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Estimating the effects of democratization in African countries: A simultaneous equations approach



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ABSTRACT

This paper analyzes impacts of democratization in Africa, including effects of improved, property rights on economic growth and of greater political participation on civil violence. Democracy is endogenous to economic growth and other outcomes, which hampers most, empirical analysis. This paper uses a minimum distance simultaneous equations estimation to, account for all endogenous variables while including time and country fixed effects. The method yields a test of fit of the model, which is strong. Results indicate a positive significant effect of property rights institutions on economic growth in the presence of time and country fixed effects. Estimates also show a negative significant effect of political participation on civil violence and, strong effects of aid per capita on both economic growth and civil violence.

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1. Introduction

Since the end of the Cold War, Africa has become steadily more democratic. While there is no doubt that improvements in individual freedom, government accountability and representation are good, there is substantial debate about the effects of democratization on economic growth and civil violence. This paper analyzes the effects of democratization in Africa through a carefully designed simultaneous

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equations estimation. This technique accounts for the endogeneity of the key variables while also including country and time fixed effects. Two key mechanisms are examined through which democracy may be instrumentally good in addition to being intrinsically good. First, democracy may promote stronger property rights and thus encourage economic growth. Second, democracy may decrease civil violence through greater political participation. In the current context of the Arab Spring, the impact of democracy remains critical to understand.

The main contribution of this paper is methodological; the massive literature studying democracy and its impacts uses a wide range of methods ranging from relatively sparse, clearly identified instrumental variables estimations (Acemoglu et al., 2001) to full systems of simultaneous equations (Tavares and Wacziarg, 2001) with and without country and time fixed effects (Acemoglu et al., 2008; Green, 2013). Typically, each paper in the literature also has its own sample, likely driven by what data is available.

Several methodological issues are quite clear and each involves tradeoffs in analysis. First, many of the variables, especially institutions and growth, are endogenous and failing to account for this endogeneity will bias the results. However, valid instrumental variables are scarce and researchers who clearly avoid endogeneity run a serious risk of under-specifying the estimation. Second, fixed effects do seem to be important, but it is difficult to account for both endogeneity and fixed effects in the same specification, as most instruments are time-invariant (Acemoglu et al., 2008; Green, 2013). Third, samples may affect the results, but there is a clear tradeoff between data availability and sample size. Most researchers focus on the data and use what countries they can without much discussion of how the different samples in different studies may impact the results. Spatial variables also may be important but are underutilized in the literature.

This paper presents a ten equation simultaneous equations model that clearly identifies the effects of democracy on growth and civil violence in postcolonial Africa. By using simultaneous equations I am able to account for the endogeneity of all endogenous variables and use a set of ten exogenous variables to identify them. Several of the exogenous variables are spatial variables, which provide enough variation for country and time fixed effects to be included. The analysis is focused on Africa due to the similar historical experiences of African countries that are in many ways unique to the continent. African countries have typically gone through a stage of low-capacity dictatorial rule after independence that has now been challenged by a democratization movement with varying degrees of success. This paper seeks to estimate the potential benefits of democracy in the African context.

The estimates presented here thus address the major methodological issues in the literature: endogeneity, fixed effects and questionable samples. There are, of course, tradeoffs with simultaneous equations estimation. The minimum distance method I use is computationally intensive and, while it does provide an overall test of fit, is not amenable to numerous robustness checks. The data cover 45 out of 49 African countries for most of their postcolonial histories, but do not include all the variables we might ideally consider. Data on educational attainment, for example, is not available for many countries in the sample. I thus claim that it is worth sacrificing some variables of interest and robustness checks in order to account for endogeneity and include time and country fixed effects.

The primary results are a strong estimated impact of democracy on economic growth through improvements in property rights and a significant negative effect of improved political participation on civil violence. Secondary results include a large estimated impact of aid per capita on economic growth and civil violence and a significant but small effect of the death rate on savings. I first present background on democracy in Africa, followed by a discussion of the data and estimation technique and then the results and conclusions.

2. Democracy in Africa

Since the end of the Cold War, Africa has become steadily more democratic. This trend is easily seen using polity scores, which are perhaps the most common measure of democracy in academic work.¹ Fig. 1 shows the trend of the mean polity score for Africa, where the sample includes all continental Africa countries; each country enters the sample at independence (or for the few that were

¹ The POLITY dataset is publicly available at www.systemicpeace.org.

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