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Democracy and Education Spending in Africa

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While it is widely believed that electoral competition influences public spending decisions, there has been relatively little effort to examine how recent democratization in the developing world has resulted in changes in basic service provision. There have been even fewer attempts to investigate whether democracy matters for public spending in the poorest developing countries, where "weak institutions" may mean that the formal adoption of electoral competition has little effect on policy. In this paper I confront these questions directly, asking whether the shift to multiparty competition in African countries has resulted in increased spending on primary education. I develop an argument, illustrated with a game-theoretic model, which suggests that the need to obtain an electoral majority may have prompted African governments to spend more on education, and to prioritize primary schools over universities within the education budget. I test three propositions from the model using panel data on electoral competition and education spending in African countries. I find clear evidence that democratically elected African governments have spent more on primary education, while spending on universities appears unaffected by democratization.

1. Introduction

At the time of the African democracy movements of the early 1990s opinions varied widely about the effect of democratization on economic performance and on economic policy. While some authors predicted that democracy would be associated with major economic changes, other observers were less optimistic, suggesting that the formal trappings of multiparty democracy would have only a limited impact. With several years of hindsight, we can begin to ask whether and how policies adopted by elected African governments have actually differed from those pursued by authoritarian regimes. African countries represent an important set of cases for scholars interested in investigating whether democratic transitions can have an impact on policy even in "weakly-institutionalized polities" where democratic rules may be imperfectly respected, and where policy choices may depend primarily upon patron-client relationships. In this paper I ask whether the move to multiparty electoral competition that took place in many African countries during the 1990s has prompted governments to spend more on primary education.

This paper contributes to a small but growing literature that examines whether democracies behave differently from their authoritarian counterparts when it comes to the provision of public services. Work by Brown and Hunter (1999), Kaufman and Segura-Ubiergo (2001), and Ames (1987) has found that democracies in Latin America tend to spend more on items like education and health than do autocracies. Brown and Hunter (2004) have found that Latin American democracies have spent more on primary education in particular. Examining a broader sample, Lake and Baum (2001) find that democratically elected governments provided significantly higher levels of basic services.[1] In a follow-up piece, Baum and Lake (2003) show that precisely because basic services like health and education lead to accumulation of human capital, democracy has an important indirect effect on growth. My paper contributes to this existing body of research in two ways. First, it

[1] See also Fardmaneshi and Habibi (2000) and Avelino, Brown and Hunter (2001).

focuses on a group of the poorest developing countries (i.e. those in Africa) where it is commonly suggested that "neopatrimonial" forms of rule imply that the formal institutions of democracy are less important for determining outcomes than are personal relationships. Second, I examine not only whether democracy has given rulers an incentive to provide more public services for society as a whole, I also focus directly on distributional conflicts between social groups, asking whether democracy has resulted in certain groups receiving a larger increase in social spending than others. In this way my approach is related to that of Bueno de Mesquita, Morrow, Siverson, and Smith (2003, 2002) who also consider both the incentives for leaders to provide public goods, as well as distributional conflicts over spending.

The logic underlying my argument is that contested elections may have prompted African governments to be more responsive to the demands of the rural groups that form the majority of citizens in almost all African countries. Under authoritarian regimes, in contrast, rulers will need to be relatively more responsive to urban groups, which can present a more credible threat of political unrest, following Bates (1981). There are strong reasons to believe that when compared with urban groups, rural groups in Africa are more concerned with spending on primary education, relative to tertiary education. I formalize the argument using a game-theoretic model that helps identify three testable hypotheses; multiparty competition should lead to higher overall education spending, higher spending on primary education, and an unchanged level of spending on universities.

After briefly reviewing evidence from country cases, I test my hypotheses using time-series cross-section data covering 44 African countries over the period 1980-1996. The results show that when they are subject to multiparty competition, African governments have indeed tended to spend more on education, and more on primary education in particular, while not altering funding to universities. As a result, democracy has resulted in increased overall service provision while also having a distributional impact between social groups. This finding with respect to universities is

somewhat surprising given that university students were at the forefront of African pro-democracy movements during the early 1990s. My results are statistically significant in OLS estimates and in fixed effects estimates that control for unobserved country effects. My results are robust to the inclusion of a number of control variables, and I also consider a number of potential biases including serial correlation, failure to control for electoral fraud, and the possibility that democracy may itself be endogenous to education provision. Finally, given the large number of missing observations for education spending in my dataset, I also considered the possibility of sample selection bias. I repeat all of my specifications using multiple imputation estimates where unobserved values for education spending were imputed using the AMELIA program developed by Honaker et al (2003) and King et al (2001). In both my listwise deletion estimates in Section 5 and my multiple imputation estimates in Section 6, the effect of electoral competition is statistically and substantively significant. A move to multiparty competition is estimated to result in an increase in overall education expenditures by 1.1% GDP in the both sets of estimates (based on the OLS regressions).

If my hypotheses about the effect of electoral competition are accurate, then one would logically expect that democracy will be associated not only with spending on education, but also with education outcomes, such as the percentage of children completing primary school. I have not explored this observable implication in this paper, because African country coverage for primary completion rates is significantly sparser than for education spending. It is worth noting, though, that available data show the completion rate is highly correlated with spending on primary education in %GDP (pairwise correlation coefficient of 0.66). If data availability improves in the future, then this would be an important subject for future research. Likewise, another subject for future research would be to examine whether democratically elected African governments have also tended to pursue agricultural policies or health spending policies that cater to rural majorities. Rather than extending my inquiry to include these additional policy areas, in this paper I have concentrated on

presenting as robust a series of statistical tests as possible to ascertain whether there is a link between multiparty electoral competition and education spending.

In the remainder of the paper I first proceed in section 2 by considering theoretical arguments about the link between electoral competition and public spending. Section 3 then considers evidence from several recent country cases. Section 4 presents cross-country data on education expenditures and political competition, and Section 5 presents my listwise deletion estimates of the effect of electoral competition on education spending. Section 6 presents my multiple imputation estimates. Section 7 considers robustness issues, and Section 8 concludes

2. Electoral competition and education spending

My hypotheses about education spending result from two simple arguments about democracy. First, democratically elected governments may have a greater incentive than autocrats to provide public services for the population as a whole. Second, they may also place a higher priority on providing those services demanded by a majority of the population, placing less priority on services preferred by minorities. These two arguments depend on the assumption that governments in political systems with competitive elections face fundamentally different threats to their rule when compared with autocratic governments. In an autocracy, the principal risk for a leader is that he or she will be overthrown by force. In contrast, in countries where there are free elections contested by multiple candidates, rulers may still fear losing office through force, but they also need to anticipate the possibility of being voted out of office. In the terminology used by Bueno de Mesquita et al. (2003, 2002) elected leaders tend to be chosen by a larger "selectorate" and require a larger "winning coalition" than is the case with autocrats. Because democratically elected governments are more accountable to a broad public in this manner, Lake and Baum (2003, 2001) argue that they will have a greater incentive to provide public services, rather than spending on "rents". Democracy may also have consequences for the distribution of spending between groups of citizens, towards electoral

majorities and away from minorities. So, for example, Brown and Hunter (2004) argue that democratically elected governments may have an incentive to steer greater resources towards primary education, because a broader segment of voters will benefit from spending in this area.

While the above arguments suggest why a transition to democracy might result in significant changes in public service provision, one might doubt whether the formal establishment of multiparty competition will make a difference for service provision in some countries. Acemoglu, Robinson, and Verdier (2003) have recently argued that many of the poorest developing countries, notably in Africa, are characterized by "weakly-institutionalized polities", where the formal institutions of democracy "neither place significant restrictions on politicians' actions nor make them accountable to citizens." Likewise, much of the literature on African politics since the 1990s has continued to emphasize the "neopatrimonial" nature of governance where decisions depend upon patron-client relationships between individuals, rather than resulting from the outcome of electoral competition between political parties proposing different policy platforms. Callaghy (1993) launched an early caution against the assumption that political reform in African countries would necessarily result in fundamental changes in economic policies.[2] Van de Walle (2003, 2001) argues that democratization in Africa has not yet resulted in a fundamental shift in the types of political pressures that African leaders face, yet it may eventually trigger changes in policy.

Given that the majority of electors in almost all African countries live in rural areas, if democracy does matter, then one might expect politicians to become more responsive to the demands of rural groups when they are subject to electoral competition. In contrast, in African countries where governments are not obliged to compete in free elections, there may be a stronger incentive to cater to the demands of urban groups. It is commonly argued that urban African groups have greater influence than rural groups under an autocratic government, because they find it easier

[2] See the discussions from this period in Ake (1996), Herbst (1993), Lewis (1996) and Widner (1993).

to organize and protest against government policies than do those who live in rural areas. In a seminal contribution, Bates (1981) argued that rural groups in Africa face greater costs of collective action because they tend to be distant from a country's capital, they are geographically separated, and they are frequently divided by language and/or ethnicity. Urban groups in contrast, have the advantage of being more geographically concentrated. According to Bates, differential costs of collective action between urban and rural groups helped explain why the economic policies adopted by African governments during the 1960s and 1970s tended to exhibit an urban bias.

While Bates (1981) did not directly consider education spending, his theory has clear predictions for this area of government policy. To the extent that urban groups in Africa tend, on average, to have more years of schooling than their rural counterparts, they are more likely to be concerned about government spending on secondary schools and universities, as well as spending on primary schools. Rural groups, on the other hand, should place much greater weight on primary school spending alone, because in most cases this is the only formal schooling they are likely to receive. When one turns to explaining which of these African social groups will have more influence on education spending, it is important to note that university students in a number of African countries have historically been quite willing to demonstrate publicly against governments whose policies they oppose. In fact, university students were at the forefront of pro-democracy movements in a number of African autocracies after 1989 (Bratton and van de Walle, 1997). The same can hardly be said for primary school students, or those groups favorable to spending on primary education more generally. These factors suggest that education spending in autocratic African countries will be biased against primary education. Evidence of skewed education policies in African countries is readily available; during the 1980s, when almost all African governments were autocratic, the ratio between public education spending per university student and spending per primary school student was significantly higher in Sub-Saharan Africa than in other regions (Pradhan, 1996).

We can expect that democracy in African countries will trigger increased spending on primary education, to the extent that it gives governments an increased incentive to cater to a rural majority that is primarily concerned with primary education. However, this argument does depend on a number of assumptions. First of all, the national level of education spending must be a salient issue for voters. This would not be the case if voting choices depend exclusively on regional and/or ethnic affiliation.[3] A second assumption crucial to the argument is that candidates must face incentives to implement promises regarding education spending once elected, based on the anticipation that doing otherwise will result in future electoral sanctions. The case study evidence I present in Section 3 suggests that these assumptions have been fulfilled in Uganda but not in Malawi.

If democracy prompts governments to cater to majority interests favoring primary education spending, it is not clear without further specification whether electoral competition will lead to increased, decreased, or unchanged spending on universities. As I show below, this prediction depends on one's assumption about the source of influence for those advocating university spending. If university students influence governments primarily through street demonstrations, and they have equal ability to launch successful protests under autocracy and democracy, then one would expect university spending to be unchanged. This is a plausible assumption for African countries. If, in contrast, a shift to democracy lifts constraints on students acting as a vocal lobby, then one might actually expect spending to increase under democracy (Brown and Hunter, 2004).

Formalizing the argument

In what follows I provide a brief formalization of my core arguments. This formalization helps to identify specific testable hypotheses, in particular showing when we would expect the

[3] See Posner (2004b), Posner and Simon (2002), van de Walle (2003), Wantchekon (2003), and Norris and Mattes (2003) on ethno-regional affiliation, clientelism, and voting in African elections.

introduction of electoral competition to result in increased spending on primary education while leaving spending on universities unchanged.

Consider a society divided into two types of citizens: those from rural areas and those from urban areas, with the rural group forming a majority. In this society decisions must be made between devoting available revenues to primary education p to university education u and to a third category of expenditures x which represent "rents" for an incumbent policymaker. The distribution of expenditures must meet an exogenous revenue constraint (normalized to unity) as presented in equation (1) below. Citizens from rural areas prefer revenues to be spent on primary schools, citizens from urban areas prefer revenues to be spent on university education, and both groups have a quadratic loss function, as shown in (2) and (3). The assumption that each group cares only about one type of education spending is made for simplicity, and the results can continue to hold under a more complex specification. The loss function of the incumbent policymaker is shown in (4). The incumbent cares about "rents" derived from use of revenues x, as well as about a second parameter L. In the case that the incumbent loses an election or is otherwise unseated from office, the parameter L reflects foregone benefits involving prestige, and any other personal benefit from holding office that does not derive from consumption of government revenues. These assumptions could be relaxed to allow the incumbent to prefer a non-zero level of education spending.

$$p + u + x = 1 \tag{1}$$

$$L_{rural} = (1 - p)^2 \tag{2}$$

$$L_{urban} = (1 - u)^2 \tag{3}$$

$$L_{incumb} = (1 - x)^2 + L \tag{4}$$

I distinguish between two different scenarios for policy choice. In the case *without* electoral competition the incumbent faces the risk of being overthrown if urban groups are sufficiently

dissatisfied with the chosen spending policy. If urban groups choose to revolt, then with probability *q* their revolt is successful, the incumbent is unseated, and all revenues are spent on university education. The parameter *q* is common knowledge. With probability *1-q* the revolt fails, urban groups receive disutility of 1, and then the incumbent's spending policy is maintained. In the case *with* electoral competition the incumbent still faces the risk of being overthrown through unrest, but he or she now also faces a challenge from another candidate. The challenger has the same loss function as the incumbent.[4] I also assume for simplicity that the incumbent does not have the option of choosing whether to accept electoral competition. This would be justified to the extent that a democratic transition in a country was driven by outside actors or outside trends, as seems plausible for much of the wave of democratization in Africa since the end of the Cold War. In the case *with* electoral competition, since rural voters are assumed to make up the majority, the expenditure proposal that minimizes their expected loss will win the election. In the case where challenger and incumbent propose the same policies, the election is decided by a coin toss. The sequence of play in the two scenarios is as follows.

Without electoral competition	**With electoral competition**
1. The incumbent chooses a distribution of expenditures	1. The incumbent proposes a distribution of expenditures
2. Urban groups can opt to revolt.	2. A challenger proposes a policy.
	3. An election occurs and the winner's proposal is implemented.
	4. Urban voters can opt to revolt.

Take first the case without electoral competition. Here the preferences of rural citizens are irrelevant for the incumbent, because there is no risk of being unseated in an election, and rural

[4] Election outcomes where there is a threat of unrest have previously been modeled by Ellman and Wantchekon (2000) and Acemoglu and Robinson (2001).

citizens do not possess an option of revolting. At stage 1 the incumbent faces two options: either spend all revenues on rents and run the risk of a revolt, or compromise by offering urban citizens their reservation payoff. This is the minimum level of spending on universities necessary to dissuade them from revolting. Given that the urban group's expected loss from revolting is 1-*q*, their reservation constraint will be satisfied as long as $u \geq 1-(1-q)^{\frac{1}{2}}$. It will always be equilibrium behavior for the incumbent to pursue the compromise strategy. We can conclude that without electoral competition the incumbent will choose the following equilibrium spending allocation – spend nothing on primary education, spend $1-(1-q)^{\frac{1}{2}}$ on university education, and keep $(1-q)^{\frac{1}{2}}$ for rents.

In the case *with* electoral competition, incumbent politicians still face a potential risk of being unseated by revolt, but they also must consider the risk of losing the election. The election will be won by the candidate whose proposal provides a lower expected utility loss for rural voters, given that they are in the majority. The key question, then, is whether at stage 3, rural voters would prefer a proposal that gives them their ideal policy p=1, or alternatively, whether they would prefer a compromise proposal that provides urban voters with their reservation payoff and then devotes remaining revenues to primary schools (in equilibrium electoral competition will drive spending on rents to 0). It will always be equilibrium behavior for both candidates to make the compromise proposal: $\{p=(1-q)^{\frac{1}{2}}, u=1-(1-q)^{\frac{1}{2}}, x=0\}$. A comparison of the equilibrium spending outcomes with and without electoral competition leads to the following three hypotheses.

Hypothesis 1: Primary school spending will be higher under electoral competition.

I will test this hypothesis by examining whether multiparty electoral competition is correlated with higher spending on primary schools, measured relative to GDP and relative to total spending.

Hypothesis 2: Spending on universities will not depend on electoral competition.

Given the above assumptions, urban voters concerned with spending on universities can influence policy even in a non-democratic context, but a shift to multiparty competition will not increase their influence. As a consequence, spending on universities remains unchanged.

Hypothesis 3: Total education spending will be higher under electoral competition.

This result depends on the fact that competition between incumbent and challenger will prompt them to reduce spending on rents to zero.

3. Evidence from recent African elections

Though the main empirical tests presented in this paper use cross-country data, more detailed evidence from individual African election campaigns can also be used to reinforce the plausibility of the statistical findings. This section briefly reviews recent experience in Uganda and Malawi with respect to elections and primary education. The case studies also help identify important differences between countries that the cross-country quantitative tests cannot capture, given available data. In particular, the contrast between Uganda and Malawi suggests that when voters split sharply along regional lines, election winners may have less of an incentive to deliver on national issues like universal primary education.

Uganda since 1996 is a clear case of an African country in which the establishment of multi-candidate elections has helped result in a reorientation of government spending towards primary education. Despite the atypical aspect of Uganda's "no-party democracy", where political parties exist but cannot officially campaign for candidates, the country's 1996 presidential election was a hotly contested one, which saw the incumbent, Yoweri Museveni, challenged by Paul Ssemogerere, the leader of Uganda's Democratic Party.[5] As part of a series of manifesto commitments, Museveni

[5] See Stasavage (2004) for a more complete discussion.

promised if elected to implement a Universal Primary Education (UPE) program that would abolish primary school fees for four children in every family. Though this promise was not initially intended to be the centerpiece of Museveni's campaign, it received a very favorable response from the electorate. The popularity of the UPE program provides one plausible explanation why Museveni was able to win the election by a large margin, attracting 74% of the vote, and even outpolling Ssemogerere in the opposition candidate's own region of Buganda.[6] This was certainly the conclusion drawn by many of Museveni's close advisors, as they subsequently urged Ugandan Ministry of Finance officials to find the necessary funds to finance the UPE program, arguing "we won the election because of the UPE pledge, so we have to come up with the money for it."[7] Since 1996, the Ugandan government has significantly reoriented expenditures toward primary education, and there is clear evidence that performance in the area of education provision has contributed to Museveni's overall popularity (Bratton, Lambright, and Sentamu, 2000).

In Malawi in 1994, as in Uganda in 1996, the winning candidate in a presidential election moved soon after his victory to abolish primary school feels. The Malawian government also moved quickly to spend more on primary education in order to compensate for the loss of fees. Primary education spending as a percentage of GDP jumped from 1.5% in 1994 to 2.6% in 1995. However, unlike in Uganda, the Malawian government failed to sustain this increased spending, in particular after 1999 when education spending dropped dramatically.[8] There appear to be two possible explanations for this outcome. First, Malawi in the late 1990s suffered from much greater macroeconomic instability than Uganda. The Ugandan UPE pledge of 1996 was in fact preceded by a series of important institutional reforms in the 1990s that led to a dramatic reduction in fiscal

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[6] based on data reported in *The New Vision*, Kampala, May 13, 1996.

[7] Interviews with former Ugandan finance ministry officials, December 2002.

[8] See "Malawi: Public Expenditures, Issues and Options", World Bank.

deficits and inflation (Stasavage and Moyo, 2000). Second, one might also argue that precisely because voting in presidential elections in Malawi has been highly polarized along regional lines, President Muluzi faced less of an incentive to deliver on this issue in order to be re-elected. In the 1994 presidential contest Muluzi won 78% of the vote in Malawi's southern region, but only 27.5% of the vote in the central region, and only 4.5% of the votes in the North.[9] In Uganda in 1996 there was also a clear regional pattern of voting, with President Museveni, receiving his highest share of votes in the west of the country, but Museveni also won over 50% of the vote outside his home region.[10] Given the regional pattern of voting in Malawi, it would seem unlikely that either of President Muluzi's election victories have depended upon his stance on national issues.

4. Data on education and electoral competition

In order to test my three hypotheses, I use data on the different components of education spending compiled by UNESCO, based on reports given by individual African governments. The data is reproduced in the World Bank's *World Development Indicators*. Since there is little if any African education spending data available before the 1980s, in this study I have concentrated on the period 1980-96. It is important to emphasize that the set of observations is not complete. In some cases governments report overall education expenditures but not a detailed breakdown by level of education (primary, secondary, tertiary). In other cases they report on spending for one level of education, but they do not report overall public education expenditures. Finally, in other cases governments report nothing at all. I have compiled data on total education spending for 44 countries for which the average number of annual observations available over the period is 9.

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[9] Results reported by Wiseman (2000). See Posner (1995), Chirwa (1998), and Kaspin (1995) on regionalism in Malawian politics.

[10] based on data reported in *The New Vision*, Kampala, May 13, 1996.

Likewise, data on primary education expenditures is available for 40 countries with an average of 6.7 annual observations per country. Data on university education is available for 35 countries with an average of 5.8 annual observations per country. Table 1 presents summary statistics. It is clear from the above figures that there is a very significant missing data problem when it comes to African education spending. This raises the risk of a bias in my results to the extent that the process determining whether spending is reported is not a random one. As described below, I address this problem by first presenting a series of regressions in Section 5 based on a listwise deletion sample, where those observations for which either the relevant education spending variable or any independent variable is missing are dropped. Then, in Section 6 I construct twenty imputed datasets using the AMELIA program, creating imputed values for all missing observations of both the dependent and independent variables. Multiple imputation estimates are presented using this data.

To measure electoral competition I draw on a dataset compiled by members of the Africa Research Program at Harvard University.[11] The dataset is ideally suited for testing my hypotheses, because it allows for distinguishing those countries where executives were elected in multiparty competition from those countries where executives were not subject to this form of competition. The data collectors created a six step Guttman scale of openness of executive recruitment.

1. No executive exists
2. The executive exists but was no elected
3. The executive was elected but was the only candidate
4. The executive was elected and multiple candidates (but not from multiple political parties) contested the election
5. Multiple parties were able to contest the election but opposition parties chose not to contest the election.
6. Candidates from more than one party competed for the executive elections

[11] http://africa.gov.harvard.edu// See the recent papers that have used this dataset including Bates and Humphreys (2002), Block, Singh and Ferree (2003), and Ferree and Singh (2002).

In the sample used in this study there are three principal groups of country observations. In 30% of country-years there is an executive but no electoral competition (level 2). In a further 40% of country-years there was an executive who was elected in a single candidate election (level 3). Finally, in a further 26% of country-years the executive was elected and candidates from multiple political parties stood in the election (Level 6).[12] I have created a dummy variable *Multiparty competition* which takes a value if 1 if a country falls into the Level 6 group, and 0 otherwise. The hypotheses developed in Section 2 suggest that overall education spending and primary education spending will be higher in countries with multiparty competition while spending on universities will be uncorrelated with this variable. My theoretical model provides no specific argument why countries that have elections but which do not have multiparty competition should have different levels of education spending from those countries with unelected executives. While it might be of interest to also study whether the openness of legislative competition is correlated with education spending, in practice in the sample considered here there were extremely few country cases that had multiparty competition for the executive but not the legislature.[13]

The *Multiparty Competition* variable used in this paper is similar to another recent election-based definition of democracy produced by Przeworski, Alvarez, Cheibub, and Limongi (2000). However, their definition adds an "alternation rule" which is a restriction whereby certain governments that are elected in multiparty competition but which never actually lose an election are classified as authoritarian. The logic behind this rule is that when governments which face multiparty

[12] Level 5 is an empty category, there are only seven observations in Level 1, and only 18 observations in Level 4.

[13] There were a number of cases that lacked single party competition for the executive but where legislators were chosen in multi-candidate elections within a single party. I found no evidence that these countries had different levels of education spending from those without competition.

elections have no real chance of losing, the accountability effect of elections will be weak. Given that in African countries during the 1990s a number of leaders of former one-party regimes have retained power during multiparty elections, application of the alternation rule here would result in a significant reduction of the number of countries classified as having multiparty competition. While the measure used by Przeworski et al (2000) is only available for the period up to 1990, when I modified my measure of *Multiparty Competition* to take account of the alternation rule, I found that the empirical results reported in Section 5 below were largely unchanged. In what follows I have nonetheless retained the measure of *Multiparty Competition* that does not take account of the alternation rule, because in some African cases (such as Uganda) electoral competition has prompted sitting governments to alter their policies even in cases where the ruling party has been in power for some time and has yet to lose an election.

5. Panel estimates of the determinants of education spending

To test my three hypotheses I estimated a series of regressions using three dependent variables: (1) overall public spending on education, (2) public spending on primary education, and (3) public spending on universities. I considered each variable both expressed in percent of GDP, and expressed as a percentage of total government spending.[14] In the regressions in Tables 2-4, each of these spending variables is regressed on several independent variables, including the dummy variable for *Multiparty competition*. My regressions thus test the effect of multiparty competition against all other levels of competition pooled together. This specification best fits my theoretical model. As a control I included a dummy variable for election years in order to distinguish the long-run effects of

[14] This latter measure is useful because changes in relative prices in the economy (between the non-tradeables and tradeables sectors) may lead to apparent changes in spending relative to GDP without a government actually altering its budgetary priorities.

democracy on spending from more short-run effects attributable to electoral cycles. I also included the log of per capita GDP, based on the conjecture that governments in richer countries may tend to spend a greater share of their national income on education. Two other control variables include *% population rural* and *% population under 15*. When the percentage of a country's population under 15 is high, we should expect to see pressures for higher spending on primary education. Since my argument about the distributional effects of education spending emphasizes the importance of an urban/rural divide, it also makes sense to include *% population rural* as a control.

I also include total overseas aid as a control, based on the fact that when negotiating structural adjustment packages, donors in recent years have frequently suggested that governments should privilege primary education. Rather than arguing that aid is directly allocated to education expenditures, given that direct donor financing of public education in Africa was limited during this period, the argument here is that an increased overall reliance on donor financing may prompt a government to pursue expenditure objectives advocated by donors.[15] The variable *Overseas aid* represents total overseas development assistance in percent of GDP (compiled by the OECD).

Unfortunately, no cross-country data is available on the salience of education as an issue, which was found in Section 3 to be an important consideration. I considered one possible proxy by using an index of fractionalization of "politically relevant ethnic groups" constructed by Posner (2004a). This was based on the conjecture that fractionalization might be correlated with the salience of ethnic divisions as political issues (and thus the non-salience of overall primary education provision). However, the effect of democracy on education did not in practice depend on this

[15] This conclusion that direct donor financing of education was limited is supported by evidence from Devarajan, Rajkumar, and Swaroop (1999).

variable, nor was there clear evidence that ethnic fractionalization was significant when entered linearly. As a consequence it was excluded from the final regressions.[16]

Finally, I preferred a static specification here, that does not include a lagged dependent variable due to the large number of dropped observations that this would entail in my incomplete dataset that contains many gaps. The discussion of robustness in Section 7 considers whether my results may be biased by serial correlation of the error terms, concluding against this possibility. In my multiple imputation estimates presented in Section 6 I include a lagged dependent variable, because doing so results in a less significant loss of observations in a complete dataset.

The regressions reported in Table 2 test Hypothesis 3 by considering determinants of total government spending on education. Regression (1) is a pooled OLS estimate which shows that multiparty political competition is positively and significantly correlated with total government spending on education. A move to multiparty competition is estimated to result in an increase of total education spending by 1.1% of GDP. Spending on education does not seem to be significantly different during electoral periods according to these estimates. A set of dummy variables for unobserved year effects was not jointly significant in this specification, and so it was excluded (as was the case for all other regressions).

Regression (2) is a fixed effects model that controls for unobserved country-specific correlates of education spending. The coefficient on *Multiparty competition* remained statistically significant, although it is now smaller in magnitude than in the OLS regressions. The election variable remained insignificant, and the coefficient on *Overseas aid* is actually negative and significant.

[16]The fact that an interaction term (*Multiparty competition*)x(*fractionalization*) was generally not significant is perhaps not surprising. Posner (2004a) himself emphasizes that countries might have similar levels of ethnic fractionalization at the same time that the salience of these divisions varies.

Regressions (3) and (4) repeat the procedure while using as a dependent variable total education spending measured as a share of total government expenditures. In the pooled OLS regression the *Multiparty competition* dummy variable is positive and highly significant. A government subject to multiparty competition is estimated to devote 4.4% more of its total expenditures to education than would otherwise be the case. In the fixed effects model *Multiparty competition* is again highly significant, and only slightly smaller in size. Finally, the coefficient on the *Overseas aid* variable is again negative and is statistically significant in the OLS but not the fixed effects regression.

The Table 3 regressions test Hypothesis 1, using the same specifications as in Table 2 but to investigate the determinants of government spending on primary education. In the pooled OLS estimates the coefficients on the *Multiparty competition* variable are positive and highly significant. Establishing multiparty competition would be associated with an increase in primary education spending by 0.45% GDP, and a 1.5% increase in the share of total government spending devoted to primary schools. In the fixed effects models the coefficients on *Multiparty competition* are no longer statistically significant, and they are smaller in magnitude. The difference between the OLS and fixed effects estimates is attributable to the fact that the country mean values for primary education spending, which are subtracted out in the fixed effects model, are positively correlated with the *Multiparty competition* variable. One main reason for this is that four of the sample countries (Botswana, Namibia, Senegal, and Zimbabwe) had both multiparty competition and high levels of primary education spending throughout the period where data is available for each country. In addition to the above, the coefficients on *Overseas aid* are negative and statistically significant in the OLS regressions in Table 3.

The result that overseas aid is negatively correlated with spending on education is surprising given the stated objective of many donors of improving provision of primary education. As will be seen in Section 6, this negative correlation between aid and education spending is even more

apparent in my multiple imputation estimates. The result is robust to instrumenting for aid (in order to take account of the possibility that it might be endogenous to education spending), as well as to considering aid from only one donor (the World Bank). Nor is there any evidence of a change in the negative correlation between aid and education spending between the 1980s and the 1990s due to the end of the Cold War. It should be remembered that the regressions show a significant correlation between *overall* aid flows and education spending. A study by Devarajan, Rajkumar, and Swaroop (1999) found in a smaller sample of African countries that aid flows targeted directly at the education sector resulted in a nearly one for one increase in education expenditures. Though this is strictly conjecture, it may be possible to reconcile these apparently divergent findings. Aid that is targeted at education allows governments to spend more on a politically popular service. At the same time, aid that is targeted at other sectors, such as health or agriculture, may also be politically popular and, other things being equal, will reduce the necessity for governments to cultivate support by spending on education.[17] Future research could consider this possibility in greater detail by using more refined and more extensive data on aid flows.

Table 4 reports results of regressions that test Hypothesis 2, where the dependent variable is public spending on universities. This is predicted to not depend on the presence of electoral competition, and as a result I expect the coefficient on *Multiparty competition* to be 0. In both the OLS and fixed effects regressions the coefficient on *Multiparty competition* is in fact insignificant, which supports the hypothesis. One might also suggest that this result simply reflects a poor estimate of the coefficient, but given the confidence intervals from regression 1, with 95% confidence we can reject the hypothesis that a shift to *Multiparty competition* would result in an increase of spending on universities of more than 0.04% GDP. This would be quite a small increase.

[17] I would like to thank an anonymous referee for this point. See Remmer (2004) on this issue.

Overall, the results of the regressions in Tables 3-5 provide a strong indication that governments subject to electoral competition have spent more on education, and more on primary education in particular, and they have not spent more on universities. These are strong findings regarding the effect of democracy, on average, across the sample. However, it is worth noting that there remains a significant amount of variation *within* the group of democracies. A quarter of African governments elected in multiparty competition have spent less than 1.5% of GDP on primary education (compared with the average spending level for democratic governments of 2.3%). This variation may be due to factors that cannot be adequately captured using existing cross-country data, such as the relative salience of ethnic and regional divisions, or other features of the democratic process involving availability of information (Reinikka and Svensson, 2004).

6. Multiple imputation estimates of the determinants of education spending

As noted above, there are a large number of missing observations in my education spending data, and this presents the potential for bias in the results presented in Section 5. It may, for example, be the case that poorer or less democratic states have a greater tendency not to report education expenditures. There is in fact a positive correlation, but only a weak one, between the presence of multiparty competition and the likelihood that a government will report total education expenditures (0.07 p=.07) or primary education expenditures (0.09 p=.01). The likelihood of reporting is not correlated with either per capita GDP or the presence of civil unrest. There is a much stronger negative correlation between the likelihood of reporting and the level of aid.

In order to examine whether my listwise deletion estimates are influenced by the pattern of missing observations in the education spending data, I used the AMELIA program to impute values for all missing observations in my dataset (Honaker et al, 2003; King et al, 2001). The imputation model included all independent variables, all education spending variables from the Table 2, 3, and 4 regressions, in addition to total government spending in %GDP. In the numerous cases where

overall education spending is observed but primary and/or university spending is not, the former variable turns out to be a good predictor of the latter two. This is especially true for primary education, since on average it comprises 50% of total education expenditures within my sample. This increases confidence in the imputation model. I used an imputation model that was multivariate normal with a slight ridge prior, and the "EMis" algorithm was used to generate twenty imputed datasets.[18] This resulted in a set of complete datasets covering 44 countries over 17 years. I then repeated each of the specifications in Tables 2, 3, and 4 using each of the imputed datasets. The one modification to the specification was that I now included a lagged dependent variable, since doing so no longer resulted a large loss of observations. The final step was to combine the twenty estimation results for each specification. Coefficients were combined by taking the arithmetic mean, while standard errors were combined using a formula that takes into account both variance within each imputed data set and across each imputed dataset (Honaker et al 2003).

Table 5 presents the results of my multiple imputation estimates. In order to facilitate comparisons with the listwise deletion results in Tables 2, 3, and 4, for my *Multiparty competition* variable I report both the estimated short-run effect of a move to multiparty competition and the long-run effect of such a change.[19] My Table 2, 3, and 4 regressions estimate only the long-run effect since they do not include a lagged dependent variable.

The multiple imputation estimates of the determinants of overall education spending are quite similar to the listwise deletion estimates from Table 2. In the OLS regressions the magnitude

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[18] While King et al (2001) suggest that in many cases it will be sufficient to impute only 5 datasets, I have used a larger number here because of the high fraction of missing observations.

[19] If β is the regression coefficient on multiparty competition, and γ is the coefficient on the lagged dependent variable, then the "short-run effect" is simply β, and the "long-run effect" is $\beta/(1-\gamma)$.

and the standard error of the estimated effect of *Multiparty competition* are virtually unchanged. In the fixed effects models the estimated effect of a shift to multiparty competition is now slightly larger. With regard to other variables, in the fixed effects models the short-run coefficient on foreign aid is now negative and significant in 3 of the 4 regressions.

The multiple imputation estimates of the determinants of primary education spending show a positive and statistically significant effect of *Multiparty competition* in the OLS regressions. The magnitude of the long-run effect reported in Table 5 columns 5 and 7 is virtually identical to that observed in Table 3. In the fixed effects models we now observe that the long-run effect of multiparty competition is larger than in the listwise deletion estimates, and in the case where primary education is measured relative to total government spending, it is statistically significant. We also observe in these multiple imputation estimates that the coefficient on foreign aid is now negative and statistically significant in all four specifications. Finally, the multiple imputation estimates of the determinants of university spending continue to show no significant effect of *Multiparty competition.*

Overall, the multiple imputation estimates in Table 5 suggest that my conclusions about multiparty competition and education spending are not biased by failure to control for factors that influence whether education data are reported. They also reinforce the finding of a negative correlation between education spending and foreign aid.

7. Alternative specifications and robustness

There are a number of potential issues concerning the robustness of my results.[20] First of all, the measure of multiparty political competition that I have used may not fully reflect the degree to which presidential elections are free and open. In a number of cases where multiple candidates have

[20] All robustness tests here refer to the listwise deletion results in Section 5. I reached similar conclusions when performing the robustness tests on the imputed datasets from Section 6.

contested an election, incumbents have used various means to rig the outcome. To examine this potential bias I used a new dataset from Lindberg (2004) that records whether international observers judged elections to be free and fair or tainted by irregularities. In all cases where multiparty elections were not judged free and fair, I then reclassified the *Multiparty competition* variable from 1 to 0. All of the results in the Table 2-3 regressions remained robust after this correction. I also explored whether the distinction between countries with multiparty competition but elections tainted by irregularities and those with multiparty competition and "free and fair" elections can account for the observed variation in levels of primary education spending within the group of democracies. There was some evidence that this was the case, most notably in the OLS regressions, but not in the fixed effects estimates.[21]

The specifications in Sections 5 and 6 have tested my hypotheses about the *Multiparty competition* variable by pooling together all other levels of political competition. My results are also generally robust when including both a dummy variable for *Multiparty competition* and a dummy variable for *Single party competition* (level 3). In this alternative specification *Single party competition* was statistically significant in only one of the OLS specifications (Table 3 regression 1), and in this case its coefficient was much smaller than the coefficient on *Multiparty competition*. In the fixed effects regressions *Single party competition* was sometimes statistically significant. It had a smaller coefficient than *Multiparty competition* in Table 2 regression 4, and it was statistically significant and similar in size to the *Multiparty competition* coefficient in Table 2 regression 2. *Single party competition* was not significant in the Table 3 and 4 regressions.

I also considered whether the results reported in Tables 2-4 are affected by serial correlation of the error terms. This is not an issue with the multiple imputation estimates since these include a

[21] The effect of *Multiparty competition* also did not vary according to the electoral rules in place for the legislature (PR vs. majoritarian).

lagged dependent variable, and standard Lagrange multiplier tests suggest that serial correlation was not present in the residuals of these regressions. Since these estimation results are very similar to those reported in Tables 2-4, this increases confidence that the Table 2-4 estimates are not heavily biased by serial correlation. When I re-estimated the regressions from Tables 2-4, including an AR1 term, the results with regard to the coefficient on *Multiparty competition* were generally unchanged. However, one of the potential pitfalls in dealing with serial correlation by estimating an AR1 term is that in datasets with relatively short time-series, estimates of the autocorrelation parameter are likely to prove imprecise. Bertrand, Duflo, and Mullainthan (2004) have suggested an alternative method that produces unbiased estimates by ignoring the time-series dimension of the data when estimating the coefficient on the independent variable upon which one wishes to draw an inference. Using this method my results with regard to overall education spending also remained significant.

A further robustness issue involves the endogeneity of democracy. While democracy might lead to higher spending on primary education, increased provision of primary education might also make democracy more sustainable. One main reason is if primary school attendance induces citizens to have more favorable attitudes toward the desirability of democratic institutions.[22] This could be a further potential source of bias in my empirical results. To consider this possibility, I repeated the regressions from Tables 2-4 while instrumenting for the presence of *Multiparty competition* with the percentage of other African states that had multiparty competition in the previous year. All results remained robust when using this procedure.

I also considered whether my results altered if one attempted to control for the effect of macroeconomic volatility on education spending. Arguably an uncertain macroeconomic environment could hamper the ability of a government to sustain a high level of spending on primary education. As a result, we would expect the variance of education spending to be correlated with

[22] See Brown (1999) and Coren (2003) on this subject.

indicators of macroeconomic volatility. I made an initial examination of this possibility by using a Breusch-Pagan test to determine whether the residuals from my OLS regressions had multiplicative heteroskedasticity related to the size of the government budget deficit. There was little evidence that this was the case. This certainly does not rule out the possibility that volatility in education spending is influenced by macroeconomic volatility, but it does suggest that determining how important this effect is will require availability of more complete data.

One final robustness issue involved the possibility that the relationship between electoral competition and education spending may have evolved over time. This is certainly a plausible possibility, but it is difficult to test, given that the great majority of African governments before 1989 were classified as not having multiparty competition. When I split my sample into one dataset for 1980-88 and one for 1989-96 I observed that while the estimated effect of multiparty competition on overall education spending was positive and significant in both sub-samples, the magnitude of the effect was much larger during the 1989-96 period. The effect of multiparty competition on university spending was not significant in either sub-sample.

8. Conclusion

It has long been suggested that multiparty electoral competition may be a powerful force influencing provision of basic services. In this paper I have argued that this may be the case even in those political environments where it is commonly believed that weak institutions, or the "neopatrimonial" nature of politics, indicates that the formal adoption of multiparty democracy will have little impact on policy. In the case of African countries during the 1990s, while the move to democracy has not triggered a wholesale turnaround in economic policies, the evidence does show that multiparty electoral competition has been associated with greater government spending on education, and on primary education in particular. In addition, I have found that the (re)establishment of multiparty electoral competition has had important distributional effects.

African governments have increased spending on primary schools while leaving funding for universities unchanged. Though the evidence presented here is robust, there are several important issues that should be explored in further research.

First, further investigation is needed to examine why, even within the group of African democracies, some governments devote substantially more resources to primary education than others. There remains a significant degree of heterogeneity within the group of democracies that is not fully accounted for by the other explanatory variables in my regressions. One possibility is that the national level of primary education spending is more salient to voters in some countries. My case study comparison of Uganda and Malawi suggests that electoral competition will have a bigger effect on education spending in those contexts where electors do not vote primarily on regional lines. Another possibility is that variation in access to information about education spending can explain differences in the behavior of democratically elected governments on this issue.

Second, future work could also explore the possibility that democracy and primary education provision are jointly endogenous. There are strong arguments to believe that a democratically elected government will spend more on primary education, but there are also sound reasons to believe that democracy will be more sustainable in countries where a high percentage of the population has had the opportunity to attend primary school. While much of the initial wave of democratization in African countries in the 1990s was probably attributable to global, and therefore exogenous events linked to the end of the Cold War, it would seem very important to examine whether subsequently, democratic institutions, and in particular free elections, have become more fully anchored in those countries with a high initial level of primary education provision. Ultimately, a worthwhile goal would be to perform a simultaneous test of the argument that democracy leads to greater primary education spending, and that greater primary education provision reinforces democracy.

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Table 1: Summary statistics for government spending on education

	Nobs	Mean	Within country stdev	Between country stdev	Min.	Max.
Total spending on education %GDP	400	3.86	0.93	1.64	0.36	10.0
Spending on primary education % GDP	267	1.91	0.36	1.03	0.33	5.77
Spending on universities %GDP	202	0.71	0.18	0.32	0.04	1.90
Total spending on education as % of total govt spending	399	15.5	5.10	5.29	2.37	76.2
Spending on primary education as % of total spending	267	7.24	1.44	3.08	1.14	17.2
Spending on universities as % of total spending	202	3.08	0.94	2.64	0.32	15.7

Note: numbers of available observations differ for each variable because some governments do not provide disaggregated statistics about the components of education spending, and governments also vary in whether they report separate quantities for primary education, university education, or both.

Table 2: Electoral competition and overall government spending on education

Spending measure →	% GDP		% total govt. spending	
	OLS	Fixed effects	OLS	Fixed effects
	(1)	(2)	(3)	(4)
Multiparty competition	**1.10*** (0.21)**	**.358** (.168)**	**4.41*** (0.68)**	**3.10*** (0.92)**
Election year	-.085 (.388)	.065 (.206)	-0.50 (1.44)	-0.12 (1.12)
Per capita GDP (log)	1.49*** (0.12)	.591*** (.214)	2.32*** (0.64)	5.65*** (1.17)
Aid (%GDP)	-.0004 (.007)	-.021** (.009)	-.175*** (.037)	-.067 (.050)
% population rural	.035*** (.010)	.012 (.015)	.170*** (.032)	.188** (.081)
% population under 15	.049 (.039)	-.272*** (.077)	-.190* (.102)	-.561 (.418)
Constant	-10.32*** (1.84)	11.84*** (3.70)	-18.8*** (6.73)	-7.31 (20.2)
N=	365	365	365	365
R^2	0.37	0.26	0.13	0.12

Standard errors in parentheses (panel corrected standard errors for OLS. *. **, and *** refer to significance at the 10%, 5%, and 1% levels respectively).

Table 3: Electoral competition and government spending on primary education

Spending measure →	% GDP		% total govt. spending	
	OLS	Fixed effects	OLS	Fixed effects
	(1)	(2)	(3)	(4)
Multiparty competition	**.447*** (.171)**	**.044 (.102)**	**1.48*** (0.44)**	**.439 (.403)**
Election year	-.067 (.232)	.031 (.103)	-.370 (.734)	.175 (.409)
Per capita GDP (log)	.577*** (.076)	.281** (.131)	.640*** (.220)	-.841* (.516)
Aid (%GDP)	-.018*** (.007)	-.007 (.005)	-.130*** (.017)	-.024 (.019)
% population rural	.007 (.004)	-.00002 (.009)	.038*** (.011)	.011 (.036)
% population under 15	.058 (.026)	-.009 (.042)	.317*** (.072)	.016 (.017)
Constant	-4.64*** (1.47)	3.29 (2.03)	-12.6*** (4.06)	10.9 (8.00)
N=	247	247	247	247
R^2	0.31	0.10	0.13	0.01

Standard errors in parentheses (panel corrected standard errors for OLS. *. **, and *** refer to significance at the 10%, 5%, and 1% levels respectively).

Table 4: Electoral competition and government spending on universities

Spending measure →	% GDP		% total govt. spending	
	OLS	Fixed effects	OLS	Fixed effects
	(1)	(2)	(3)	(4)
Multiparty competition	**-.048**	**-.106**	**-.057**	**.091**
	(.044)	**(.071)**	**(.320)**	**(.325)**
Election year	-.056	-.030	-.369	-.109
	(.106)	(.066)	(.241)	(.302)
Per capita GDP (log)	.156***	-.016	.059	.455
	(.045)	(.072)	(.241)	(.330)
Aid (%GDP)	.006*	-.004	-.032*	-.022
	(.003)	(.004)	(.018)	(.017)
% population rural	-.004**	-.001	.009	.024
	(.001)	(.007)	(.013)	(.031)
% population under 15	-.017**	-.149***	-.034	-.639***
	(.008)	(.029)	(.045)	(.132)
Constant	.782***	7.77***	4.03*	28.0***
	(.579)	(1.37)	(2.29)	(6.29)
N=	191	191	191	191
R^2	0.15	0.03	0.03	0.004

Standard errors in parentheses (panel corrected standard errors for OLS. *. **, and *** refer to significance at the 10%, 5%, and 1% levels respectively).

Table 5: Multiple imputation estimates of electoral competition and education spending

Spending measure →	Overall educ % GDP		Overall educ % total spending		Primary educ % GDP		Primary educ % total spending		University % GDP		University % total spending	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Multiparty comp. (long-run effect)	**1.11****	**.585****	**4.36*****	**3.55*****	**.389***	**.187**	**1.40****	**1.07****	**-.044**	**-.068**	**-.121**	**-.151**
	(0.45)	**(.298)**	**(1.20)**	**(1.35)**	**(.211)**	**(.149)**	**(0.56)**	**(0.56)**	**(.058)**	**(.055)**	**(.326)**	**(.338)**
Multiparty comp. (short-run effect)	.275**	.281*	2.20***	2.11**	.125*	.103	.782**	.767*	-.018	-.040	-.059	-.092***
	(.113)	(.145)	(0.65)	(0.86)	(.069)	(.083)	(.319)	(.408)	(.024)	(.032)	(.157)	(.203)
Spending$_{(t-1)}$ (lagged dep. var.)	.752***	.519***	.494***	.407***	.679***	.447***	.442***	.284***	.588***	.413***	.512***	.392***
	(.047)	(.043)	(.076)	(.053)	(.055)	(.050	(.080)	(.067)	(.067)	(.055)	(.084)	(.057)
Election year	.024	-.019	-.268	-0.44	-.028	-.030	-.132	-.179	-.032	-.039	-.128	-.145
	(.196)	(.200)	(.874)	(1.01)	(.112)	(.106)	(.477)	(.497)	(.050)	(.031)	(.240)	(.266)
Per capita GDP (log)	.418***	.347**	.980**	1.01	.246***	.224**	.574**	.687	.069***	.044	-.079	.041
	(.094)	(.152)	(.450)	(0.86)	(.056)	(.097)	(.241)	(.492)	(.022)	(.039)	(.115)	(.232)
Aid (%GDP)	.001	-.009*	-.076***	-.067**	-.005**	-.014***	-.063***	-.066***	.001	0005	-.016***	-.008
	(.003)	(.006)	(.021)	(.030)	(.002)	(.004)	(.014)	(.016)	(.001)	(.0016)	(.005)	(.008)
% Population rural	.010***	.001	.063***	-.022	.004*	-.004***	-.022*	.0057*	-.0003	-.002	.0005	-.023
	(.003)	(.013)	(.019)	(.061)	(.002)	(.008)	(.012)	(.034)	(.0009)	(.004)	(.0048)	(.019)
% Pop. under 15	.012	-.045	.093	.042	.012	-.019***	.075	-.019	-.001	-.010	-.012	.005
	(.016)	(.043)	(.072)	(.206)	(.011)	(.023)	(.049)	(.012)	(.004)	(.010)	(.021)	(.053)
Constant	-3.00***	1.64	-6.71	2.6	-1.77**	0.33	-3.93***	2.69	-.069	.730	2.72***	3.01
	(1.12)	(2.61)	(5.48)	(12.8)	(0.72)	(1.39)	(3.36)	(7.67)	(.274)	(.613)	(1.50)	(3.41)
N=	704	704	704	704	704	704	704	704	704	704	704	704

Multiple imputation estimates with missing values imputed using the AMELIA program developed by Honaker, Joseph, King, Scheve, and Singh (2003). OLS refers to pooled time-series cross-section and FE refers to fixed effects. Coefficients and standard errors computed using Ken Scheve's multiple imputation estimation program. (panel corrected standard errors for OLS. *. **, and *** refer to significance at the 10%, 5%, and 1% levels respectively).