	0.218	0.159***	0.0791***
	(0.179)	(0.167)	(0.0396)	(0.0296)
Oil Resource	-0.00475	0.00627	-0.00225	0.0179*
	(0.00935)	(0.00822)	(0.0113)	(0.0105)
Aid × Oil Resource	0.0159**	0.0114**	0.00613***	0.00175
	(0.00651)	(0.00529)	(0.00201)	(0.00159)
Lag log GDP per capita	-0.0663	-0.109	-0.0602	-0.125
	(0.130)	(0.133)	(0.126)	(0.132)
Institutional quality	-1.598**	-1.500**	-1.712**	-1.886**
	(0.760)	(0.755)	(0.759)	(0.749)
Ethnic polarisation	-0.297	-0.540	-0.507	-0.803**
	(0.362)	(0.380)	(0.332)	(0.368)
Intensity civil conflict	0.316***	0.303***	0.198**	0.183**
	(0.0944)	(0.0994)	(0.0910)	(0.0935)
Leader's tenure	-0.106***	-0.104***	-0.107***	-0.103***
	(0.0142)	(0.0130)	(0.0143)	(0.0135)
Sub-Saharan Africa	0.0677	0.0994	-0.426	-0.417
	(0.291)	(0.282)	(0.291)	(0.292)
North Africa & Middle East	-0.195	-0.229	-0.153	-0.285
	(0.380)	(0.369)	(0.372)	(0.373)
Latin America	-0.0399	0.0501	-0.299	-0.181
	(0.306)	(0.310)	(0.295)	(0.297)

	Aid Loan Oil Discoveries	Aid Loan Oil Wealth	Grant Oil Discoveries	Grant Oil Wealth
Panel C: Aid Equation				
Lag log GDP per capita	-0.554	-0.490	-0.576	-0.525
	(0.479)	(0.464)	(0.450)	(0.439)
Log Oil Resource	0.00206	0.0231	0.00267	0.0152
	(0.00433)	(0.0197)	(0.00416)	(0.0182)
1-year Lag log Oil Resource	0.0146	0.00104	0.0157**	0.00793
	(0.00896)	(0.0276)	(0.00694)	(0.0237)
Institutional quality	-2.518***	-2.770***	-2.337***	-2.715***
	(0.663)	(0.483)	(0.637)	(0.467)
Debt service (% GNI)	0.0278**	0.0298**	0.0271**	0.0294**
	(0.0120)	(0.0129)	(0.0120)	(0.0129)
Egypt	0.499	0.554	0.495	0.513*
	(0.353)	(0.349)	(0.322)	(0.311)
British colony	0.417	0.339	0.415	0.398
	(0.483)	(0.479)	(0.423)	(0.405)
French colony	-0.0455	-0.140	-0.0176	-0.0892
	(0.295)	(0.271)	(0.246)	(0.228)
Obs Growth Eq	1075	1075	1042	1042
Obs Instability Eq	1179	1179	1148	1148
Obs Aid Eq	1188	1188	1188	1188
Number of Countries	64	64	64	64
Log Pseudo-Likelihood	-5765.8	-5766.3	-5612.8	-5613.1
Error Correlation Growth/Instability	0.470***	0.450***	1.024***	1.045***
	(0.179)	(0.166)	(0.169)	(0.170)
Error Correlation Instability/Aid	0.0854	-0.0323	0.0815*	0.0681
	(0.286)	(0.285)	(0.0421)	(0.0454)
Error Correlation Growth/Aid	0.126	0.166	0.00702	0.0115
	(0.229)	(0.239)	(0.0278)	(0.0277)

Standard errors in parentheses clustered at at country level. $^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions.

The probit equations control only for regional dummies: country fixed effects produce inconsistent estimates in a standard probit model due to the incidental parameters problem.

Table 16: Robustness: Growth and Political Instability: Oil resources and ODA Commitment

	(1)	(2)	(3)	(4)
	Turnover Index	Turnover Index	Colgan Measure	Colgan Measure
	Oil Discoveries	Oil Wealth	Oil Discoveries	Oil Wealth
Panel A: Growth Equation				
Political Instability	-6.703***	-6.624***	-6.443***	-6.185***
	(1.519)	(1.478)	(1.543)	(1.579)
Aid (% GNI)	2.050	2.071	2.124	2.155
	(1.335)	(1.354)	(1.389)	(1.412)
Aid^2 (% GNI)	-0.00150	-0.00149	-0.00156	-0.00151
	(0.00129)	(0.00134)	(0.00126)	(0.00133)
Oil	0.0391	-0.218**	0.0453	-0.211**
	(0.0684)	(0.0993)	(0.0708)	(0.100)
Lag log GDP per capita	-0.588	-0.485	0.155	0.209
	(5.043)	(5.128)	(5.174)	(5.279)
Investment (% GDP)	0.159***	0.162***	0.146***	0.151***
	(0.0553)	(0.0530)	(0.0554)	(0.0533)
Trade (% GDP)	-0.0485	-0.0481	-0.0503	-0.0510
	(0.0310)	(0.0305)	(0.0322)	(0.0318)
Inflation rate	-0.000754***	-0.000793***	-0.000678***	-0.000731***
	(0.000261)	(0.000255)	(0.000238)	(0.000230)
Schooling	0.660	0.529	0.591	0.495
	(0.444)	(0.462)	(0.451)	(0.479)
Intensity civil conflict	-1.572***	-1.423**	-1.707***	-1.543***
	(0.543)	(0.553)	(0.592)	(0.596)
Panel B: Political Instability Equation				
Aid (% GNI)	0.170***	0.117***	0.0915*	0.0280
	(0.0487)	(0.0309)	(0.0529)	(0.0404)
Oil	-0.00442	-0.000500	0.00445	-0.00604
	(0.00971)	(0.00870)	(0.00935)	(0.00857)
Aid × Oil	0.00954***	0.00676***	0.00702**	0.00448**
	(0.00253)	(0.00148)	(0.00274)	(0.00195)
Lag log GDP per capita	-0.120	-0.0998	-0.327*	-0.275*
	(0.146)	(0.146)	(0.178)	(0.167)
Institutional quality	-1.779**	-1.913**	-1.595**	-1.613**
	(0.751)	(0.754)	(0.765)	(0.756)
Ethnic polarisation	-0.422	-0.525	-0.633*	-0.461
	(0.321)	(0.357)	(0.347)	(0.362)
Intensity civil conflict	0.240**	0.214**	0.266***	0.254**
	(0.0984)	(0.101)	(0.102)	(0.0993)
Leader's tenure	-0.110***	-0.107***	-0.123***	-0.122***
	(0.0140)	(0.0138)	(0.0146)	(0.0147)
Sub-Saharan Africa	0.0258	-0.00513	-0.0250	-0.00940
	(0.256)	(0.254)	(0.263)	(0.261)
North Africa & Middle East	-0.334	-0.311	-0.327	-0.219
	(0.321)	(0.310)	(0.328)	(0.315)
Latin America	-0.163	-0.186	0.183	0.0961
	(0.285)	(0.294)	(0.285)	(0.294)

	(1)	(2)	(3)	(4)
	Turnover Index	Turnover Index	Colgan Measure	Colgan Measure
	Oil Discoveries	Oil Wealth	Oil Discoveries	Oil Wealth
Panel C: Aid Equation				
Lag log GDP per capita	-3.472***	-3.405***	-3.585***	-3.532***
	(1.196)	(1.201)	(1.186)	(1.189)
Lag resource stock	0.00225	0.0717	0.000422	0.0491
	(0.0129)	(0.0515)	(0.0122)	(0.0578)
2-year Lag resource stock	0.0278	-0.0528	0.0280	-0.0346
	(0.0199)	(0.0601)	(0.0201)	(0.0663)
Institutional quality	5.331**	4.386***	5.199**	3.956**
	(2.120)	(1.620)	(2.320)	(1.960)
Lag debt service	0.0611	0.0627	0.0605	0.0613
	(0.0500)	(0.0510)	(0.0498)	(0.0506)
Egypt	2.415***	2.394***	2.279***	2.186**
	(0.873)	(0.915)	(0.861)	(0.887)
British colony	1.405	1.472	1.608	1.774*
	(1.047)	(1.103)	(1.035)	(1.066)
French colony	0.887	0.816	0.974*	0.920*
	(0.544)	(0.551)	(0.526)	(0.531)
Obs Growth Eq	916	916	897	897
Obs Instability Eq	977	977	1005	1005
Obs Aid Eq	1087	1087	1087	1087
Number of Countries	63	63	62	62
Log Pseudo-Likelihood	-6194.5	-6196.6	-6123.8	-6126.5
Error Corr Growth/Instability	0.330**	0.343**	0.205	0.151
	(0.169)	(0.173)	(0.174)	(0.193)
Error Corr Instability/Aid	-0.121	-0.140	-0.00228	0.0466
	(0.124)	(123)	(0.138)	(0.148)
Error Corr Growth/Aid	-1.012**	-1.022**	-1.046**	-1.061**
	(0.513)	(0.516)	(0.525)	(0.528)

Standard errors in parentheses clustered at at country level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variables: GDP growth in Panel A, Instability in Panel B and Aid in Panel C.

Country and time fixed effects controlled for in all the Growth and Aid regressions.

The probit equations control only for regional dummies: country fixed effects produce inconsistent estimates in a standard probit model due to the incidental parameters problem.