

Coming Into Money:

The Impact of Foreign Aid on Leader Survival

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Abstract: The impact of major states' foreign policy on leader tenure in minor states is traditionally investigated with respect to conflictual foreign strategies like military conflict and economic sanctions. I expand such investigations by examining the effect of one *friendly* foreign policy strategy: official development assistance. Though aid is a fungible resource for leaders, autocratic and hybrid institutions make the diversion of aid more effective and efficient. Analysis is carried out on a dataset of 6,586 leader-years from 1960-2000. A nonproportional hazards Cox model supports the hypothesis that such leaders use aid to increase their tenure. Before allocating aid to leaders of new democracies and old autocracies, policy makers should consider whether they wish to insulate existing leaders or encourage change.

Asymmetry of power allows stronger states to use military and economic means to penetrate the politics of weaker states. Through foreign policy actions such as sanctions, military attacks or escalation of crises, powerful states strong-arm the uncooperative leaders of smaller states, sometimes intending to force them out of power. Indeed, several studies confirm the ability of negative foreign policy actions to shorten the duration of leader tenure. Unsuccessful involvement in international conflict and war significantly increases the likelihood of losing office (Chiozza and Goemans 2004), being violently overthrown (Bueno de Mesquita, Siverson and Woller 1992) and experiencing regime turnover (Bueno de Mesquita and Siverson 1995). Economic sanctions similarly increase leaders' risk of losing office (Marinov 2005).

Though the majority of studies focus on these hostile policies, powerful states can exert real influence without resorting to such strong-arm tactics. Many foreign policy actions are intended to reward, support or entice cooperation from leaders of smaller states. Such friendly foreign policy actions include preferential trade agreements, military alliance, and development assistance. Indeed, wealthy and powerful states proffer these foreign policy "carrots" on a regular basis, sometimes with blatantly strategic aims. In recent years, for example, the United States has established beneficial relationships with many Central Asian and Middle Eastern states, providing aid in return for cooperation in the War on Terror. Even when donor nations hope to achieve more "liberal" goals, friendly tactics possess substantial potential to alter the domestic risks of leaders.

Investigations of friendly foreign policy, though, usually focus on macro-effects such as democratization and economic growth, leaving the potential link to leaders understudied. The current project aims to fill this gap in our understanding of foreign policy and leader survival by studying how cooperative acts of foreign policy influence the tenure of a state's leader, focusing

on one of the more prevalent friendly foreign policy tools: official development aid. Foreign aid provides an excellent embarkation point; the advanced world invests heavily in development assistance, but its effectiveness is frequently called into question by empirical studies (Chenery and Strout 1966; Regan 1995; Geddes 1994; Kosack and Tobin 2005; Daalgard, Hansen and Tarp 2004; Brautigam and Knack 2004). Leaders may constitute the missing link in explanations of foreign aid's patchy record.

Even when donor nations intend to prompt economic growth, democratization and human rights improvements, foreign aid allocations may instead increase the durability of domestic administrations. Inflows of aid become fungible resources in the hands of receiving elites (Singer 1965; Boone 1995; Kosack and Tobin 2005); these resources allow some leaders to satisfy key constituencies, cementing their place in power. This prospect is especially pertinent in the failure of aid to consistently promote democratization (Knack 2004).

While some leaders manage to utilize aid inflows for personal benefit, this ability varies over time with regime type. Political institutions determine the ease of diverting aid and the effectiveness of converting funds into increased tenure in office. Because they are less constrained by institutional checks, and responsible to a narrow swathe of the population, autocratic leaders should garner the most political benefit from receipt of foreign aid, provided time to solidify support. The inconsistency of accountability and participation in hybrid regimes makes it possible for their leaders to enjoy benefits similar to those of autocrats. Democratic leaders, on the other hand, institutionally constrained and obligated to at least a plurality of the voting population, have little to gain and much to lose from expropriating development assistance for personal aggrandizement.

I test these hypotheses on a dataset of 5,640 leader-years from 1960-2000 using a Nonproportional Hazards (NPH) Cox Model. In autocratic and hybrid regimes, aid drastically insulates leaders over time. Democratic leaders who receive aid, however, benefit only in the extreme short term, and only compared to non-recipients. When considering the amount of aid received, the effect on democratic tenure fails to achieve statistical significance. This finding supports the hypothesis that development assistance does not provide democratic leaders with an instrument of tenure extension.

From 1960-2000, the Organization for Economic Cooperation and Development reports the donation of more than 786 billion dollars in development assistance to countries around the world.¹ Democratic countries received only 40% of this total. 331.2 billion dollars (42%) was delivered to autocracies, and an additional 138.3 billion (18%) arrived in hybrid countries. Based on my results, we may conclude that the majority of allocated aid falls in the hands of leaders who stand to gain personally from the windfall. Whether intended or not, this friendly foreign policy decision thus causes direct, concrete changes in the political landscape of smaller countries, decreasing the likelihood that less-than-democratic leaders leave office.

The cooperative moves of powerful countries exert an influence just as real, and just as conditional, as their violent moves. An understanding of the friendly foreign policy toolkit holds academic and pragmatic value. It will help international relations scholars better explain and predict the reactions of domestic elites. Aid-receiving autocratic and hybrid leaders may feel an obligation to shift policies to align with the interests of their benefactors (c.f. Lai and Morey 2007); or they may feel a need to distance themselves from their benefactors in order to maintain domestic legitimacy. The expected reaction depends, these results suggest, on how much leaders stand to benefit personally from aid receipt. Evidence also illustrates that leaders' conflict

behavior depends at least in part on their safety in office and age (c.f. Ostrom and Job 1986; Horowitz, McDermott and Stam 2005); friendly foreign policy moves, then, may inadvertently increase the likelihood of conflict by emboldening leaders.

Better understanding of friendly foreign policy actions will also help policy makers determine and implement the most effective peaceful intervention. Decisions of where to allocate aid monies must focus on the institutional incentives of recipients. Elites should be considered only as trustworthy as their institutions. If donors intend aid as a reward for cooperative administrations, or as a means of ensuring future cooperation, their money will be better spent on leaders of autocratic and hybrid regimes. If, however, donors intend to fulfill lofty goals of democratization and human rights improvements, they should seriously reconsider the allocation of aid to nondemocracies: their money may only further insulate local leaders from internal pressure to change. In this respect, findings support the policy of requiring governments to meet strict democratic “benchmarks” in order to qualify for development assistance.

A brief review of literature connecting leader tenure and foreign policy decisions follows. I then elaborate the theoretical argument and hypotheses regarding the impact of institutional arrangements. In the third section I present the data and research design. The fourth section includes discussion of the statistical results. Finally, I conclude by considering the import of these findings for the literature and the decisions of policymakers.

Carrots and Sticks

Most empirical investigations of leader tenure focus on domestic variables and personal characteristics, such as: institutions, country wealth and size, economic stability and personal time in office (Bienen and van de Walle 1992; Londregan and Poole 1990; Chiozza and Choi

2003). Despite the clear effects of internal forces, room remains for external intervention to affect leaders' tenure. Whether they are designed to do so or not, many foreign policy decisions hold the potential to help or hinder targeted elites. Those studies which focus on foreign policy and leader tenure fixate on hostile foreign policy acts' potential to affect leaders by tapping into domestic dynamics. The literature on diversionary theory, rally effects and war casualties posit that decisions to engage in conflict affect leader duration through domestic approval (Mitchell and Prins 2004; Lai and Reiter 2005; Mueller 1971). Rather than the success or failure of domestic decisions, the current project investigates the impact of external decisions on leaders' ability to stay in office. Research in this vein demonstrates the conditioning of the negative effect of military and economic conflict on leader tenure by target regime type (Chiozza and Goemans 2003, 2004; McGillivray and Smith 2006; Marinov 2005).

International relations scholars often interpret the business of international politics as essentially conflictual. Most interstate interactions, however, feature cooperation. Great powers wield a full range of strategies for rewarding their allies and enticing future cooperation, but little research entertains the possibility that these tools could impact leadership survival. Instead the literature focuses on the prerogatives of the initiating states. Friendly foreign policy favors are rarely bestowed unconditionally. The more powerful state often makes their expectations for the weaker partner's change in bad behavior or continuation of good behavior quite explicit. That is not to say, however, that playing nice always gets big states what they want. Just as with hostile foreign policy tools, friendly actions achieve mixed success.

In this regard, official development assistance is exemplary. Donor nations profess a desire to improve human rights, further democratization and encourage economic stability through their aid allocations, but success in achieving such goals remains mixed. Regarding

economic growth and stability, economists find that aid can be effective provided domestic resources gradually replace foreign funds (Chenery and Strout 1966), domestic policies remain favorable, receiving countries experience few climate-related drains on the work force, low amounts of aid are sent (Daalgard, Hansen and Tarp 2004), and receivers enjoy high levels of existing economic development (Kosack and Tobin 2005). Research on the ability of aid to promote human rights and democratization varyingly finds that assistance produces no statistically significant improvements (Regan 1995; Knack 2004), or theorizes that inflows of foreign money will damage democratic accountability and government capacity (Geddes 1994; Svennson 2000; Brautigam and Knack 2004).

Central to understanding the mixed success of foreign aid is the insight expressed by H. W. Singer (1965): aid is a fungible resource. Donors' professed goals may suffer while receiving elites utilize foreign funds to secure fulfillment of their own priorities. We need, therefore, to study the likely effect of aid on the goals of recipient elites. How and when can aid help them to achieve the primary aim of maintaining power?

Coming Into Money

Some basic assumptions must be made in order to develop expectations regarding the effect of foreign aid on leaders' tenure. First, leaders must be at least minimally rational: they have and pursue goals. Second, maintaining office is the primary goal. As no secondary political goals can be obtained without this prior condition, leaders always have the incentive to decrease their risk of losing office. Achieving this goal, according to Bueno de Mesquita et al. (2005) requires that leaders convince key constituencies that they will be better off with the incumbent than with any replacement. Our third assumption, then, is that leaders depend on the

support of a core constituency, the size of which is determined by institutions. Let us consider how these simple assumptions shape our expectations regarding foreign aid.

The arrival of official development aid triggers a decision making process. Leaders must consider how best to utilize their new resources and they favor a plan which will help them achieve the primary aim of prolonging their time in office. The aid may come with many strings attached; donor nations expect to see infrastructure development, improved human rights reports or lower malnutrition levels. But once the money changes hands, it is likely to serve the recipients' more immediate aims. Instead of remaining an effective policy tool for donor countries, foreign aid becomes a fungible resource for elites on the *receiving* side, facilitating further pursuit of *existing* goals. As Kosack and Tobin (2005) note, "... it ends up largely substituting for government spending that would have occurred anyway, thereby freeing up government monies to be spent as the government wants" (210). Empirical research supports the suspicion that aid operates to the benefit of local elites rather than to that of their populations or donors (Pack and Pack 1993; Boone 1995; Kosack and Tobin 2005). Fungibility can be understood quite literally: the reporting requirements enforced by donors may not be so strict as to prevent some of the money from disappearing; institutions in the developing world are infamously opaque, making the path of money very hard to trace. It is not necessary, however, that the conversion be so explicit. Even if donors efficiently restrict the diversion of foreign money to other purposes – whether by delivering actual goods or funneling provisions through nongovernmental organizations – the fungibility principle still holds. An influx of extra money for infrastructure development or welfare programs frees up domestic funds which might previously have been allocated to these sectors. If an outside power is feeding the people, the government need not.

Recipient elites, then, aim to convert some portion of the windfall into increased time in office through reinforcement of their supporters' loyalty. For two related reasons, their success in this endeavor will vary systematically by regime type. First, institutions of leader selection determine the effectiveness of raw funds for purchasing continued tenure. Autocratic leaders responsible to the military and business elite could expect a much bigger bang for their buck than democratic leaders responsible to a plurality of their electorate. Second, even if democratic leaders wanted to turn aid into private benefits for key political actors, the overlapping authority structures of democracy should make it considerably more difficult. Congressional oversight, independent judiciaries, freedom of the press and electoral accountability impose costs on elite behavior which falls outside the rule of law. Without such obstacles, leaders need consider only whether their behavior delivers significant benefits. On both counts –effectiveness and efficiency – democratic institutions mitigate the fungibility of aid.

The assumption that leaders depend on a core constituency leads to the hypothesis that nondemocratic leaders will more effectively convert aid to tenure. Bueno de Mesquita et al.'s (1999; 2003) selectorate theory labels the portion of the population essential for continued tenure the "winning coalition". The size of the winning coalition relative to the overall population varies by institutional rules, being larger in more open societies and smaller in more closed societies (Bueno de Mesquita et al. 1999, 793). Though democracies' institutional arrangements vary substantially, electoral mechanisms guarantee that elected officials are responsible to a considerable portion of the population (e.g. a plurality of all registered voters). Autocratic leaders, on the other hand, are rarely responsible to more than a handful of powerful military, economic or party elites. This variation in relative size shapes the incentives of both leaders and constituents through three key mechanisms: the balance between public and private goods

provision, the strength of the “loyalty norm”, and the overall rate of government spending (Bueno de Mesquita et al. 2003, 82-96).

Leaders in control of spending attempt to optimize the winning coalition’s benefit through a mix of private and public goods while maximizing the proportion of government revenues available for their own personal use (Bueno de Mesquita et al. 2003, 79-80). When the winning coalition is small, leaders’ ambitions are best served by providing private goods to their cadre of supporters; when large, by providing public goods to the entire population (Bueno de Mesquita et al. 2003, 91). Under circumstances of a small winning coalition, each individual member of the coalition receives a higher payoff, and the gap between members and non-members increases. Coupled with a higher likelihood of being excluded from future winning coalitions should their leader be defeated, this discrepancy engenders a high level of loyalty (Bueno de Mesquita et al. 2003, 92-93). Public goods produce nonexcludable benefits, meaning the perks of winning coalition membership decrease with the size of the group. The strength of the loyalty norm decreases in turn, producing – without the imposition of term limits – a much higher baseline risk of losing office for democratic leaders (Bueno de Mesquita et al. 2003, 93). By affecting the loyalty norm, relative winning coalition size also determines the amount of overall spending required. When loyalty is high (winning coalition small), leaders may safely reserve more of the state budget for personal use “...if they find themselves at risk of being deposed” (Bueno de Mesquita et al. 2003, 93).

Given these dynamics, foreign aid will factor differently into leaders’ attempts to extend tenure. Autocrats oversee small winning coalitions and seek, therefore, to provide private benefits. Under these circumstances aid presents a potentially valuable tool. Due to higher coalition loyalty, autocrats need to spend relatively less of their available resources in order to

outbid possible challengers. Though the actual amount of resources expended is less, the difference made is greater. Autocratic leaders extend their tenure through private benefits and stockpiles, both of which can be directly expanded by new resources (Bueno de Mesquita et al. 2007, 259).

For mixed or hybrid systems, where democratic institutions blend with autocratic political behavior, winning coalition size may vary considerably with the type of electoral institution, level of actual participation and honesty of elections. Whether through the suppression of political alternatives in “competitive authoritarian” states (Levitsky and Way 2002;2005) or through the alienation of ethnic minorities in fragmented states, elites controlling hybrid regimes may shrink the size of their winning coalitions down to a proportion easily pleased by private goods allocation. This artificially shrunken winning coalition may not be as stable or reliable as that within a truly authoritarian state, but we should expect that in most respects the effectiveness of a hybrid leader’s diversion of resources to private goods will resemble that of an authoritarian leader.

The selectorate theory need not suggest a strictly negative relationship between aid receipt and nondemocratic leader hazard, though. The helpful effect of aid for these leaders hinges on the strong loyalty norm keeping winning coalition members from accepting the challenger’s higher offer. As Bueno de Mesquita et al. (2003, 100) acknowledge, it takes some time for this loyalty to emerge. Newer nondemocratic leaders, then, will not enjoy the luxury of spending a smaller portion of resources and stockpiling funds for difficult times. Because winning coalition members remain unsure of their future standing, they will discount the future benefits of staying with the incumbent. This “impatience” makes challengers more likely to poach the necessary pivotal members. Under the less stable conditions of early office, a windfall

of external funds may lead to further destabilization rather than insulation. “The more resources that are available, the greater the challenger’s best credible offer and, therefore, the more the incumbent must offer to meet the conditions for retaining incumbency” (Bueno de Mesquita et al. 2003, 98). The combination of better offers from the competition and higher impatience among the winning coalition makes for higher leader hazard. Outside of the heightened risk of newly gained office, however, the above argument regarding effective use of fungible resources for additional private benefits will hold. Thus, an autocratic leader receiving aid in his first year of office may experience an increased risk of losing office, while one in his fifth year might experience a decreased risk.

While nondemocratic leaders may consider aid a mixed blessing depending on the timing of its arrival, democratic leaders may question whether foreign aid is a blessing at all. Their obligation to a large proportion of the population makes allocation of private goods inefficient. They must commit to spend nearly all government resources, yet the public goods provided disperse equally amongst the entire population, diminishing private perks for supporters and deadening loyalty (Bueno de Mesquita et al. 2003, 92-98). Any newly arriving resources must be turned towards the overarching goal of shoring up support in the interest of tenure, and this means providing further public benefits. Aid can be of assistance to democratic leaders only in this capacity, but development assistance proves an unreliable tool of democratic tenure extension for three reasons.

First, foreign aid boasts only a patchy record of public goods provision. Economic growth, as mentioned earlier, can only be triggered by aid in already thriving economies (Kosack and Tobin 2005). Democratic leaders who are providing high levels of public goods, and thus enjoy a relatively low risk of losing office, may manage to coax some additional public benefit

out of aid flows. Leaders presiding over weak economies, and thus facing higher risks, cannot make external funds work to their advantage. Given that a weak economy is consistently a key predictor of aid allocation, aid is thus likely to have little or no discernable impact on existing levels of public goods (Lai 2003). Second, even if aid does produce some public goods improvement, democratic leaders may find it difficult to claim credit. Many public benefits attributable to aid monies, such as infrastructure or education improvements, trickle down through government agencies or are provided directly by foreign nongovernmental organizations. The line of attribution in these cases does not point unambiguously back to the head of government, but branches out to external powers, bureaucrats and other government figures. Third, considering the weak loyalty norm and regularized electoral competition, democratic leaders may find that their inability to convert aid to public goods becomes ammunition for the opposition (Lai and Morey 2006). Development assistance as a resource is not unique to the leader in power at the time of receipt. The extreme rarity of donor nations reducing aid amounts following democratic turnover bolsters domestic competition's ability to credibly promise to perform at least as well as the incumbent.² For these three reasons I expect, rather than assisting democratic leaders in the struggle for continued tenure, aid is likely either to fade into the background or to become a bone of contention in electoral politics.

Since funneling aid into further public goods provision may prove ineffective for extending tenure, democratic leaders could sometimes prefer to funnel it into private benefits for key political players. Consider, for example, the behavior of President Chiluba (1991-2001) in Zambia. Ex-post investigations by Transparency International have revealed that the President maintained a "... slush fund ... to appropriate public funds and 'dole' them out to favoured or politically useful persons or groups without accounting for them," and that "Parliament allowed

criminal funds to be operated throughout President Chiluba's tenure of office" (Yambayamba 2007, 5). Of course, the temptation and the actuality of such corruption exist in democracies, but democratic leaders considering how best to utilize aid resources usually face significant institutional barriers which make corruption an inefficient strategy.

In consolidated democracies the oversight rights of other branches, freedom of the press and the rule of law constrain the executive (c.f. Linz and Stepan 1996, 7-14). When functioning properly and in conjunction, these characteristics should make it very difficult for leaders to divert aid monies and very politically costly to be caught in the attempt. In democracies, executives do not enjoy exclusive knowledge of the budget. Opposition parties in the legislature maintain the right to review and approve the allocation of funds and to track performance; the free press holds the right to request and publish internal documents regarding public finance. The transparency of oversight and the risk of exposure by the press would require elites to devote a considerable portion of diverted public resources to covering the trail by which they were diverted. A functioning rule of law – manifest in an independent judiciary and the widespread norm of legality – ensures that politicians caught with their hands in the state's piggy bank face serious consequences. In short, savvy democratic elites know that their institutional environment encourages continued democratic behavior (Gates, Hegre, Jones and Strand 2006); diverting foreign aid directly to personal aggrandizement is simply not the most efficient way for them to utilize their resources.

Inside mixed regimes – often the consequence of new or failed democratic transitions – leaders do not receive these consistent signals (Gates, Hegre, Jones and Strand 2006). The hallmark of such regimes is the regular subversion of institutions of democracy by autocratic political behavior. Leaders in mixed systems may undermine the freedom of the press, interfere

with court rulings, and generally operate with impunity. Lacking consistently restrained executives, informed and involved publics, or effective oversight, elites remain relatively free to expropriate development assistance. Similarly, for autocratic leaders, the line between state funds and private funds is blurry at best. Little domestic cost exists to prevent the efficient conversion of aid to private goods and benefits. A leader like the Congo's Mobutu Sese Seku simply delivers envelopes full of money to key elites in order to purchase their loyalty (Wrong 2007, 22).

Regime type conditions incentives by determining the ease of diverting aid money to private use and determines effectiveness by necessitating the division of resources among the few or the masses. For established autocratic and hybrid leaders, the conversion of aid to increased tenure is straightforward and should be relatively effective, though the effect may be quite different during the first years of office. Democratic leaders attempting to channel aid to personal benefit face much dimmer prospects.

The theoretical argument produces the following hypotheses:

- H_{aut} : *The receipt of foreign aid will destabilize new autocratic leaders, but insulate established leaders.*
- H_{hyb} : *The receipt of foreign aid will destabilize new hybrid leaders, but insulate established leaders*
- H_{dem} : *The receipt of foreign aid will have no significant, independent effect on the tenure of democratic leaders.*

Modeling Leader Survival

The data upon which this argument is tested consist of 6,586 leader years covering 974 separate leaders from 1960-2000. Leaders of countries which donated aid in the current year have been excluded from the analysis in order to preserve a reasonable comparison category. Of the included leaders, 146 are right-censored as they remained in office in 2000. When dealing with data of this form, event history (or duration) analysis holds some advantage over more

traditional models for continuous data. In this case, I follow the advice of Box-Steffensmeier and Jones (2004) and specify a Cox Proportional Hazards Model.³

Returning now to the proposed theory, the three hypotheses argue for conditional effects of aid receipt on leader tenure across three types of regime. This institutional conditioning is expressed as an interaction effect between aid and regime type.⁴ The proposed model takes the form

$$h_i(t) = \exp[(\beta_1 * (\text{Aid Received}) + \beta_2 * (\text{Hybrid} * \text{Aid Received}) + \beta_3 * (\text{Autocrat} * \text{Aid Received}) + \beta * \mathbf{Z}] * h_0(t)$$

where $h_i(t)$ is the risk of losing office, or hazard rate at time t ; β_1 - β_3 are the coefficient estimates from the Cox Proportional Hazards model; $\beta * \mathbf{Z}$ is the linear combination of coefficient estimates and values of the control variables; and $h_0(t)$ is the baseline hazard rate. This formulation provides the simplest means of evaluating all three hypotheses. The interaction terms tap the effect of aid within autocratic and hybrid institutions while the constituent term for aid received indicates the impact of aid on the reference category (democracy).

Measurement:

For information on the dependent variable, this paper utilizes Goemans' and Gleditsch's (2006) dataset on the survival of leaders, Archigos version 2.5. The variable *sumten*, ranging from 1 to 16,982, tracks the cumulative days of a leader's stay in office. Coded 0 while a leader remains in office and 1 the year the leader loses office, *fail* determines leader exit.

The basic data on aid, available from 1960, come from the OECD's online database. The operationalization of aid begins with OECD's total net official development assistance variable, which includes aid disbursements from all OECD donor countries. Following several sophisticated empirical analyses (Knack 2004; Daalgard et al. 2004; Lai 2003; Boone 1995), I adjust my aid measure in two ways. First, size of economy is accounted for by dividing aid per

capita by gross domestic product per capita in millions of constant US dollars. Accounting for economy size puts aid inflows in perspective. Three million dollars may not be an impressive boost in revenue for a leader used to revenues in the hundreds of millions, but it would be quite a boon for one accustomed to tens of millions. Second, the aid variable contains extreme values and departs starkly from the normal distribution due to a high proportion of zeros (skewness=3.61, kurtosis=23.94). A logarithmic transformation provides substantial correction to this problem, but results in the exclusion of all non-aid receiving leaders.⁵ This measure changes the comparison category to those receiving minimum amounts of aid rather than those receiving no aid. Results for both measures are reported below.⁶

Data for regime type come from the PolityIV project. The general cut points for authoritarian, mixed and democratic regimes are adopted here with a series of dummy variables. Combined polity scores less than -5 are coded as autocratic (*auto*), between -5 and 5 as hybrid (*hyb*), and greater than 6 as democratic (*dem*) (see for example Mansfield and Snyder 2002).

Control variables include economic variables from Gleditsch's (2002) expanded trade and economic data: lagged per capita GDP in millions of 1996 US dollars (*gdplag*), and lagged economic growth, which is the percent change in GDPpc (*growthlag*). The natural log of population, *pop*, also comes from the Gleditsch data. Age of leader is accounted for, using *age* from Archigos. Change in institutional characteristics is captured by *demchg*, the change in polity score from the previous to current year. These variables appear frequently in leader survival analyses (c.f. Chiozza and Goemans 2004).⁷

Assessing Consistency with the PHA:

The Cox model imposes the strict assumption that the impact of variables remains constant across time. Violating this assumption can produce biased results. Given the expectation that aid may operate differently for new leaders, testing for violation of the

proportional hazards assumption (PHA) is theoretically as well as statistically necessary. Results from the Schoenfeld residuals tests vary between the aid dependence and the logged dependence models. Specifically, for the logged measure aid to democrats does not violate the PHA.⁸ This is most likely due to the change in the relationship described by each model, between non-aid receivers and minimum aid receivers. The test indicates that institutional shifts and age consistently change in impact over time. Consistent with H_{aut} and H_{hyb} , each of the aid/regime interactions violate the PHA regardless of specification.⁹

In accordance with the advice of experts in the field (c.f. Box-Steffensmeier and Jones 2004) the final models include interactions with time for each of the variables which violate the PHA. This creates a rather complicated model and a formidable results table. The reader should focus attention on the coefficients for time trend variables, as these contain the majority of the information required to assess the hypotheses. The constituent coefficients refer exclusively to the effect of aid on the first day of analysis time. To further ease interpretation and to demonstrate substantive significance, I have also calculated the “first differences” for aid’s impact over time.¹⁰

Findings

The theory developed above argues that both the ease and likely effectiveness of expropriating aid for the purpose of personal benefit should be greatest for hybrid and autocratic leaders. If these hypotheses are correct, we should see that aid, possibly following initial destabilization, exerts a negative effect on the risk of failure for these leaders and not for democrats. The results of the NPH Cox models, reported in Table 1, provide very strong support. The first column of Table 1 includes results for the aid dependence measure, the second for the logged measure. Bolded text highlights the most important coefficients to examine.

As predicted in H_{aut} , sustained receipt of aid monies provides considerable assistance in the struggle to remain in power. The coefficient of 57.64 in the first column of Table 1 describes a destabilizing effect for new autocrats. Depending on the amount of aid, autocrats face between a 30% and 70% increase in the risk of losing office when it arrives prior to the solidification of their winning coalition (see Figure 1). Autocrats need not have been in power very long to find aid less dangerous, though. The left panel of Figure 1, charting the first differences across time makes this clear.¹¹ After just under a year the lower confidence band for receiving mean levels of aid dips below zero, indicating that the destabilization is no longer significant. By the 1000 day mark, aid returns to significance, but as an insulator rather than a destabilizer. As time progresses so does the insulating impact of aid monies. For autocrats, receiving a mean amount aid produces a maximum reduction in risk of about 50% compared to non-aid receiving leaders. An effect of this magnitude does take about 19 years to build up, though.

Mirroring the pattern in autocratic systems, hybrid leaders also appear capable of benefiting personally from inflows of foreign assistance provided it arrives after they have established their base of support. After charting the substantive impact, however, it becomes clear that the initial negative effect is not as drastic for this type of leader. In fact, aid's effect gains significance well after the time trend has overcome any destabilizing propensity.¹² The left panel of Figure 2 displays this result graphically, revealing that after about 4 years hybrid leaders receiving a mean amount of aid experience 5% lower risk of losing office compared to non-aid receiving leaders. The trend continues steadily, producing at the maximum a 22% reduction in risk.

At first blush the coefficients for aid and aid's interaction with time in the first column of Table 1 appear to contradict H_{dem} . Aid exerts a negative and significant pressure on the hazard

of brand new democratic leaders, producing about a 20% drop for those receiving the mean amount of aid compared to non-recipients. The significant time trend, however, pulls in the opposite direction, decreasing the insulation effect quickly. The left panel of Figure 3 demonstrates that the substantive impact becomes indistinguishable from zero within 200 days. Less than 10% of democratic leaders in the data fail before this mark.

Shifting the comparison to the mean amount of aid received by aid recipients rather than the entire population, both the initial destabilization and the later insulation effects are more substantial for nondemocratic leaders. The right panels of each figure chart the results from the logged aid model. Removing non-aid receiving leaders from the analysis reveals a more dramatic effect for nondemocratic leaders, because the baseline hazard of losing office for non-aid receiving leaders is generally lower than that of aid recipients and because the mean level of aid increases when zeros are removed (see supplementary material for difference in baselines). Autocratic leaders receiving a mean amount of aid compared to a minimum, face an initial destabilization of about 250%, but over time may achieve an insulation effect of nearly 100%. Similarly, under this comparison hybrid leaders face a 50% higher risk of losing office initially, but entertain the possibility of decreasing their probability of failure by 30% if they weather the storm. Compared to other aid receiving leaders, however, the mean democratic recipient experiences no significant change in hazard.

All three hypotheses regarding the conditioning impact of regime type on the effectiveness of converting aid resources to continued tenure in office receive substantial support from this analysis. For autocratic and, to a lesser extent, hybrid leaders, development assistance provides considerable insulation against the risk of losing office. Though we traditionally think of internal processes as more important determinants of leader tenure, this study demonstrates

that the foreign policy decisions made by wealthier nations directly impact the politics of autocratic and hybrid states. Moreover, this external impact is not of minor significance compared to internal factors. Note, for example, the insignificance of domestic economic variables, usually considered so vital to leader survival.

Chiozza and Goemans (2004) also find that foreign policy more powerfully affects leader tenure than domestic economics. My findings differ in two respects. First, the foreign policy impact demonstrated here stems explicitly from the outside; rather than investigating the affect of leaders' decisions on their own tenure, I investigated a means by which powerful states wield influence over the tenure of *other* leaders. Secondly, this analysis emphasizes the power of friendly external intervention; rich states need not employ violence or threats to subvert the natural course of domestic politics within smaller states.

The power of supportive foreign policy tools deserves further scholarly attention. While these results clearly demonstrate the ability of donor nations to change domestic political patterns, they also highlight the ability of targeted leaders to turn a friendly foreign policy move into personal benefit. Donors sometimes intend to ensure the duration of a cooperative administration, but policy goals often extend beyond this desire. The United States' friendly relationship with Pakistan's Pervez Musharraf is illustrative. As a secular, pro-U.S. leader in a country with tendencies towards the extreme, Musharraf is a valuable stabilizing force with whom American policymakers preferred to continue dealing. In order to obtain a package of \$3 billion in military and economic assistance from the United States over 5 years, Musharraf pledged cooperation in the War on Terror, including routing extremists within his own population (U. S. State Department 2007). Despite considerable internal dissent and questionable democratic credentials, Musharraf managed to hold onto power for seven years,

while the United States awaited follow through on pledges to counter Taliban safe havens in the Tribal Areas. Given the ability and incentives of autocratic and hybrid leaders to expropriate fungible resources for personal use, policymakers must reconsider whether development assistance is an appropriate investment when their policy intentions include more than sustaining a friendly administration.

Endogeneity Issues:

Some may contend that endogeneity creates problems for the evaluation of hypotheses regarding leaders' risk of losing office. There are two possible arguments that could be forwarded. First, there may be something inherently different about the kind of leaders who receive aid as opposed to the kind of leaders who do not. The second argument is that the short-term higher risks of losing office following aid receipt are endogenous. The nonproportional impact of aid on leader hazard is driven not by the actual process of getting aid, and whatever signal that might send to internal and external observers, but by the process through which aid allocation decisions are made. If donor countries funnel aid to leaders facing an elevated risk of losing office, then the nonproportional impact of aid may be an artifact of this selection process rather than a signal or a learning curve.¹³ Actually determining the mechanism behind the nonproportional effect of aid here would require in-depth analysis of case-studies, a future goal not feasible at the current date. The current findings should not be dismissed on this basis; as noted by Reed and Clark (2000) modeling the likely effect which an endogenous process might have on the data ameliorates estimate bias. Note also that the pattern of nonproportionality becomes stronger, not weaker, in the logged aid dependence model which excludes non-recipients.

The two concerns described above can be further addressed indirectly through some investigative statistics and additional specifications. Two tasks have been performed in order to

alleviate concerns about endogeneity. First, an additional parameter tagging aid-receiving leaders was included to determine whether simply receiving aid (as opposed to changes in the magnitude of aid) exerts a significant, independent effect on the hazard rate of leaders. Given the number of times which aid dependence enters the model already, this method is not particularly desirable. Despite high risk of multicollinearity problems, the results prove robust to the additional parameter. The coefficient for aid receiving countries never approaches statistical significance at conventional levels, and the findings regarding aid over time are not disrupted.

Second, to address whether aid goes to leaders who have a higher risk of losing office to begin with, two stratified Cox models were estimated. The stratified Cox model allows for the baseline survival rate to differ across different subpopulations. First the data were stratified by aid-receiving and non-aid-receiving, and second they were divided into donor states, recipient states and non-recipient states. Leaders in the aid-receiving subgroups do experience a slightly higher likelihood of losing office. The difference achieves significance for a proportion of the observation time, when aid receivers' probability of survival is about two tenths lower than that of leaders without aid. The same patterns of nonproportional hazards in the aid parameter hold despite stratification.¹⁴

Conclusion

Too, often in the field of international relations, we focus only on the conflictual behaviors of the great powers while ignoring their extensive repertoire of friendly foreign policy tools. The research presented here demonstrates the need to expand the scope of our analysis: pacific foreign policy decisions exert real effects on the politics of weaker countries. But in the face of external intervention, targeted leaders are not puppets. Just as with the hostile foreign policy tools of economic sanctioning and military targeting – power does not guarantee the end

envisioned by the industrialized nations. When institutions allow aid to be diverted without punishment and domestic politics encourages the provision of private goods, leaders receiving assistance can convert foreign monies into personal benefit.

The findings reported here contribute a new dimension to our understanding of foreign policy. The realm of friendly foreign policy effects deserves more scholarly attention, not least of all because it constitutes a significant public expenditure for most western nations. Studies of alternative strategies, such as military assistance and diplomatic support, should be investigated to determine whether a similar pattern holds. Moreover, the question of development assistance need not be so quickly settled. Aid disbursements are not handled identically by all donor nations and agencies. Some kinds of aid – such as that earmarked for infrastructure and public works or delivered directly to the executive branch of government – may be more easily expropriated than others. Future analyses may tackle such particularities now that the initial relationship between aid and tenure has been established.

The ability of foreign development assistance to insulate autocratic and hybrid elites from the internal forces of leader turnover also raises serious questions for policymakers. The ability of aid to protect these leaders from internal challenges supports arguments against the provision of foreign aid (Friedman 1958; Tilly 1990; Brautigam 1992; Svensson 2000; Brautigam and Knack 2004). Fungibility may also explain findings that donor goals of democratization (Knack 2004) and human rights improvements fail to be achieved (Regan 1995).

While research on this topic continues, allocation of development assistance is not likely to pause and await our final conclusions. In the meantime, policymakers would be well-advised to reconsider the merit of political leaders who receive aid monies. The findings reported here suggest leaders may only be as good as the institutions within which they operate. To make

good foreign policy we must consider the institutional incentives of elites on the receiving end. For donors interested in the democratization and political progress of hybrid and autocratic regimes, aid may be an inappropriate policy tool. Rather, it may be necessary to hold off on the delivery of assistance until serious political reform has already taken place. Leaders in working democracies have neither the incentive nor the ability to get away with diverting public monies to private benefit.

¹ This figure is reported in constant US dollars adjusted for inflation.

² Only one democratically elected leader in my dataset immediately received less aid than his predecessor: Cardoso of Brazil (1995-2000) received 10 million US dollars less than Franco (1992-1994).

³ The Cox model is often preferred because it does not impose a strict assumption about the shape of duration dependence in the data the way that simpler parametric models do.

⁴ As noted by Kam and Franzese (2007, 8-10), institutional conditioning is one of the most common theoretical justifications for specifying interactive models.

⁵ Because the log of a fraction is a negative number, the actual measure used is the sum of the natural log of aid dependence and the minimum value of the natural log of aid dependence. This creates an intuitive scale where larger numbers correspond to larger amounts of aid.

⁶ Alternative specifications, including a measure using only grants and loan forgiveness, provide similar results and stronger support for the hypotheses.

⁷ Descriptive statistics for all included variables are available in supplemental material.

⁸ Results of the Schoenfeld residuals test are available in supplemental material.

⁹ Significant scores on the Schoenfeld residuals test indicate only that the effect of a variable change over time. While this is consistent with the argument above, it does not rule out alternative mechanisms. Determining the actual mechanism would require careful case studies or statistical analyses of rich country-level data which are not feasible at the present time.

¹⁰ The first differences approach bypasses the difficult calculation of the marginal impact in the Cox model without losing the intuitive, graphical approach recommended for proper interpretation of interactive effects (c.f. Brambor, Clark and Golder 2005). The percent change in hazard can be calculated as suggested by Box-Steffensmeier and Jones (2004, 60) with the following formula: $\% \Delta h(t) = \frac{(\exp(\mathbf{X}\boldsymbol{\beta}^h) - \exp(\mathbf{X}\boldsymbol{\beta}^l))}{\exp(\mathbf{X}\boldsymbol{\beta}^l)} * 100$, where $\mathbf{X}\boldsymbol{\beta}^h$ and $\mathbf{X}\boldsymbol{\beta}^l$ indicate the linear prediction calculated at two different values of the independent variable of interest and all other variables are held constant at means or modes.

¹¹ The calculation of these first differences was carried out using the formula in note 10. After estimating the aid dependence model, I constructed a dataset which contained 2000 observations for each percentile of time, set the

control variables to their mean values, and drew a sample of beta estimates from the variance-covariance matrix of the regression. I then calculated the percent change in the hazard rate as a hypothetical autocratic leader moved from receiving no aid to the mean amount of aid. Seventy-five percent of all cases in the original dataset receive this amount or less. Figures 2 and 3 were produced analogously.

¹² The point at which aid's impact on tenure reverses is retrieved using the following calculation: $\exp(\beta_1/\beta_2)$, where β_1 is the coefficient for aid and β_2 is the coefficient for the interaction of aid and time (Box-Steffensmeier and Zorn 1998, 17). The solution is given in days.

¹³ Lai (2003) does find that the U.S. is more likely to send aid to democratic leaders whose countries are experiencing economic instability in the hopes of propping up democratic regimes. Most investigation of aid allocation suggests that broad geopolitical issues, colonial legacies and domestic institutions rather than leader risks drive aid decisions (Bueno de Mesquita and Smith 2007; Kuziemko and Werker 2006; Lai 2003; Alesina and Dollar 2000).

¹⁴ Results tables for these alternative specifications are available in supplementary material.

References

- Alesina, Alberto and David Dollar. (2000) "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth*, 5(1): 33-63.
- Bienen, Henry and Nicolas van de Walle. (1992) "A Proportional Hazard Model of Leadership Duration." *Journal of Politics*, 54(3): 685-717.
- Boone, Peter. (1995) *Politics and the Effectiveness of Foreign Aid*. London: Center for Economic Performance.
- Box-Steffensmeier, Janet and Christopher J.W. Zorn. (1998) "Duration Models and Proportional Hazards in Political Science, v 1.9". Paper prepared for presentation at the Annual Meeting of the Midwest Political Science Association, April 23-25, 1998, Chicago, Illinois.
- ____ and Bradford S. Jones. (2004) *Event-History Modeling: A Guide for Social Scientists*. Cambridge: Cambridge University Press.
- Brautigam, Deborah. (1992) "Governance, Economy, and Foreign Aid". *Studies in Comparative International Development* 27(3):3-25
- ____ and Stephen J. Knack. (2004) "Foreign Aid, Institutions and Governance in Sub-Saharan Africa." *Economic Development and Cultural Change*, 52: 255-85.
- Bueno de Mesquita, Bruce, James D. Morrow, Randolph M. Siverson and Alastair Smith. (1999) "An Institutional Explanation of the Democratic Peace." *American Political Science Review*, 93(4): 791-807.
- ____ and Randolph M. Siverson. (1995) "War and the Survival of Political Leaders: A Comparative Study of Regime Types and Political Accountability". *American Political Science Review*, 89(4): 841-55.

- ___ and Alastair Smith. (2007) "Foreign Aid and Policy Concessions". *Journal of Conflict Resolution*, 51(2): 251-84.
- ___, Alastair Smith, Randolph M. Siverson and James D. Morrow. (2005) *The Logic of Political Survival*. Michigan: MIT Press.
- Chiozza, Giacomo and Ajin Choi. (2003) "Guess Who Did What." *Journal of Conflict Resolution*, 47(3): 251-278.
- _____ and H.E. Goemans. (2003) "Peace through Insecurity: Tenure and International Conflict." *Journal of Conflict Resolution*, 47(4): 443-467.
- _____. (2004) "International Conflict and the Tenure of Leaders: Is War Still *Ex Post* Inefficient?" *American Journal of Political Science*, 48(3): 604-619.
- Epstein, David L., Robert Bates, Jack Goldstein, Ida Kristensen, and Sharyn O'Halloran. (2006) "Democratic Transitions." *American Journal of Political Science*, 50(3): 551-569.
- Friedman, M. (1958) "Foreign Economic Aid: Means and Objectives". *Yale Review* 47(4):500–516.
- Gates, Scott, Havard Hegre, Mark P. Jones and Havard Strand. (2006) "Institutional Inconsistency and Political Instability: Polity Duration, 1800-2000." *American Journal of Political Science*, 50(4): 893-908.
- Ghosn, Faten, Glenn Palmer, and Stuart Bremer. 2004. "The MID3 Data Set, 1993–2001: Procedures, Coding Rules, and Description." *Conflict Management and Peace Science* 21:133-154.
- Gleditsch, Kristian. (2002) "'Expanded Trade and GDP Data," *Journal of Conflict Resolution*, 46: 712-24.

- Goemans, Hein, Kristiean Skrede Gleditsch and Giacomo Chiozza. (2006) "Archigos: A Data Set of Leaders, 1875-2004."
- Horowitz, Michael, Rose McDermott and Allan C. Stam. (2005) "Leader Age, Regime Type and Violent International Relations." *Journal of Conflict Resolution*, 49(5): 661-685.
- Kam, Cindy D. and Robert J. Franzese, Jr. (2007) *Modeling and Interpreting Interactive Hypotheses in Regression Analysis*. Ann Arbor: University of Michigan Press.
- Knack, Stephen. (2001) "Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests." *Southern Economic Journal*, 68(2): 310-29.
- _____. (2004) "Does Foreign Aid Promote Democracy?" *International Studies Quarterly*, 48(1): 251-266.
- Kosack, Stephen and Jennifer Tobin. (2006) "Funding Self-Sustaining Development: The Role of Aid, FDI and Government in Economic Success." *International Organization*, 60(1): 205-243.
- Kuziemko, Ilyana and Erik Werker. (2006) "How Much is a Seat on the Security Council Worth? Foreign Aid and Bribery at the United Nations". *Journal of Political Economy*, 114(5): 905-930.
- Lai, Brian. (2003) "Examining the Goals of US Foreign Assistance in the Post-Cold War Period: 1991-96". *Journal of Peace Research*, 40(1): 103-128.
- ____ and Dan Reiter. (2005) "Rally 'Round the Union Jack? Public Opinion and the Use of Force in the United Kingdom, 1948-2001". *International Studies Quarterly*, 49(2): 255-72.
- ____ and Daniel Morey. (2007) "Impact of Regime Type on the Influence of U.S. Foreign Aid". *Foreign Policy Analysis*, 2(4): 385-404.

- Levitsky, Steven and Lucan A. Way. (2002) "The Rise of Competitive Authoritarianism."
Journal of Democracy, 13(2): 51-65.
- Levitsky, Steven and Lucan A. Way. (2005) "International Linkage and Democratization."
Journal of Democracy, 16(3): 20-34.
- Linz, Juan J. and Alfred Stepan. (1996) *Problems of Democratic Transition and Consolidation*.
Baltimore: John Hopkins University Press.
- Londregan, John B. and Keith T. Poole (1990). "Poverty, the Coup Trap, and the Seizure of
Executive Power." *World Politics* 42:2 (January), 151-183.
- Marinov, Nikolay. (2005) "Do Economic Sanctions Destabilize Country Leaders?" *American
Journal of Political Science*, 49(3): 564-576.
- Marshall, Monty G. and Keith Jagers. (2003) "Polity IV Project: Political Regime
Characteristics and Transitions, 1800-2002." College Park: University of Maryland.
- Masunungure, Eldred, Anyway Ndapwadza, Nomaqwahe Sibanda and Ethel Muchana. (2007)
"National Integrity Systems Country Report: Zimbabwe". Transparency International.
- McGillivray, Fiona and Alastair Smith. (2006) "Credibility in Compliance and Punishment:
Leader Specific Punishments and Credibility." *Journal of Politics*, 68(2): 248-58.
- Mitchell, Sara McLaughlin and Brandon Prins. (2004) "Rivalry and Diversionary Uses of
Force". *Journal of Conflict Resolution*, 48(6): 937-61.
- Mueller, John. 1971. "Trends in Popular Support for the Wars in Korea and Vietnam." *American
Political Science Review*. 65(2): 358-375.
- Ostrom, Charles W. and Brian L. Job. (1986) "The President and the Political Use of Force".
American Political Science Review, 80(2): 541-66.

- Pack, Howard and Janet Rothenberg Pack. (1993) "Foreign Aid and the Question of Fungibility". *The Review of Economics and Statistics*, 75(2): 258-265.
- Regan, Patrick M. (1995) "U.S. Economic Aid and Political Repression: An Empirical Evaluation of U.S. Foreign Policy." *Political Research Quarterly*, 48(3): 613-628
- United States Department of State. (2007) "Background Note: Pakistan."
- Singer, H. W. (1965) "External Aid: For Plans or Projects?" *The Economic Journal*, 75(299): 539-45.
- Svensson, Jakob. (2000) "Foreign Aid and Rent-Seeking." *Journal of International Economics*, 51: 437-461.
- Tilly, C. (1990) *Coercion, Capital and European States, A.D. 990–1990*. Oxford: Basil Blackwell.
- Wrong, Michela. (2007) "Mystery of Mobutu's Millions". *The New Statesman*. 30 July 2007, 22.
- Yambayamba, Kavwanga E.S. (2007) "National Integrity Systems Country Report: Zambia". Transparency International.

Table 1. NPH Cox Regression for Survival in Office

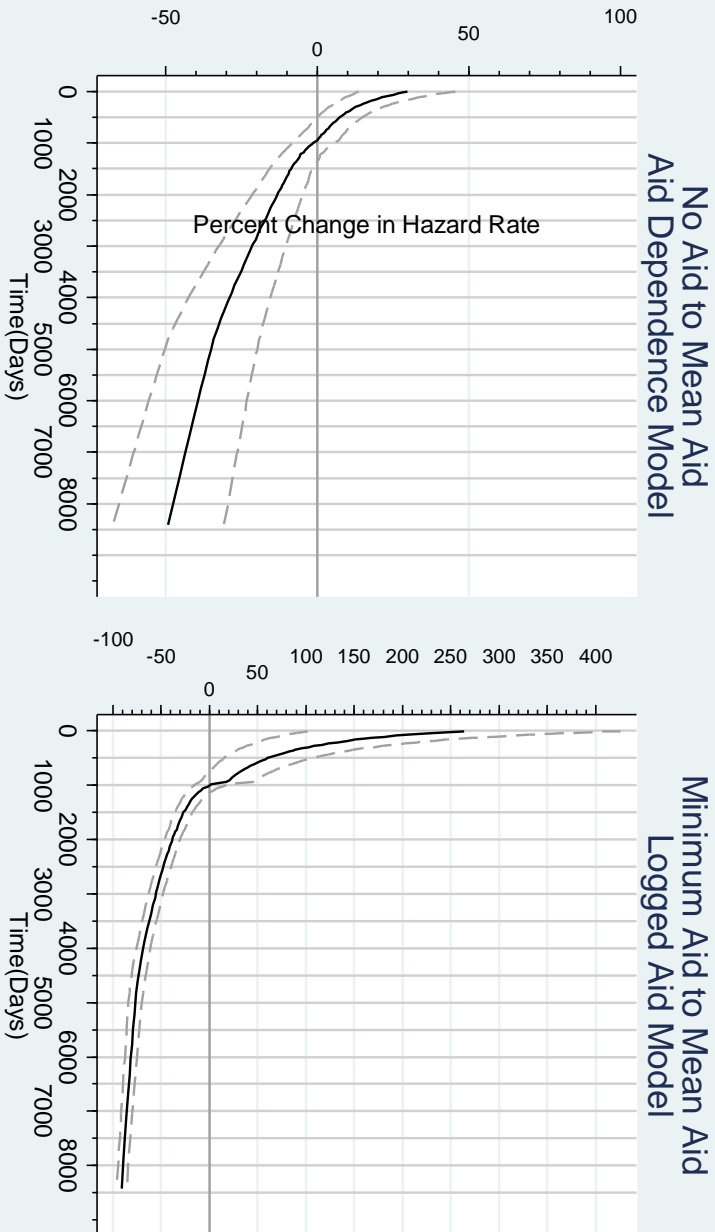
	<i>Democrat Reference</i>	<i>Hybrid Reference</i>	<i>Autocrat Reference</i>
<i>Aid</i>	22.882 (18.545)	193.843*** (28.895)	49.829*** (8.473)
<i>Aid*ln(time)</i>	-3.928 (2.659)	-31.410*** (4.399)	-8.267*** (1.477)
<i>Autocrat</i>	5.346*** (0.421)	5.908*** (0.623)	--
<i>Autocrat*ln(time)</i>	-0.890*** (0.061)	-0.907*** (0.085)	--
<i>Hybrid</i>	4.420*** (0.493)	--	1.111** (0.443)
<i>Hybrid*ln(time)</i>	-0.708*** (0.074)	--	-0.117* (0.066)
<i>Democracy</i>	--	3.149*** (0.652)	-0.791* (0.427)
<i>Democracy*ln(time)</i>	--	-0.409*** (0.090)	0.210*** (0.061)
<i>Autocrat*Aid</i>	-5.345 (20.812)	-179.886*** (30.689)	--
<i>Autocrat*Aid*ln(time)</i>	0.779 (3.050)	28.941*** (4.686)	--
<i>Hybrid*Aid</i>	-2.649 (31.999)	--	-27.687 (27.685)
<i>Hybrid*Aid*ln(time)</i>	-1.228 (4.737)	--	3.466 (4.150)
<i>Democracy*Aid</i>	--	-230.110*** (34.439)	-89.608*** (20.479)
<i>Democracy*Aid*ln(time)</i>	--	36.265*** (5.116)	13.682*** (2.994)
<i>Lagged Economic Growth</i>	-1.510** (0.628)	-1.463** (0.622)	-1.129* (0.628)
<i>Lagged GDP</i>	0.003 (0.006)	0.003 (0.006)	0.004 (0.006)
<i>Change in Democracy Score</i>	0.045*** (0.009)	0.039*** (0.009)	0.037*** (0.010)
<i>Change in Democracy Score*ln(time)</i>	-0.008*** (0.001)	-0.007*** (0.001)	-0.007*** (0.002)
<i>Logged Population</i>	0.051** (0.022)	0.035 (0.022)	0.032 (0.022)
<i>Leader Age</i>	0.320*** (0.016)	0.295*** (0.012)	0.323*** (0.012)
<i>Leader Age*ln(time)</i>	-0.046*** (0.002)	-0.042*** (0.002)	-0.046*** (0.002)
<i>-2(log likelihood)</i>	-5728.93	-5765.73	-5836.41
<i>Wald χ^2 Test (df=17)</i>	1488.93***	1415.33***	1273.97***

N = 6,573 leader years from 1960-2000

Estimates reported as coefficients from Cox model: positive numbers indicate an increase in the hazard rate, implying a decrease in survival time; negative numbers indicate a decrease in the hazard rate, implying an increase in survival time. Standard errors in parentheses

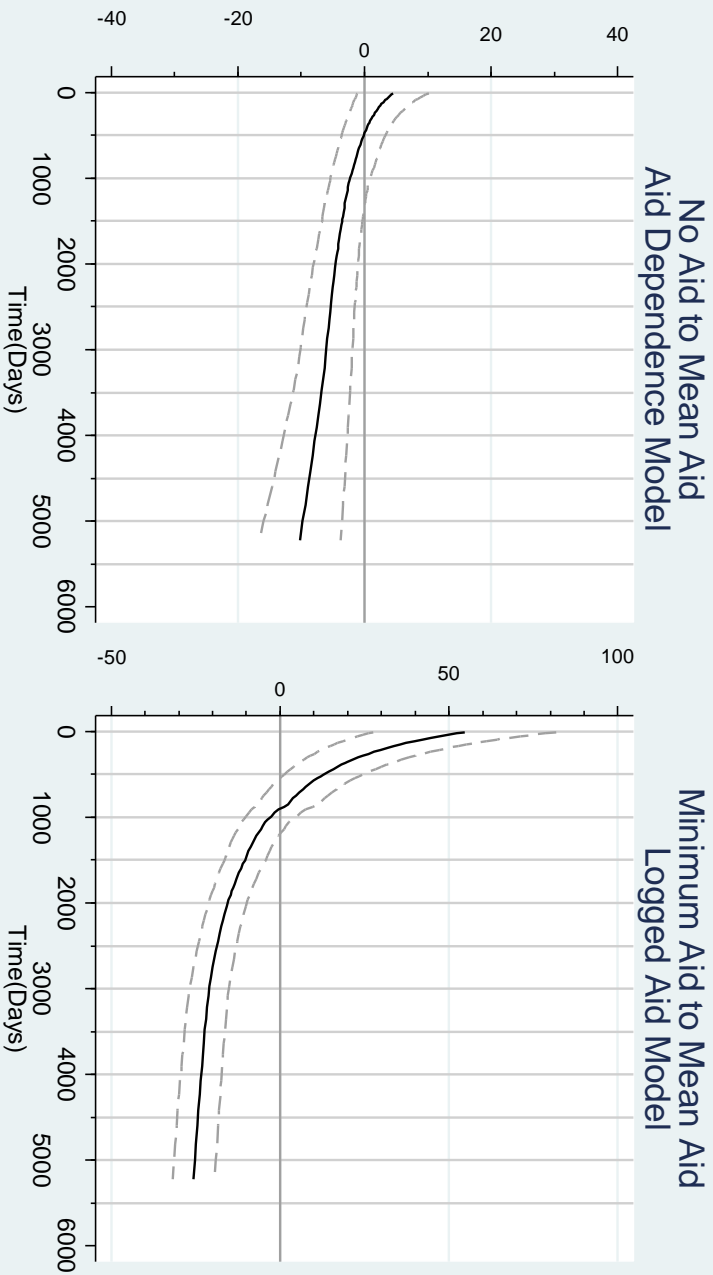
* significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1. First Differences for Autocratic Leaders



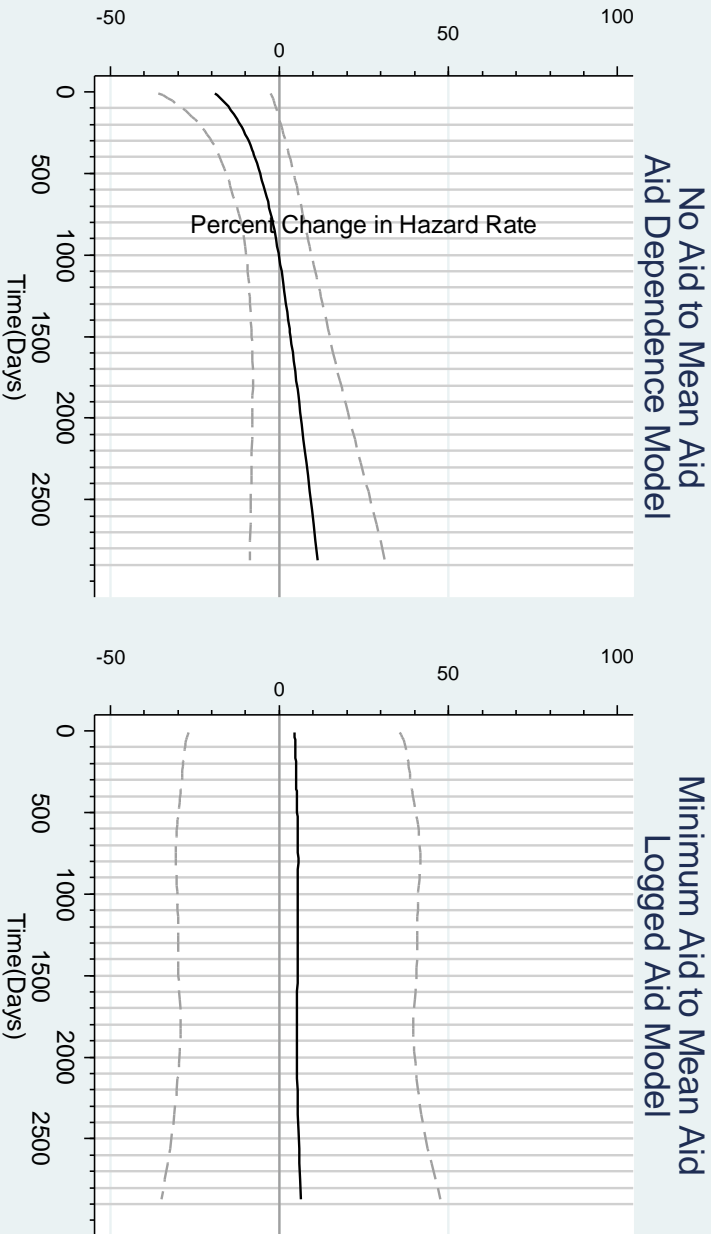
NOTE: Series have been smoothed using lowess moving average method. Scales differ across panels. Calculations are carried out to the 90th percentile of failure times for democratic leaders. As differences are calculated within percentiles of failure time, those farther from the mean failure time are less precise.

Figure 2. First Differences for Hybrid Leaders



NOTE: Series have been smoothed using lowess moving average method. Scales differ across panels. Calculations are carried out to the 90th percentile of failure times for democratic leaders. As differences are calculated within percentiles of failure time, those farther from the mean failure time are less precise.

Figure 3. First Differences for Democratic Leaders



NOTE: Series have been smoothed using lowest moving average method. Scales differ across panels. Calculations are carried out to the 90th percentile of failure times for democratic leaders. As differences are calculated within percentiles of failure time, those farther from the mean failure time are less precise.