State Failure and Political Instability: The Impact of Educational Attainment in Africa

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Abstract

I investigate the role of educational attainment on state failure and political stability across the African continent. For the empirical analysis, I estimate a Linear Probability Model (LPM) for State Failure by Ordinary Least Squares (OLS). I hypothesize that differences in educational attainment in Africa can explain differences in political stability and state failure. Furthermore, I believe that this effect has persisted over time and that early educational attainment in the late colonial and early independence era is a significant determinant of state affairs in more recent times. I find that early secondary educational attainment explains higher state stability, while tertiary education explains more state instability later on.

Keywords

I.   INTRODUCTION

In this paper, I focus on the direct implications of a nation's failure to develop well functioning institutions in the education sector. More specifically, this paper investigates the role of educational attainment on state failure throughout Africa since 1950, the beginning of the independence era. More so, has the effect of higher educational attainment persisted overtime? The study uses 31 countries ranging from the northernmost tip of Africa to the southernmost. Although educational attainment is not directly an institution, a country's academic achievement is most likely highly correlated with how well the educational sector functions. My investigation is heavily motivated by the work of Robert Rotberg (2003) on the failure and collapse of modern states and builds upon the work of Alesina, Ozler, Roubini, and Swagel (1996) on political stability and growth.

The issue of state failure and instability is one of great concern for the west and the inhabitants of fragile states throughout Africa. Terrorist groups such as Boko Haram (Nigeria), Ansar Dine (Mali), Al-Shabaab (Somalia), and al-Qa'ida (Niger, Mali, Algeria) just to name a few have developed in these unstable regions. In addition, not much empirical work has been done on the issue of state failure, specifically identifying a causal channel for a nations state of affairs. The implications of these untested hypothesis is huge, as unstable states are known to be problematic. An examination of this magnitude, is a international security concern, as terrorist groups are known to emerge from weak or failed states. To add, said states are among the poorest and most underdeveloped. Therefore, it is important to understand what pushes a state to collapse, in hope that policy can work to improve the political and economic stability throughout Africa.

The rest of the paper is organized as follows. In Section 2, I provide an overview of the existing literature. In Section 3, I present my theory of initial human capital on political outcomes. Section 4, presents my empirical strategy and econometric issues. Section 5 briefly describes the data and important descriptive statistics. Section 6 presents my results, and Section 7 concludes.

II.   THE LITERATURE

In the field of economics, it seems that the subject of economic development has received a great deal of attention since the early twentieth century. Much work has been done to uncover the foundations of economic growth in developing and advanced countries in an attempt to answer the crucial question: Why are some

countries rich and some poor? Early on, Solow (1956), Cass (1965), and Koopmans (1965) theorized that differences in growth rates could be explained by differences in factor accumulation, the more traditional neo-classical growth models. In particular, Solow argued that cross-country differences in factor accumulation can be attributed to differences in a country's savings rate, while Cass and Koopmans argued that preferences are the key. However, in 1991, Douglas North introduced the role that formal institutions play in development. As North put it (1991, p. 97): "Institutions provide the incentive structure of an economy; as that structure evolves, it shapes the direction of economic change towards growth, stagnation, or decline." Over the past two decades, theories of institutional development have come to dominate the economic development debate, in that creating efficient institutions and improving upon old ones drive development. In addition, Barro's work on the effect of human capital accumulation (1981, 1996, 2001, 2004) on development has made a major impact in academia and policy making circles. Barro (2001) found that educational attainment at the secondary and tertiary level, had significant positive growth effects. In Barro's work he proxies human capital with educational attainment. Although Barro's recent work on human capital is praised, one must give credit to the work of Romer (1990). It is clear that existing empirical literature on the relationship between education (human capital) and growth is rich, and that the models derive concrete results and show that the relationship between education and growth is positive. However, I believe that empirical literature discussing the implications that educational progress can have for a nation, other than economic outcomes is lacking.

Rotberg (2003) presents theoretical literature, analyzing the causal channels behind the failure and collapse of nation-states over the past 30 years. He notes that the academic literature and its implications for international security have found its way to the forefront of international affairs as the number of people impoverished, starving, and deprived of fundamental needs such as defense, healthcare, and education has totaled in the hundreds of millions, killed eight million, and displaced another four million; roughly speaking. Also, the developments in these weak states are a major concern to the more developed states, in a political and economic context. He shows that throughout history, weak states have failed or stayed weak for a number of reasons, such as a nation's geographical, physical, historical, and political circumstances. However, his evidence shows that individual leader's political and economic actions have almost always paved the way to state failure. Rotberg's theoretical work links previous empirical literature on education (human capital) with a framework in which we can empirically test the implications of higher initial human capital on state stability. Alesina, Ozler, Roubini, and Swagel's (1996) work helps shed

some light on the link between political instability and economic growth, essential and quite similar to my analysis. In short, they find that political instability reduces growth, and that the occurrence of a government change increases the likelihood of subsequent changes, suggesting that political instability tends to be persistent over time. However, they neglect the root of this instability, which I hope to unveil in my work. Note that Alesina and Perotti (1996) suggest that the link goes through the effect of instability on investment, however I believe that it goes through education.

Existing literature on education in Africa is abundant and serves my purposes well in developing my hypothesis. Huillery (2009) finds that in French West Africa, investments in education during the colonial period persisted over time. This idea of persistent effects of education, is essential in my analysis. To add, Foster (1977) shows that in most developing countries the modern sector is small, however there are considerable benefits accrued by the people who have access to these positions. Bates (1981) documents the policy behind African nations transformation to a more modern industrialized economy, as well as the implications for social stratification. These esteemed opportunities are awarded economic and status benefits, and importantly an immense premium is placed upon the possession of formal educational credentials for access to these positions. This type of atmosphere led to an increase in demand for higher education in the post colonial period. However, such an increase in supply, in turn increases the demand for more higher education. Eventually, supply outruns demand and the successful elites end up benefiting at the expense of the less successful masses. Thus, african formal education throughout the independence era has in turn promoted political instability, as the masses become unsatisfied. Hanf, Ammann, Dias, Fremery, and Weiland (1975) conclude that this political instability has stemmed from the only political result of education in Africa, maintaining elites socioeconomic status in society as they are able to reinforce their position by securing privileged access to schools. To add, Bibby and Peil (1974) note that access and continuance in education throughout Africa is highly dependent on the social and ethnic origin of the individual, in line with Hanf, Ammann, Dias, Fremery, and Weiland (1975) and Foster (1977).

III.   THEORY: THE PERSISTENT EFFECTS OF HUMAN CAPITAL ON POLITICAL OUTCOMES

The current literature on the relationship between political stability and growth is abundant, as outlined in section 2. However, I look to analyze the social structure of education in Africa, in order to explain the rise and fall of failed states and the

political stability of these regions throughout the second half of the twentieth century. I theorize that educational attainment as a proxy for human capital (Barro), is a major determinant of state stability, and that this effect has persisted since the beginning of the independence era until today. At first glance, it is easy to jump to the conclusion that higher human capital early on, should work to increase the political and economic stability of a region, since the growth literature points to such an effect of education on economic growth (Barro, Romer). However, the structure of the education sector and the social inequality prevalent in Africa during the independence era, points to three other possible explanations.

- Hypothesis 1: Higher Educational Attainment at both the secondary and tertiary level leads to more political stability and lowers the probability of state failure.

First, the higher initial human capital a region has early on in the independence era, should translate to better state stability down the road. A highly educated population is able to infuse new technological advancements and living conditions should improve through this channel, which should lead to better political stability in the future as the region progresses. Thus, African nations that had well functioning educational institutions between 1950 and 1965, set up either from colonial times or the new African government, were able to attain higher levels of political stability later. In addition, higher educational attainment al all levels early on may lead to a decline in social inequality, which would create more stability in the region.

- Hypothesis 2: Higher Educational Attainment at both the secondary and tertiary level leads to more political instability and increases the probability of state failure.

As African nations moved away from an agricultural based economy, towards industrialization in the mid twentieth century, having an education became very valuable is securing well paying and high status occupations. As Bates (1981) notes, African governments implemented policy that removed incentives for agricultural production. As African governments took advantage of workers in the agricultural sector through the Marketing Boards put in place during colonial times, these workers began to demand more formal education in the hopes of acquiring jobs in the modern sector, however as the supply of qualified workers exceeded demand many were left with no work. In turn, the masses ended up worse off with an advanced degree and no place to work. Also, note that competition within the elite class led to conflict and over supply, as more and

more educated people were entering the job market. This led to increased political instability as a new class of higher status elites captured a majority of the power and amassed benefits from the state, leaving the masses and lower status elites behind. Such developments created an atmosphere conducive to conflict between 1950 and 1965, which would continue to escalate into major political instability down the road.

- • Hypothesis 3: Higher Educational Attainment at the secondary level and tertiary level bring about different effects on state stability.

At the secondary level, increases in the initial level of human capital leads to more political stability, while at the tertiary level, I expect to see more political instability and an increase in the probability of state failure. In post-colonial Africa, access to tertiary schooling became predominantly reserved for the elite class, as access was quite limited for the rest of society. Thus, elites are able to maintain their socioeconomic status in society by securing privileged access to schools for their class, especially their children. In a society where the elite class is able to secure higher education for themselves, they essentially neglect the masses, who remain impoverished unable to move up the social ladder. In turn, such an effect early on, would work to increase political instability. However, at the secondary level, increasing levels of educational attainment would work to increase stability as social and economic inequality between the elite and masses decreases over time.

IV. THE EMPIRICAL STRATEGY
- • **Estimating Framework**

I estimate a generic Linear Probability Model (LPM) for State Failure by Ordinary Least Squares (OLS). I use a binary dependent variable, taking on a value of one if a state failed between 1966 and 2014, regressed on a measure of educational attainment at the secondary and tertiary level averaged over the period 1950 to 1965 and a number of control variables. In addition, I also estimate a simple Ordinary Least Square (OLS) regression using a Political Instability Index as my dependent variable, regressed on the same independent variables and controls as stated above. More formally, the equation:

$$y_i = \alpha_0 + \delta se_i + \gamma te_i + \beta X_i + \epsilon_i \qquad (1)$$

where yi is the observed binary outcome of state failure or the Political Instability Index in the OLS framework, sei measures secondary educational attainment, tei measures tertiary education, and Xi represents a number of country level control variables. The last variable is a standard normally distributed error term. The parameters of interest are delta and gamma.

Xi is the set of control variables described in section 4 and summarized in more detail in table 1 of the appendix: Economic Development (population density) Ethnicity (Ethnolinguistic Fractionalization), Health (Total Life Expectancy at Birth) Colonial Heritage (British Dummy). Outcomes are those outlined in section 5 and presented in Table 3 and 4. I also control for educational attainment at the secondary and tertiary level in 2010, as well as the period between 1966 and 2014, in order to make sure that the effect of education on state failure persists, and that the effect is not due to more recent levels of educational attainment. These outcomes are those outlined in section 5 and presented in Table 2 and 4.

- **ECONOMETRIC ISSUES**

It is important to note that the model presented above in section 4.1 does pose a few econometric concerns. First, it remains plausible that control variables included in previous specifications do not capture all necessary factors. In addition, the small sample size of 31 countries is of course noteworthy, however the educational attainment data necessary for my analysis is only available for these 31 countries in Africa, which restricts my sample size. Last, heteroskedasticity is present in the data. To be clear, my analysis looks to find a causal relationship between early educational attainment and more recent political stability in Africa. In order to identify such an effect, I control for the economic, health, ethnic, and colonial characteristics of 31 countries in Africa between 1950 and 1965. I argue that these controls are the most precise and that they take into account a large part of the additional characteristics that may account for differences in political stability across Africa between 1966 and 2014.

First, I follow the existing literature and control for economic development using a population density measure in order to take into account economic factors that may have influenced political stability in the later period. I use this variable, since there are limited measures of early economic development in Africa, In similar fashion, I control for the general health of the population using total life expectancy at birth to account for the possibility that a healthier population may lead to more stability in the long run. In addition, I make sure to take into consideration the ethnic variation between regions during the independence era in Africa. I follow the existing literature by Easterly and Levine (1997), and take

into account that ethnic conflict is an important determinant of the political economy of many nations as it leads to political instability and disappointing economic performance. I also use a dummy variable to distinguish between countries that were under colonial rule by different European powers. I control for the effect that different colonial policies and ruling tactics may have had on the political stability of those states. Last, it may be the case that more recent educational attainment has led to certain state political conditions rather than the levels between 1950 and 1965. Thus, I control for such an effect using secondary and tertiary educational attainment in 2010 as well as between 1966 and 2010. I use these various controls in my estimation strategy and I find that my results are robust to these factors.

Second, I must address the heteroskedasticity evident in the data. In the presence of heteroskedasticity, my standard errors are sure to be biased and will lead to bias in test statistics and confidence intervals. Since OLS assumes that errors are both independent and identically distributed I employ robust standard errors to correct for this effect. This allows me to correct for heteroskedasticity and generate unbiased conclusions from my regression estimates.

Last, my sample size only includes 31 observations. Such a small sample size raises concerns about robustness and validity. However, data from such an early period in the developing world is not as complete as we would like. Therefore, my choices are quite limited to the data available on educational attainment, population density, Ethnolinguistic fractionalization, and total life expectancy at birth between 1950 and 1965. I believe that I have employed the relevant methods in order to generate robust results and identify a persistent causal relationship between education and political stability in Africa.

V. DATA AND DESCRIPTIVE STATISTICS

Table 6 provides descriptive statistics for the key variables of interest and control variables. Note that my sample consists of 31 observations. The small sample size is one of the main shortcomings of the data presented in this analysis. Table 6 outlines number of observations, mean, standard deviation, maximum values, and minimum values for each variable used in the study. Most notably, secondary school completion rates among my sample ranges from .2 to 11.8 percent, while tertiary school completion rates only range from 0 to 2 percent of the 20 to 24 year old cohort. However, the mean value for secondary school completion rates is 1.63, while for tertiary school completion rates the value is .309 percent. The

data displays quite a large disparity between secondary and tertiary school completion rates in Africa.

- **DEPENDENT VARIABLES**

I follow Rotberg's literature on failed states in constructing my main dependent variable, State Failure. The variable is a binary outcome, since either a nation fails or it does not. In line with Rotberg, I define "state failure" as the final outbreak of civil war, ethnic intrastate conflict, or any major violence between distinct groups with the intent to impose a unilateral result. These conflicts may arise from a variety of sources, such as a government's inability to provide political or public goods to its people or increased corruption leading to excluded or discriminated against groups who loose trust in the government. However, I do not explicitly place a restriction on the way in which a state may fail in constructing my variable. Although, I do confine such conflicts where more than 1000 deaths occurred and leave out violence resulting from independence, since this is universal to all African nations. To construct my dataset, I use The State Fragility Index and War List constructed by the Center for Systemic Peace. The study outlines 332 state conflicts across the globe from 1946 to the present day, excluding conflicts resulting in less than 500 deaths. Conflicts include inter-state, intra-state, civil, ethnic, communal, and genocidal violence and warfare. For clarity, a country received a value of 1 if the "state failed" between 1966 and 2014, otherwise it received a zero value.

My secondary dependent variable, the Economist's Political Instability Index measures the social, economic and political factors associated with political instability in 165 countries worldwide in 2009. The index ranks nation on a scale of 0 (no vulnerability) to 10 (highest vulnerability) and has two components- an index of underlying political instability vulnerability and an economic distress index. The overall index is a simple average of the two component indexes and it is comprised of 15 indicators in all. To be clear, the index takes into account inequality (Gini Index), state history (date of independence), corruption (economist intelligence unit country ratings), ethnic fragmentation (Alesina, Alberto 2003), trust in institutions (Africa Barometer World Value Surveys), status of minorities (Minorities at Risk Project), history of political unrest (PIFT Database), risk of labor unrest (Economist Intelligence Unit, Risk Briefing), level of social provision (Infant Mortality Rate), geographic neighbors (Economist Intelligence Unit), Regime Type and Factionalism (Economist Intelligence Unit), growth in income (Economist Intelligence Unit), unemployment rate (Economist Intelligence Unit), and finally GDP per capita in 2007 (World Bank). However, I only use the political instability component in my analysis, neglecting the

economic indicators. I use this index to check the validity of the results I find with my main dependent variable, State Failure (Any Case). I expect similar results since a failed state should have a very high ranking on the Political Instability Index.

- **INDEPENDENT VARIABLES**

In constructing my main independent variable, I follow existing literature on economic development and measure educational attainment as a proxy for human capital, using Barro and Jong-Wha Lee's (2000) New Data Set of Educational Attainment in the World. The data set includes primary, secondary, and tertiary school completion rates for 146 countries at 5-year intervals from 1950 to 2010 for various cohorts ranging from 15 to 74. The data are estimates, using forward and backward extrapolation from certain benchmark statistics. In particular, the authors used census and survey data from UNESCO, Eurostat, and other sources to provide benchmarks for school attainment by gender and age group. In my case, I take the average of secondary school completion rates for the 20 to 24 cohort from 1950 through 1965 and do the same for tertiary schooling. For clarity, I take the average of the years 1950, 1955, 1960, and 1965 for the 20 to 24 age group. I leave out primary school completion rates as Barro (2010) finds that primary educational attainment is insignificantly related to economic development, and in my study primary school completion rates are insignificant as well. I rather concentrate on higher levels of education in my study.

I control for Economic Development (Population Density, Latitude), Ethnicity (Ethnolinguistic Fractionalization), Health (Total Life Expectancy at Birth, Infant Mortality Rate per 1000 Births) Colonial Heritage (British Dummy) from 1950 to 1965. In addition, I control for 2010 educational attainment at the secondary and tertiary level as well as for educational attainment in the period 1966-2010 for the 20 to 24 age cohort. Details are outlined in Table 5 of the appendix.

VI.   REGRESSION RESULTS

Tables 1-4 present the regression results. Table 1 and 2 present results for the simple Linear Probability Model (LPM) estimation by Ordinary Least Squares (OLS), where the dependent variable is State Failure. Table 1 consists of five columns, where the first presents results for the reduced form estimation including all 31 countries. Column 2-5 present results including controls for economic development, ethnicity, health measures, and colonial heritage. Table 2 presents results for the persistent effect of education, controlling for educational attainment

at the secondary and tertiary level in 2010 and the period between 1966 and 2014. Column 1 presents results for the reduced form estimation including all 31 countries, while column 2-4 includes the education controls. Table 3 and 4 present results for the simple Ordinary Least Squares (OLS) estimation, where the dependent variable is the Political Instability Index. The regression results in table 3 and 4 are formatted identically to table 1 and 2. Note that below each coefficient, I present corresponding standard errors and I note the significance level next to each coefficient. In addition, I present the R^2 statistic in the last row of each column.

- **LPM RESULTS**

Table (1) in the appendix presents results for the Linear Probability Model (LPM) estimation by Ordinary Least Squares (OLS) of the form presented in equation (1), using State Failure as my dependent Variable. First, note that the effect of educational attainment at the secondary level increases and stays highly significant at the 5 and 10 percent level across specifications. On the other hand, the effect of educational attainment at the tertiary level slightly decreases across specifications and the significance level falls from significant at the 1 percent level to 10 percent once all controls are taken into consideration.

To be specific, the reduced form estimation shows that a one percentage point increase in educational attainment at the secondary level between 1950 and 1965, decreases the probability of state failure between 1966 and 2010 by approximately 7.5 percent. Once controlling for economic progress, ethnic variation, health measures, and colonial heritage, I find that a one percentage point increase in educational attainment at the secondary level decreases the probability of state failure by roughly 8.9 percent. In addition, a one percentage point increase in educational attainment at the tertiary level between 1950 and 1965, increases the probability of state failure between 1966 and 2014 by approximately 30 percent. Once again controlling for economic progress, ethnic variation, health measures, and colonial heritage, I find that a one percentage point increase in educational attainment at the tertiary level increases the probability of state failure by 27 percent.

However, I then control for education at the secondary and tertiary level in 2010 and throughout the period 1966 to 2010. I conduct this exercise to check for persistent effects of early educational attainment, rather than the effect of more recent education. Results for this specification are presented in table (2) in the

appendix. I find similar results to those presented in table (1). Tertiary educational attainment and secondary educational attainment both remain significant across all specifications.

At the secondary schooling level, I find that controlling for educational attainment at both the secondary and tertiary level in 2010, a one percentage point increase in educational attainment between 1950 and 1965, decreases the probability of state failure between 1966 and 2014 by approximately 8.8 percent. Controlling for average educational attainment between 1966 and 2010, I find that a one percentage point increase in secondary educational attainment decreases the probability of state failure by 8.1 percent. At the tertiary schooling level, I find that controlling for educational attainment at both the secondary and tertiary level in 2010, a one percentage point increase in educational attainment between 1950 and 1965, increases the probability of state failure between 1966 and 2014 by approximately 27 percent. Controlling for average educational attainment between 1966 and 2010, I find that a one percentage point increase in tertiary educational attainment increases the probability of state failure by 25 percent.

Importantly, I find that educational attainment at the secondary and tertiary level in 2010 and throughout the period 1966 to 2010 are insignificant across all specifications in table (2). These results indicate that only early educational attainment is a significant determinant of state failure between 1966 and 2014. Thus, the effect of early educational attainment has persisted over time.

- **OLS RESULTS**

Table (3) in the appendix presents results for the Ordinary Least Squares (OLS) estimation of the form presented in equation (1), using the Political Instability Index as my dependent variable. First, note that secondary educational attainment is negative and significant throughout all specifications. Second, tertiary educational attainment is positive and highly significant at the 1 percent level across specifications. These results are similar and robust to those found in table (1) and (2). To reiterate, the Political Instability Index ranks countries on a scale of 0 (no vulnerability) to 10 (highest vulnerability).

The reduced form estimation, with no controls in column (1), indicates that a one percentage point increase in educational attainment at the secondary level between 1950 and 1965, decreases political instability by approximately .28 of an index point. For example, such a movement on the 2009 Political Instability Index is synonymous to transitioning from the political state of Zimbabwe to that of South Africa. The results remain robust throughout as I add on the control

variables. Once controlling for economic progress, ethnic variation, health measures, and colonial heritage, I find that a one percentage point increase in educational attainment at the secondary level decreases political instability by approximately .29 of an index point. At the tertiary level, my results indicate that a one percentage point increase in educational attainment between 1950 and 1965, increases political instability by approximately .85 of an index point. Adding on the various control variables once again, my results remain robust and the effect slightly increases. I find that a one percentage point increase in educational attainment at the tertiary level increases political instability by roughly .86 of an index point. Such a movement on the 2009 Political Instability Index is synonymous to transitioning from the political state of Ivory Coast to that of Sierra Leone.

Once again, I control for education in 2010 and throughout the period 1966 to 2010. I find similar results to my results in table (2), that secondary educational attainment is negative and significant, while tertiary educational attainment is positive and significant across specifications. Table (4) in the appendix presents my results.

I find that once controlling for educational attainment at both the secondary and tertiary level in 2010, a one percentage point increase in educational attainment at the secondary level decreases political instability by approximately .29 of an index point. Also, once controlling for average educational attainment between 1966 and 2010, I find that a one percentage point increase in educational attainment at the secondary level decreases political instability by approximately .36 of an index point. Last, I control for both, and find that the effect only diminishes slightly. I find that a one percentage point increase in educational attainment at the secondary level decreases political instability by approximately .28 of an index point. At the tertiary level, controlling for educational attainment at both the secondary and tertiary level in 2010, a one percentage point increase in educational attainment increases political instability by approximately .89 of an index point. Also, once controlling for average educational attainment between 1966 and 2010, I find that a one percentage point increase in educational attainment at the tertiary level increases political instability by approximately .92 of an index point. With the addition of both education controls, I find that a one percentage point increase in educational attainment at the tertiary level increases political instability by roughly .9 of an index point.

These results indicate that using the Political Instability Index as my dependent variable, I once again find a negative relationship between secondary education and state stability, as well as a positive relationship between tertiary education

and state stability. Also, I find that educational attainment at the secondary and tertiary level between 1950 and 1965 both stay significant once controlling for education in 2010, as well as the period 1966 to 2010. This indicates, that in was in fact early education that had a significant effect on state stability in Africa during the second half of the twentieth century. I once again find the additional education controls to be insignificant, pointing to a persistent effect of early educational attainment on state stability today.

VII.   INTERPRETATIONS

The results presented in table (1)-(4) most clearly resemble hypothesis 3 as stated in section (3.3). To summarize, I find that higher levels of initial human capital at the secondary level for individuals in the 20 to 24 year old cohort, throughout the period 1950 to 1965, increases state stability and decreases the probability of state failure. In addition, I find that higher levels of human capital at the tertiary level decreases state stability and increases the probability of state failure in the later period. To quickly reiterate, I find that a one percentage point increase in educational attainment at the secondary level decreases the probability of state failure by roughly 8.8 percent and decreases state stability by approximately .28 of an index point between 1966 and 2014 once I add on all controls. At the tertiary level, I find that a one percentage point increase in educational attainment increases the probability of state failure by roughly 27 percent and decreases state stability by approximately .88 of an index point between 1966 and 2014 once all controls are taken into consideration. The results are all quite robust across all specifications in both estimation frameworks and support my hypothesis that higher levels of human capital at the secondary and tertiary level bring about different effects on state stability.

Importantly, I find that initial tertiary educational attainment levels during the independence era in Africa, had a much larger effect on state stability and state failure in more recent times than does secondary education. There are a few possible interpretations of this finding. However, I must first extrapolate on my findings in general.

First, it is clear that I find a positive effect of early human capital at the secondary level on state stability. In post-colonial Africa, the elite class was quite small compared to the majority of the African population. Therefore, increasing initial human capital for the masses would allow them to infuse new technological advancements and bring about better living conditions. This should lead to better political stability in the future as the region progresses economically, and

political stability follows. The African nations that had well functioning educational institutions between 1950 and 1965, set up either from colonial times or the new African government, were able to attain higher levels of political stability later on. In general, increased education for the masses early on should lead to a decline in social inequality, which would create more stability in the region.

Second, I find a negative relationship between early human capital at the tertiary level on state stability. In post-colonial Africa, elites were able to secure privileged access to schools allowing them to maintain their socioeconomic status in society. Such an effect early on would have a ripple effect on increasing socioeconomic inequality in African society. As the elites continued to garner additional political power, securing privileged access to schools for their class, especially their children, they become more powerful and leave the rest of society behind. In the end, the elites have amassed political and economic power, while the masses remain impoverished, taken advantage of, and unable to move up the social ladder. The socioeconomic inequality created by the dynamics of elitist education would work to create conflict between the masses and the people in power, leading to more political instability.

The class dynamics in Africa during the independence era can explain why tertiary education had a larger effect on political stability than secondary education. Upon independence in a majority of African countries, the more educated black elites were able to gain power. Once in control, this group continued to secure privileged access to higher levels of education and maintain their positions within the class structure. More so, they made sure that their children followed in their footsteps in securing the best education possible, while the rest of society may have had access to education of a much lower quality or none at all. Over time, such an atmosphere would be conducive to clashes between the elite class and the larger lower class. Therefore, once the elite class was in power it would have been very easy to suppress the rest and have a large effect on state stability in the long run. Central to my thesis, I find that the effect of educational attainment in the independence era, has persisted until today.

VIII.   CONCLUSION

This paper presents evidence that higher educational attainment at the secondary level as a proxy for human capital between 1950 and 1965, decreases political instability and the probability that a state fails between 1966 and 2014. Also, my results suggest that tertiary education in the early independence era increased

political instability in the later period. I discussed three hypothesis or causal channels. I found that state stability is significantly determined by levels of educational attainment at the secondary and tertiary level between 1950 and 1965. A Linear Probability Model (LPM) by Ordinary Least Squares (OLS) was used to determine the probability of state failure, while a simple Ordinary Least Squares (OLS) regression was estimated to determine a country's level of political instability. The results are robust to a set of controls including economic progress, ethnic variation, health measures, colonial heritage, and educational attainment estimates in 2010 and between 1966 and 2010.

To end, a discussion of education policy implemented by colonial governments and newly self-dependent African governments is necessary. In addition, a call for future research and data collection. Although I find robust results, we can not ignore the legacy that policy in colonial times left on a country's political outlook. Specifically, the effect of education policy can be hard to empirically measure in colonial times, so I share an example. Prior to independence in 1960, the Somali state was split between British rule in the north and Italian rule in the south. Each region had different education policies and when Somalia become independent, and merged to form the United Republic of Somalia, education became a major priority with the new government. However, progress was slow as the new government was unable to reform and expand the education system effectively. They had issues integrating the two different education systems developed by the British and Italians. Today, Somalia is one of the most fragile states in the world. The country went through civil war in 1988 and total state collapse in 1991. The events in Somalia help stress the role that education plays in the developing world. To finish, my results may indicate that countries who were able to decrease educational inequality, by focusing on the accessibility of education for the masses in the independence era, were able to create a more stable economic and political environments down the road. In short, education is an important determinant of state stability and state failure.

Finally, more data and finding other creative ways to measure state failure, education, and inequality in colonial times is necessary to improve our understanding of the effect of education on political stability in the developing world. Specifically, improving the measurement of human capital using the quality of human capital rather than using years of schooling or completion rates. It is clear that human capital accumulation is an important component of economic growth as demonstrated in the literature, but understanding the root cause of this human capital accumulation within Africa's social structure is an integral part of such an analysis, which I hope to have shed some light on here.

APPENDIX

Table 1- Educational Attainment and State Failure

Variable	State Failure				
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Secondary Completion	-.0746442***	-.0784566 ***	-.0749452***	-.0800633**	-.088555**
(Robust SE)	(.0183358)	(.0190296)	(.0157677)	(.0309482)	(.0239558)
Tertiary Completion	.3001408***	.2802754***	.2799106**	.27639**	.2720111*
(Robust SE)	(.1055577)	(.1023509)	(.1190755)	(.1232249)	(.1473654)
Economic Development Control	No	Yes	Yes	Yes	Yes
Ethnicity Control	No	No	Yes	Yes	Yes
Health Control	No	No	No	Yes	Yes
Colonial Heritage Dummy	No	No	No	No	Yes
Observations	31	31	31	31	31
R^2	0.1529	0.2296	0.2707	0.2731	0.2973

The estimates reported in parentheses are standard errors. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 2 - Persistent Effects of Educational Attainment on State Failure

| Variable | State Failure | | | |
	(1)	(2)	(3)	(4)
Secondary Completion	-.088555**	-.0884749***	-.080649***	-.093895***
(Robust SE)	(.0239558)	(.0244157)	(.0251706)	(.0235907)
Tertiary Completion	.2720111*	.2718468*	.2523198*	.2679955*
(Robust SE)	(.1473654)	(.1520007)	(.1624003)	(.1646877)
All Controls from Table 1	Yes	Yes	Yes	Yes
Secondary and Tertiary Schooling_2010	No	-.0000836	No	.038832
		(.011491)		(.0261916)
Secondary and Tertiary Schooling_1966-2010	No	No	-.0155122	-.0632929
			(.0199006)	(.0433158)
Observations	31	31	31	31
R^2	0.2973	0.2973	0.3101	0.3492

The estimates reported in parentheses are standard errors. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 3 - Educational Attainment and Political Instability

Variable	Political Instability Index				
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Secondary Completion	-.282583 ***	-.2809649 ***	-.265859 ***	-.2897063 ***	-.2893483 ***
(Robust SE)	(.0434044)	(.045156)	(.0570372)	(.0880655)	(.0883122)
Tertiary Completion	.8476231*	.8560549*	.8544853*	.85886*	.8858878*
(Robust SE)	(.4983985)	(.506777)	(.4632421)	(.4625279)	(.4792357)
Economic Development Control	No	Yes	Yes	Yes	Yes
Ethnicity Control	No	No	Yes	Yes	Yes
Health Control	No	No	No	Yes	Yes
Colonial Heritage Dummy	No	No	No	No	Yes
Observations	31	31	31	31	31
R^2	0.2774	0.2795	0.3948	0.3980	0.4063

The estimates reported in parentheses are standard errors. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4- Persistent Effects of Educational Attainment on Political Instability

Variable	Political Instability Index			
	(1)	(2)	(3)	(4)
Secondary Completion	-.2893483 ***	-.2893769***	-.288869 ***	-.276017***
(Robust SE)	(.0883122)	(.0906831)	(.0903209)	(.0961862)
Tertiary Completion	.8858878*	.8860904*	.9189568*	.9004064*
(Robust SE)	(.4792357)	(.4841868)	(.4921293)	(.4560114)
All Controls from Table 1	Yes	Yes	Yes	Yes
Secondary and Tertiary Schooling_2010	No	.0001022	No	-.0424143
		(.0377216)		(.085185)
Secondary and Tertiary Schooling_1966-2010	No	No	.0263893	.0786794
			(.0665795)	(.1403916)
Observations	31	31	31	31
R^2	0.4063	0.4063	0.4101	0.3853

The estimates reported in parentheses are standard errors. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 5: Data Appendix

Variable Name	Description and Source	Observations
Dependent Variables: State Failure	I define "state failure" as the final outbreak of civil war, ethnic intrastate conflict, or any major violence between distinct groups with the intent to impose a unilateral result. I confine such conflicts where more than 1000 deaths occurred	31
Political Instability Index	Measures the social, economic and political factors associated with political instability in 165 countries worldwide in 2009. Ranks nation on a scale of 0 (no vulnerability) to 10 (highest vulnerability). Source: Economist Intelligence Unit. 2009	31
Independent Variables: Secondary School Completion	Average of secondary school attainment rates for the 20 to 24 cohort from 1950 through 1965. Average of 1950, 1955, 1960, and 1965. Source: Barro and Lee {2010}	31
Tertiary School Completion	Average of tertiary school attainment rates for the 20 to 24 cohort from 1950 through 1965. Average of 1950, 1955, 1960, and 1965. Source: Barro and Lee {2010}	31
Controls: Population Density	Defined as people per sq. km of land area. Used as a proxy for economic development as a control variable. I take the average of 1950, 1955, 1960, and 1965.	31

Ethnolinguistic Fractionalization	Average value of five different indices of ethnolinguistic fractionalization. Its value ranges from 0 to 1. The five component indices are: (1) index of ethnolinguistic fractionalization in 1960, which measures the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group(the index is based on the number and size of population groups as distinguished by their ethnic and linguistic status); (2) probability of two randomly selected individuals speaking different languages; (3) probability of two randomly selected individuals do not speak the same language; (4) percent of the population not speaking the official language; and (5) percent of the population not speaking the most widely used language. Sources: Easterly and Levine, 1997. The sources of the components of the average index are (1) Atlas Narodov Mira, 1964; (2)Muller, 1964; (3) Roberts, 1962; (4) and (5) Gunnemark, 1991.	31
Total Life Expectancy at Birth	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Used as a control variable for health factors. Average of 1950, 1955, 1960, and 1965. Source: World Bank	31
Infant Mortality Rate	Defined as the number of infants dying before reaching one year of age, per 1,000 live births in a given year. Average of 1950, 1955, 1960, and 1965. Source: World Bank	31

British Dummy	Dummy variable for African countries who were occupied by Britain during colonization. Source: Iowa State. Modern World History	31
Latitude	The absolute value of the latitude of the country, scaled to take values between 0 and 1. Source: CIA 1996.	31
Secondary and Tertiary Schooling_2010	Average of secondary and tertiary school attainment rates for the 20 to 24 cohort for 2010. Source: Barro and Lee {2010}	31
Secondary and Tertiary Schooling_1966-2010	Average of secondary and tertiary school attainment rates for the 20 to 24 cohort between 1966 and 2010. Average of 1960, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005, and 2010. Source: Barro and Lee {2010}	31

Table 6: Summary Statistics

Variable	Observations	Mean	Standard Deviation	Min	Max
Dependent Variables:					
State Failure	31	.709	.461	0	1
Political Instability Index	31	6.43	1.18	3.5	8.8
Independent Variables:					
Secondary School Completion	31	1.63	2.10	.2	11.8
Tertiary School Completion	31	.309	.446	0	2
Controls:					
Population Density	31	29.2	63.9	.789	353.63
Ethnolinguistic Fractionalization index	31	.536	.316	0	.890
Total Life Expectancy at Birth	31	43.4	6.86	28.8	60.8
Infant Mortality Rate	31	147.7	40.6	62.7	227.3
British Dummy	31	.516	.508	0	1
Latitude	31	.175	.142	.011	.667
Secondary and Tertiary Schooling_2010	31	13.4	5.40	2.23	24.0
Secondary and Tertiary Schooling_1966-2010	31	10.0	3.93	2.13	17.7

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