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# The Effect Of The Military On Political Instability

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THE EFFECT OF THE MILITARY ON POLITICAL INSTABILITY

by

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Bachelor of Arts, University of Manitoba, 2011

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This thesis, submitted by Chikezie Okoli in partial fulfillment of the requirements for the Degree of Master of Science in Applied Economics from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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This thesis is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved.

_____

Dr. Wayne Swisher
Dean, School of Graduate Studies

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Date

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Department    Applied Economics

Degree        Master of Science in Applied Economics


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Chikezie Okoli

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# ABSTRACT

The relationship between the military and political instability is often measured qualitatively, with emphasis on country specific cases. This paper differs from other papers on two fronts. First, the measurement of political instability as a combination of state failure and political violence allows for a more in-depth analysis than would be available if instability was examined as the onset of only one event. Second, by using panel data and maximum likelihood estimation (MLE) techniques, this paper is able to make general conclusions about the effect of the military on instability. The findings of this paper show that the various military characteristics are significant in affecting the probability of instability, with the most important characteristic being previous military rule.

CHAPTER I

INTRODUCTION

The onset of the Arab spring revolutions has once again shifted the spotlight on the instability of non-democratic regimes in the Middle East region, and now raises questions on the stability of other countries in the region. Furthermore, the recent overthrow of the Gaddafi regime, the civil war in Syria and the Egyptian military overthrow of the democratically elected government adds to the political uncertainty surrounding the region. Military intervention in domestic politics, while nonexistent for strong democracies, is still a reality for developing countries and struggling democracies. The question then becomes what is the military's role, if any, with political instability. Understanding what political instability is and the role of the military in society is crucial in trying to understand the questions listed above.

Political stability is to some extent an elusive concept to define, simply because it represents a host of events that lead up to the same conclusion. Several authors have taken different approaches to the concept. One such author argues that political behavior is "any act by any member of society that affects the distribution of the power to make decisions for that society" (Ake, 1975, p.271). This means, any behaviour that maintains the power distribution structure of society is one that makes society politically stable i.e., obeying the laws of the land. Likewise the inverse of this definition of political stability can be applied towards the definition of political instability.

That being said, one cannot discuss political instability without examining the role of the military as either a facilitator or suppressor of instability and as one author puts it "Military intervention is a product of two sets of forces-the capacity and propensity of the military to intervene and the conditions in the society in which it operates" (Finer (1988) cited in Henderson and Bellamy (2002)). The vast number of political actions creates a challenge in trying to measure the effects of the military on instability. Therefore the focus of this analysis will only be on state failures, attempted coups and successful coups; civil violence and civil war; ethnic violence and ethnic wars. This analysis will be divided into five chapters. The first chapter is the introduction; the second chapter gives the reader a background on the literature surrounding definitions of instability and civil-military relationships while addressing the ways in which these concepts have been measured. The third chapter will review the data used in this analysis, the variables selected and the econometric methods applied. The fourth chapter discusses the results of the modeling technique used, and the fifth chapter summarizes the paper and addresses the future of this study

CHAPTER II

LITERATURE REVIEW

As was stated in the previous section one of the biggest challenges involves accurately defining instability. To address the complex nature of instability, the work of political scientist Claude Ake's (1975) provides a framework for understanding what this concept is. In it political instability is defined as any act that deviates from the regular flow of political exchanges which in turn represents the flow of transactions and communications among political actors. He also cautions against solely looking at political instability within the scope of specific political structures or political exchanges, because as he states "a form of behaviour that is destabilizing in relation to one political structure may well be stabilizing in relation to another" (Ake, 1975, p. 274). For example, most people don't necessarily consider elections as being a form of political instability, but if we look at an election in the context of an autocratic regime, then according to Ake's definition, it becomes clear that elections are politically destabilizing.

The works of Aisen & Veiga (2012), Jong-A-Pin (2008), Gurgul & Lach (2013), and Miljikovic & Rimal (2008) shed light on various ways to empirically measure political instability. For instance, in the analysis of growth and stability Aisen & Veiga (2012) look at instability from the perspective of a regime change via the number of cabinet changes experienced in a country for a given year. When they find that this measure is insufficient they create six alternate indices to account for instability by looking at three main categories: regime instability caused by external factors such as coups, within regime instability caused by internal factors such as legislative elections, and a violence index.

This is similar to the stance taken by Jong-A-Pin (2008) except that his analysis examines a much wider array of events, and he uses explanatory factor analysis to find commonalities amongst his events to build his definition of instability. In doing so he is able to measure instability across four dimensions: politically motivated violence, mass civil protest, instability within the regime and instability of the regime. Both authors find their results are most significant when instability is defined as: regime instability (caused by external factors such as coups) and within regime instability (caused by internal factors such as legislative elections). This suggests that events that cause a direct change in leadership are much better indicators of instability than those that do not in the context of their research.

Gurgul & Lach (2013) take a somewhat different approach in their analysis of instability and growth across central and eastern European countries and define instability as the number of government changes and the number of major government changes experienced, with major government changes representing a new political party in cabinet. While the differences between these two categories are vague their analysis showed that only major government changes were significant, corroborating the earlier findings of Aisen & Veiga (2012) and Jong-A-Pin (2008) of within regime instability as yielding statistically fruitful results.

That being said Miljkovic & Rimal (2008) put an interesting spin on the definition of political instability. They acknowledge that instability is more of a measure of uncertainty in a regime as opposed to a measure of regime failure, but they also contend that uncertainty is almost impossible to quantify, and therefore they define instability across three dimensions: irregular government changes (through unlawful and unconstitutional ways), regular government changes (election of a new political party), and if it is stable or unstable (defined as being a liberal democracy or dictatorship for at least 25 years).

By examining Ake's (1975) definition and Miljkovic & Rimal (2008)'s earlier assertion of uncertainty, an argument can be made that time isn't always the best indicator of stability. For example a regime might be a liberal democracy for 25 years and within that time period undergo multiple elections. However the mere act of having elections creates some amount of uncertainty because no one is ever 100% certain on the outcome of an election or the participants in the election. In that case simply looking at the length of time the regime remained 'unchanged' can be somewhat misleading.

From the previous literature one finds that the constant theme through their definition is regime change, whether it is caused by friction within the government or outside the government. In most countries regardless of how deeply involved its military is in political affairs the military is still an external actor, and as an external actor they are unable to cause the type of internal regime change put forth by Aisen & Veiga (2012), Jong-A-Pin (2008), Gurgul & Lach (2013), and Miljikovic & Rimal (2008). This often means that any changes in the government that they require is done via coups. To examine this relationship Collier & Hoeffler (2007) test the effects of monetary incentives on the risk of a coup. Their analysis reveals that for high coup risk regions like Africa, the government responded by increasing military spending, while in low coup risk regions the government's response was to cut military spending and reduce the size of the army. Their results also show that the behavior by African governments decreased the risk, while for the other regions there was no evidence supporting its effectiveness. This means that governments in this region sometimes try to buyout their own military to maintain their longevity. The relationship suggested by Collier & Hoeffler's (2007) findings differs from those done in an earlier study by Terrell (1971).

Instead of looking at military expenditure and the risk of a coup Terrell (1971), looks at political instability and the level of military effort. His work suggests that the relationship runs in the opposite direction with instability causing the military's involvement. He finds that there is no relationship between instability and military expenditures but there is a negative relationship between military size and instability. He further comments that governments are reluctant or unable to increase the size of their military during times of instability.

Other authors such as Tusalem (2013) and Adams (2010) have also tried to examine the relationship between the military and instability by looking at it from another different angle. Tusalem (2013) proceeds to examine the effects of military participation in politics on democratic stability and accountability and finds that states with politically active militaries are more likely to face lower levels of political accountability and thus less likely to aid in democratic stability, suggesting that in a consensus building atmosphere non democratic institutions are very detrimental. He also finds that military intervention as represented by coups decreases democratic accountability, and militaries with control over social policy, security, defence and officials in government post are more likely to weaken the strength of democratic institutions. Adams (2010) on the other hand examines the use of conscription as a way to stabilize democratic regimes. His results indicate that not only is there no relationship between conscription and democratic stability but there is a negative relationship between democratic consolidation and conscription, suggesting that as democracies age their use of conscription fades.  This further suggests that the military does not aid in promoting stability, at least when it comes to democracies.

From the above literature one can see that the relationship between the military and regime stability do not always go hand in hand. Furthermore in situations where they do, the

relationship can be problematic for the regime seeing as it encourages a high level of political participation of the military, which in turn makes it likely to be the source of instability. Despite the arguments made by the other authors, this view is not held by everyone. Bah (2013) argues that military intervention in Guinean politics from 1984 to 2010 was beneficial in maintaining stability during that time period while her neighbours were undergoing periods of instability. He further argues that their adoption of an ethnic like mentality (us vs. them), towards other segments of the state allowed them to maintain cohesiveness and strength, preventing a downward spiral towards intra military killings and cycles of military inspired coups, thus allowing them to focus on furthering their status and economic self interest.

Naturally the question arises, what causes the military to want to intervene? The works of Decalo (1989), Henderson & Bellamy (2002), Martini and Taylor (2011), Shah (2011) and Heiduk (2011) provides some clues as to why this is the case. For example, Henderson & Bellamy's (2002) analysis of military intervention in Vanuatu, Solomon Islands, Fiji and Papua New Guinea provides insights into the conditions required for intervention to occur. They argue that when militaries see themselves as being above the civilian regime they are more likely to intervene. This view is corroborated by Shah (2011) in his essay. He comments that in a developing country like Pakistan the lack of democratic constraints and feelings of superiority in the Pakistani military has made intervention a regular occurrence.

Henderson & Bellamy (2002) further argue that another condition for intervention is the level of dependency between the regime and the military. Indeed when regimes are dependent on the military for survival, regimes pay of their "debt" by giving lucrative privileges to the military.

Martini and Taylor's (2011) essay shows that in Egypt the level dependence between the military and the regime was quite strong. They state that since the early 50's all rulers in the country have either come from the military or relied on it for support and in return the military elite enjoyed access to perks and privileges unavailable to the general populace (Martini & Taylor, 2011). This has the effect of insulating the regime from potential opponents and allowing it to remain relatively stable, a tactic regimes sometimes employ to maintain and strengthen its control over the military, by turning a powerful enemy into a powerful ally. This also turns out to be the case in Heiduk's (2011) analysis of civil-military relations in three South East Asian countries. He also comments that as a consequence of increased political participation the primary role of the military is now the protection of regimes from internal opponents rather than external ones. This relationship isn't always beneficial and as time showed the dependency between the military and a regime can be problematic, as was the case for Egypt. As Henderson & Bellamy (2002) put it "the greater the dependency, the greater the ease of further military intervention". (Henderson & Bellamy, 2002, p.130).

The complex nature of civil-military relations begs the question of how should civilian regimes proceed in maintaining control over their militaries? One view put forth is that by Huntington (1957) which states that civilian control can be strengthened by maximizing the level of professionalism within the military through the creation of an independent, and autonomous military sphere within government (Huntington (1957) cited in Heiduk 2011). Heiduk stresses one of the criticisms levied against this view, which states that this approach can actually make the military less prone to subjection under civilian rule by amplifying the differences between the two (Heiduk 2011).

Decalo (1989) on the other hand argues that militaries with a more professional focus and militaries with 'populist' undertones are still prone to disrupt the current regime whenever they please. This suggests that the choice to intervene is not influenced by the level of professionalism or by a more communal mind set but rather by the factors given by Henderson & Bellamy (2002) That being said, other countries have also pursued various methods of maintaining their civil-military relations. Decalo's (1989) study on the stability of some African countries shows that they have been able to curtail the ambitions of their military through the following methods: The first involves preferential recruitment into the army, where having a military with members who share similar characteristics with the ruling regime limits their chance of intervention. The second method is the creation of a well paid, well equipped force-usually a paramilitary security force or presidential guard- to keep the military in check. The third method is to appoint family members into key positions in the military. The forth is the use of foreigners in the officer corps, because officers are assumed to be neutral. The fifth is the guarantee of external military support in case of domestic intervention. The sixth is by the regime maintaining its legitimacy through popular support, and the seventh is by providing monetary incentives in exchange for loyalty.

CHAPTER III

DATA ANALYSIS AND METHODOLOGY

This analysis attempts to look at the relationship between political instability and various military characteristics. The dependent variables are: the occurrence of state failure, the occurrence of civil or ethnic violence, and the occurrence of civil or ethnic war, attempted coups and successful coups, all of which were obtained from the Centre for Systemic Peace (CSP) dataset. [1] For this analysis 17 years worth of data from 1991 to 2007 was examined for 115 countries which gives 1944 observations.

For independent variables the aim was to try to account for conditions conducive to political instability. In doing so the independent variables are split into several categories. The first category examines the military by measuring its behaviour and some characteristics. The first variable of interest is conscription.[2] This is a binary variable that takes on a value of 1 for each year in which the country had and enforced conscription and 0 during the years in which it is abolished, not practiced or never occurred. This data was obtained from War Resisters International's website. This variable was included because conscription reveals a lot about the nature of the military in society. It can be said that in countries with conscription the military may often take on the additional role of 'educating' the general populace on how to become model citizens.

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[1] The data is available from the CSP website: http://www.systemicpeace.org/inscr/inscr.htm

[2] Data for conscription was obtained via War Resisters International's website: http://www.wri-irg.org/co/rtba/index.html, Nation Masters: http://www.nationmaster.com/country/,

Next is military expenditure as a percentage of GDP and the growth rate of military expenditure. More often than not defence budgets not only provide insights into the relationship between the military and the current regime, but also its technological capabilities. The data for military expenditure was obtained from the Stockholm International Peace Research Institute (SIPRI) military expenditure dataset.[3] Included is the growth rate in military expenditure. This is because the growth rate over time may yield insights as to whether the regime is anticipating or responding to an internal threat. Next is a measure of manpower by looking at military personnel as a percentage of the general population.[4]

The next variable included is past military regimes. This is measured by creating a binary variable that takes on a value of 1 if a country's own military has either ruled or intervened in the country's political process since its independence or date of last subjugation and 0 if otherwise.[5] Since some countries have been independent since the 19th century only military regimes that occurred in the 20th century are counted. Also if a country had experienced military rule in one year, all subsequent time periods receive a value of one. This is based on the assumption as a representation of the country's history its effects linger long after the event has finished. In some countries with military rule, the perpetrators may form some sort of ruling council or committee with their fellow conspirators, while in others a single individual emerges and claims the title of head of state. For the purpose of this analysis these two events are assumed to yield the same outcome of military rule.

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[3] SIPRI Military Expenditure data set can be obtained via: http://www.sipri.org/research/armaments/milex/milex_database

[4] Military Personnel data was obtained from the correlates of war, nations capabilities dataset: http://www.correlatesofwar.org/

[5] This variable was created with data from the CIA world fact Book: https://www.cia.gov/library/publications/the-world-factbook/ and Encyclopedia Britannica Online: http://www.britannica.com/

Other events such as the country imposing martial law are not coded as military rule if the imposition is done by a civilian government and the civilian government retains control throughout the duration of the imposition. For countries with multiple instances of military rule only the latest instance from date of independence is used.

Diversity in the military is proxied via the fractionalization scores from Alesina et al. (2003). In it they calculate fractionalization across three dimensions: ethnicity, language, and religion. Since military diversity is often not observable or reported for data collection two assumptions are made. The first is the non exclusion in recruitment policies based on ethnicity, language & religion. The second assumption is that the military as an institution is a smaller version of society with the same composition but different rules. There is an important caveat to be made. Since Alesina et al. (2003) only measure diversity at a point in time there is a natural danger in assuming that these measures do not change over time. The authors address these issues and find that there are no drastic changes in their fractionalization scores within a 20-30 year time period. Since the time span of this analysis falls within the 20-30 year range from the date the measures were calculated confidence in this variable as a proxy for diversity is maintained.

The second category is with variables that look at economic growth. The first is the annual GDP per capita. This measures the relative well being of general populace. The next variable included is exports as a share of GDP to account for the effects of trade, followed by the GDP deflator as a measure of inflation. The use of the GDP deflator instead of the traditional CPI has more to do with convenience than theory; lack of consistency in CPI for the countries used in this analysis gave rise to the use of the GDP deflator as a better measure.

Lacking a suitable source for an unemployment rate the percentage of population employed is used as a replacement for unemployment. It should be noted that there will be some issues with accuracy associated with using this variable as a stand in for unemployment because it makes no distinction between those who are unemployed and those who are not in the labour force.[6]

The third category deals with the political system of the country. For this the polity IV scores based of the polity IV project were used. They measure the regime type on a scale of -10 to +10, with +10 representing full democracy and -10 representing full autocracy. A variable looking at regime length is also included. This is done by looking at the number of years since the most recent regime change (Polity IV Project, 2013). It does this by looking at a three point change in a country's polity score over a span of three years or less.[7]

The fourth category deals with health and population. This is accounted for by looking at the mortality rate for children under 5 for each country and the population growth rate to see if a higher population growth is more conducive to political instability by its interaction on the availability of resources. These variables were obtained from the World Bank website via the World Bank Development Indicators.

The fifth category deals with regions and country age. The regions are split into seven groups (North America, South America, Africa, Asia, Europe, Middle East and Island Countries) and take on a value of 1 for if the country is in that region. There are several problems that arise when trying to gauge how old countries are.

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[6] The variable for GDP per capita, % of population employed, and exports were obtained via the World Bank Development Indicators.
[7] Data for polity scores were obtained via the Polity IV Dataset from: http://www.systemicpeace.org/inscr/inscr.htm

Since countries are manmade they change rapidly as time progresses. In some cases groups of people living in an area are lumped together and called a country, in other cases the country in question might be the successor of a much larger ancient empire, or might have gone through many wars that changed and re-changed its boundaries. To avoid this problem this variable tries to capture how old the modern incarnation is. This is accomplished by taking either the country's year of independence or its year of last subjugation as the beginning date.[8]

This category also includes the addition of a landlocked binary variable, a Muslim majority binary variable and an oil exporter binary variable. These 3 variables are meant to 1) capture any of the unique characteristics of landlocked countries not accounted for by the region indicators and 2) account for further country specific differences imbedded in the region indicators and 3) to control for the volatility of countries that depend on petroleum as their main source of income.[9][10][11]

A table summarizing relevant statistics of the variables used in this study is presented below.

**Table 1: Summary Statistics**

|  | Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| **Dependent Variables** | Magnitude of Civil Violence | 1944 | 0.0462963 | 0.2832 | 0 | 3 |
|  | Magnitude of Civil War | 1944 | 0.2170782 | 0.914343 | 0 | 6 |
|  | Magnitude of Ethnic Violence | 1944 | 0.1064815 | 0.464354 | 0 | 5 |
|  | Magnitude of Ethnic War | 1944 | 0.3955761 | 1.296657 | 0 | 10 |
|  | Magnitude of State Failure | 1944 | 0.0951646 | 0.537524 | 0 | 4 |
|  | Attempted Coups | 1944 | 0.0390947 | 0.19387 | 0 | 1 |
|  | Successful Coups | 1944 | 0.0102881 | 0.100933 | 0 | 1 |

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[8] Measurement of the country's age was obtained via, CIA world fact book, Wikipedia and Encyclopedia Britannica
[9] Data for landlocked countries was created via the CIA world fact book
[10] Data for Muslim majority was obtained from http://features.pewforum.org/muslim-population/
[11] Oil Export data was made from observations from the U.S. Energy Information Administration

**Table 1-cont'd**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Independent Variables** | Conscription | 1923 | 0.4888196 | 0.500005 | 0 | 1 |
| | Military Expenditure | 1802 | 2.368979 | 2.031839 | 0 | 17.5 |
| | % of Pop. In Military | 1920 | 1.680182 | 3.848013 | 0 | 38.27 |
| | Previous Military Rule | 1944 | 0.4840535 | 0.499874 | 0 | 1 |
| | Ethnic Diversity | 1938 | 0.4674306 | 0.263677 | 0.011928 | 0.930175 |
| | Religious Diversity | 1944 | 0.4308182 | 0.238371 | 0.0034627 | 0.86026 |
| | Mortality Rate | 1944 | 6.901024 | 6.55227 | 0.3 | 32.02 |
| | GDP per capita | 1923 | 7319.059 | 12441.37 | 64.81015 | 106919.5 |
| | Exports as share of GDP | 1903 | 33.78643 | 21.4508 | 0.1829688 | 175.8974 |
| | Polity Score | 1930 | 3.365285 | 6.37572 | -10 | 10 |
| | Population Growth | 1943 | 1.678693 | 1.475439 | -7.6 | 17.31 |
| | % of Pop. Employed | 1927 | 59.28677 | 11.66236 | 30.8 | 88.3 |
| | GDP Deflator | 1930 | 68.12377 | 765.5635 | -27.05 | 26762.02 |

*Methodology*

The argument can be made that trying to examine political instability as the onset of one event is too narrow. To account for the multidimensional nature of political instability it will be split into 4 cases. The first case which is the narrowest looks at the onset of state failure. This variable is a binary variable that takes on a value of 1 in years in which a state failure occurred and 0 otherwise. The second case which is much broader looks at the onset of a state failure and the onset of civil violence or ethnic violence. The third case looks at the onset of a state failure and the onset of civil war or ethnic war. The fourth case looks at the onset of a state failure and an attempted coups and successful coups

The multifaceted nature of political instability requires measurement techniques that differ from standard OLS for the cases presented. Since the dependent variable in each case only has two outcomes maximum likelihood estimation (MLE) via the logit regression is used. The standard logistic distribution function has the form:

$$P(Y=1|X_i) = \frac{\exp(x\beta)}{1+\exp(x\beta)} \tag{1}$$

Where xβ represents the sum of the regression variables and their coefficients. This form can be generalized into a linear format for ease of understanding:

$$y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 C_{it} + v_{it} + \varepsilon_{it} \tag{2}$$

The dependent variable $y_{it}$ is a binary is the probability of the event for country i at time t. The variable $X_{it}$ represents military characteristic given by presence of conscription, military expenditures, percent of the population in the military, previous military rule, the growth in military expenditure, ethnic and religious diversity of the military for country I at time t. The variable $C_{it}$ represents a host of control variables, $v_{it}$ represents dummy variables controlling for time and $\varepsilon_{it}$ is the error term. The original variable that looks at state failure, ethnic violence, civil violence, civil war and ethnic war actually measures the magnitude of each event in that given year. Some may then ask why the use maximum likelihood estimation was preferred instead of OLS. There were several reasons for this. The first as was stated above was to try and account for the multidimensional nature of political instability and this is accomplished by looking at the probability of several events occurring. Secondly, the distribution of outcomes in the violence and war measures were neither normal nor continuous within the given range of values. Finally an analysis of the variables showed they only measured magnitude. Meaning that the number of values each event can take is very limited; between 0-4 for state failure and 0-10 for the war and violence measures.

To circumvent this issue these variables were converted into a binary format. Since the method of analysis is via MLE the interpretation of coefficient estimates can be tricky, therefore to find the effects each variable has on the probability of instability the marginal effect of each variable will need to be examined.

Seeing this analysis involves panel data there are several issues that need to be addressed so as to maintain the validity of the estimates. The first of which is to account for fixed effects. Fixed effects is appropriate if the assumption that there are unobserved characteristics within each country that may or may not explain the occurrence of state failure is made. From this definition fixed effects becomes the method of choice.

To perform the fixed effect method the least squared dummy variable approach (LSDV) is employed. This involves creating dummy variables to control for each year in the observation. Due to the rare occurrence these events amongst the countries used in this sample, trying to perform fixed effects with country dummies proves to be ineffective. This isn't all that surprising considering the fact that most of the countries have zero's for the events in question thus making any variations between the countries that do have positive values for the events relatively small.

Another issue to address is one of heteroskedasticity. This is problematic because if the underlying assumption of a constant variation in the error term does not hold then this could lead to inconsistent and biased estimates. To correct for this heteroskedastic robust standard errors throughout the remainder of this analysis

CHAPTER IV

RESULTS


The results of the regression analysis for case A and B are presented in Table 2. To avoid

multicollinearity the growth of military expenditure was dropped from the regression analysis.

The first section looks at the results for case A and it shows a positive and statistically significant

relationship with conscription, expenditure, previous military rule, ethnic diversity and religious

diversity. The estimated marginal effects predict that every year a country has conscription the

probability of a state failure is expected to increase by 60.9%. This result is somewhat surprising,

however conscription during non war time situation is associated with a less efficient army and

losses to the economy (Adam, 2010), which in turn could be a signal for an already brewing

instability.  Increasing the share of military expenditure by 1 standard deviation also increases

the probability of state failure by almost 15%. If the share of military expenditure increases at the

cost of other essential domestic services, like funding for the police force or funding for essential

economic programs, then the lack of these programs could create the conditions necessary for

state failure to occur. The results also show that probability of state failure increased by almost

74% if the country had a military regime in the past. This result military intervention in the

political arena is destabilizing and makes future regimes vulnerable to instability.  Militaries that

are more diverse along ethnic and religious lines are also predicted to increase the probability of

state failure, with a change of one standard deviation expected to increase the probability of state

failure by 1.2 and 1.24% respectively.

If one accepts that state failures only occur when "there [are] shut-downs of routine government services, failure of security forces and administrators to carry out any government directives, and anarchic conditions in large parts of the country, with rival militias, warlords, or local or regional authorities attempting to establish autonomous zones of government" (Marshall et. al, 2013) then it's easy to see that these events are likely to occur when large scale conflicts like ethnic wars and sectarian violence take place. Furthermore there is no guarantee that the military is immune or remains neutral during for they may also be participants or instigators in such an event.

**Table 2: Logit regression for Case A & B**

| Variables | Case A | | | Case B | | |
|---|---|---|---|---|---|---|
| | Coefficient | Std. Error | Marginal Effect | Coefficient | Std. Error | Marginal Effect |
| Conscription | 0.6202769** | 0 | 60.93 | 1.056136*** | 0 | 98.49 |
| Military Expenditure % of GDP | 0.1510108*** | 0.047864 | 14.88 | 0.272605*** | 0.047864 | 26.28 |
| % of Population in Military | 0.047023 | 0.087819 | 4.63 | -0.3450373*** | 0.087819 | -33.27 |
| Previous Military Regime | 0.754177** | 0 | 73.90 | 0.27572 | 0 | 26.31 |
| Ethnic Diversity | 2.026884** | 0.00599 | 1.20 | 1.653001*** | 0.00599 | 0.95 |
| Religious Diversity | 2.332165** | 0.005406 | 1.24 | -0.18977 | 0.005406 | -0.09 |

*, **, *** denote statistical significance at the 10%, 5%, and 1% level.

The next section of Table 2 re-examines the previous military characteristics under the probability of a state failure and civil violence or ethnic violence. Once again conscription is shown to with the probability of the event, increasing the likelihood by 98.5%. This could be the case if there was mass disapproval of the countries conscription policy, which in turn could lead protests and rioting across the country. This specification also predicts that military expenditure is significant and a 1 standard deviation change leads to a 26.2% increase in the probability of the event occurring.

The result also shows increasing the percentage of the population in the military by one percent will decrease the probability of state failure, civil violence and ethnic violence by 33%. This result is somewhat similar to the findings of Terrell (1971) where he finds a negative relationship between military personnel as a percent of the population and political instability, and comments that, the negative relationship between manpower allocations and political instability results from the inability or reluctance of regimes to increase size during times of civil disorder. The negative relationship between the two variables could also be because a larger military size acts as an indicator of resources the regime possesses, deterring would be instigators of internal violence.

**Table 3: Logit regression for Case C & D**

| Variables | Case C | | | Case D | | |
| --- | --- | --- | --- | --- | --- | --- |
| | **Coefficient** | **Std. Error** | **Marginal Effects** | **Coefficients** | **Std. Error** | **Marginal Effects** |
| Conscription | -0.9205156*** | 0 | -84.75 | -0.2898 | 0 | -28.35 |
| Military Expenditure % of GDP | 0.1388097*** | 0.047864 | 13.68 | 0.021999 | 0.047864 | 2.17 |
| % of Population in Military | -0.06016 | 0.087819 | -5.92 | 0.0660924* | 0.087819 | 6.51 |
| Previous Military Regime | 0.443387** | 0 | 38.15 | 1.511712** | 0 | 143.39 |
| Ethnic Diversity | 0.442669 | 0.00599 | 0.26 | 1.01937 | 0.00599 | 0.60 |
| Religious Diversity | -1.91581*** | 0.005406 | -1.02 | -0.34716 | 0.005406 | -0.18 |

*, **, *** denote statistical significance at the 10%, 5%, and 1% level.

Table 3 shows the results for case C and D. The results from the first section, which examines the probability of state failure and civil and ethnic wars, are similar to those from case A with the exception of the direction of conscription and religion. Countries with conscription see a reduction of 84.75% in the probability of state failure and internal war, while increasing the share of military expenditure increases the probability of instability by almost 14%.

There are two reasons for this with the first being size. Size acts as a deterrent to domestic threat because the vast reserves of combatants shows the availability of resources that could lead to an unfavourable and prolonged conflict. Second is anticipation. The relationship between military expenditure and instability could be due to the government ramping up expenditures to in anticipation of potential conflict.

Previous military rule is shown to be significant in determining instability, once again due to its potentially destabilizing nature as it paves the way for more competitors to use any means necessary to challenge its legitimacy. Here religion is significant in decreasing the probability of instability, specifically increasing the level of religious diversity in the military by one standard deviation leads to a 1% decrease in the probability of instability. The insignificance of ethnicity and significant and negative relationship of religion are similar to the findings of Fearon & Laitin (2003) where they found that ethnicity and religious diversity did not make a country more prone to civil war.

The next section of Table 3 lists the result for case D. In this specification the only variables that are significant in predicting the onset of state failure and coups are military size and previous military rule. This result corresponds with the analysis of Henderson & Bellamy (2002) where they argue that if the military has been in power before then it is more likely to intervene again via coups. This appears to be the case as the probability of instability increases by 143% if the country had undergone previous military rule. Increasing the size of the military also increases the probability of instability by 6%. This is also because larger militaries mean a much larger pool of disenfranchised or charismatic individuals wanting to overthrow the regime.

*Robustness checks*

The variables country age and regime length were dropped to avoid issues with the time dummy variables. Table 4 lists the results of the robustness checks performed for Case A and Case B. The results show that when health, economic, political, regional, and various other country characteristics are included the only military characteristic that is significant is previous military rule which increases the probability of state failure by 98% suggesting that the military is a very big indicator on the likelihood of state failure. The result also shows several other variables of noticeable significance. The first is that a one percent increase in the mortality increases the probability of state failure by 31%. This is expected because a high mortality rate is associated with worse health, which in turn speaks about the effectiveness of the government on meeting basic needs of its citizens. The second is that growth in income decreases the probability of state failure, while a one percent growth in inflation leads to a .2% increase in the probability. This suggests that state failure is a phenomenon affecting underdeveloped countries. The third is that countries with a large Muslim population are less likely to have state failure (-262%), suggesting that state failure does not occur along religious backgrounds. The fourth is that oil exporting countries are more likely to have state failure. Countries where oil exports makes up a large percentage of their income are in danger because this income is very volatile, with a decrease in world price having drastic domestic consequences. The sensitivity analysis from the first case has shown that when the model is expanded to control for various other characteristics, the only significant aspect of the military that explains the probability of state failure is previous military rule.

**Table 4: Sensitivity analysis for Case A and Case B**

| | Case A | | | Case B | | |
|---|---|---|---|---|---|---|
| | **Coefficient** | **Std.Err** | **Marginal Effect** | **Coefficient** | **Std.Err** | **Marginal Effect** |
| Conscription | 0.440322 | 0 | 44.0 | 2.114425*** | 0 | 211.3 |
| Military Expenditure | -0.04603 | 0.047864 | -4.6 | 0.4101551*** | 0.047864 | 40.8 |
| % of Population in Military | 0.062613 | 0.087819 | 6.3 | -0.3915953*** | 0.087819 | -38.9 |
| Previous Military Regime | 0.9890871** | 0 | 98.8 | 0.5214469** | 0 | 52.1 |
| Ethnic Diversity | -1.44545 | 0.00599 | -0.9 | 1.066686 | 0.00599 | 0.6 |
| Religious Diversity | 0.037775 | 0.005406 | 0.0 | -1.019652* | 0.005406 | -0.5 |
| Mortality Rate | 0.3140741*** | 0.148609 | 31.4 | 0.1039143** | 0.148609 | 10.3 |
| Growth in GDP Per Capita | -0.1053711*** | 0.136794 | -10.5 | 0.04047 | 0.136794 | 4.0 |
| Exports as % of GDP | -0.0207115* | 0.491727 | -2.1 | -0.0335139*** | 0.491727 | -3.3 |
| Regime Type | -0.1212929** | 0.145128 | -12.1 | 0.013117 | 0.145128 | 1.3 |
| Population Growth | -0.1900219* | 0.033472 | -19.0 | -0.2184848** | 0.033472 | -21.7 |
| % of Population Employed | -0.02052 | 0.265672 | -2.1 | -0.1101708*** | 0.265672 | -10.9 |
| Growth in GDP Deflator | 0.0016247*** | 17.42619 | 0.2 | 0.0010091** | 17.42619 | 0.1 |
| Muslim Majority | -2.626168*** | 0 | -262.5 | -2.827351*** | 0 | -282.6 |
| Oil Exporter | 1.4753** | 0 | 147.5 | 1.702754*** | 0 | 170.2 |
| Landlocked | -0.05861 | 0 | -5.9 | 1.255074*** | 0 | 125.4 |
| North America | -1.16393 | 0 | -116.3 | 2.321121** | 0 | 232.1 |
| South America | -0.35352 | 0 | -35.3 | -0.9088 | 0 | -90.8 |
| Africa | -0.34531 | 0 | -34.5 | 3.487229*** | 0 | 347.8 |
| Middle East | 2.018937 | 0 | 201.8 | 2.723055*** | 0 | 272.1 |
| Asia | 0.638854 | 0 | 63.9 | 5.003766*** | 0 | 500.1 |

*, **, *** denote statistical significance at the 10%, 5%, and 1% level.

The next section of Table 4 lists the sensitivity analysis for case B. The results show that most of the variables from the restricted model are still significant and maintain their direction, with the exception of ethnicity which loses significance and religion with gains significance. The inclusion of other variables now increases the magnitudes of the military characteristics so now a one percent change in military size decreases the probability by 39%.

Countries that have conscription experienced a 211% increase in the probability of instability while a one standard deviation change in religious diversity reduces the probability by 0.5% once again suggesting that more religiously diverse militaries are less likely to cause state failure. The estimates for the health and economic variables maintain their direction and significance with exports and employment reducing the probability by 3% and 10% respectively, once again suggesting that favourable economic conditions help prevent state failure and internal violence. We also find that countries with a Muslim majority decrease the probability of state failure and internal violence by 282% while oil exporting countries increase the probability by 170%. This can be attributed to the fact that Muslim societies tend to be somewhat socially restricted than their non Muslim counterparts. Oftentimes the regime in these countries enacts laws or adopts stances that affect the ways in which individuals interact. This leads to big differences between Muslim countries and non Muslim countries on what are socially accepted behaviours. Also for countries with dependency on oil exports the distribution of the gains is not always equal. Sometime some groups are marginalised when the oil is extracted from their region, leading to resentment, protests and violent behaviour towards the government or the extraction companies. The results from the analysis also show that all the regions, except South America significant in increasing the probability of instability. With an increase of 232% for North America, 347% for Africa, 272% for the Middle East and 500% for Asia. The Large effect of  these region variables is most likely due to the inclusion of certain countries within these regions. Further examination shows that when these countries (i.e., Mexico for North America or India for Asia) are excluded the sign, significance, and magnitude of the regions either changes, or becomes insignificant. This leads to the conclusion that the region variable is a poor indicator of country diversity within a region.

Table 5 includes the robustness check for case C and D.  The results show that the direction and overall significance of the original variables remains unchanged with the exception of a decrease in the marginal effect of conscription. However ethnic diversity is now significant with a one standard deviation change leading to a 0.9% increase in the probability of state failure and ethnic war. This suggests that militaries that are more ethnically diverse are not exempt from conflict along ethnic lines. Once again the results also show that favourable economic policies lead to a decrease in the probability by 2.9% and 3% respectively. Again we see that countries with a major Muslim population are less likely to have state failure and internal war, decreasing the probability by 139.7% while Oil exporters decrease the probability of state failure and internal war by 141%. An explanation for this could be that countries with if a civil war or ethnic war to occur, a drop in production could occur seeing as the opposition will try to cut off the flow of income into the country by destroying or disrupting production. Secondly the regime also risks losing control of a valuable asset as both sides try to control the main source of income. This makes the cost of a state failure and internal war high for these countries. The result also suggests that landlocked countries decrease the probability of a state failure. Once again we see that the region variables are significant with the South America Region decreasing the probability of state failure and as was stated earlier this is due to country variations not properly captured by the region variable.

The next section of the table lists the results for case D. The result shows that when health, economic, political, country characteristics, and regional variables are accounted for, military size and previous military regime are the only military variables that still maintain their significance. The results also show that the mortality rate and inflation increase the probability of

state failure and coups by 15% and 1% while countries that are more democratic reduce the

probability by 21.7%.

**Table 5: Sensitivity analysis for Case C and Case D**

| | Case C | | | Case D | | |
|---|---|---|---|---|---|---|
| | Coefficient | Std.Err | Marginal Effect | Coefficient | Std.Err | Marginal Effect |
| Conscription | -0.4383802** | 0 | -43.8 | -0.15793 | 0 | -15.8 |
| Military Expenditure | 0.3018914*** | 0.047864 | 28.7 | -0.2689 | 0.047864 | -26.8 |
| % of Population in Military | -0.01322 | 0.087819 | -1.3 | 0.1066143** | 0.087819 | 10.6 |
| Previous Military Regime | 0.4537336** | 0 | 45.3 | 1.693007** | 0 | 169.1 |
| Ethnic Diversity | 1.553267*** | 0.00599 | 0.9 | -1.06066 | 0.00599 | -0.6 |
| Religious Diversity | -2.615848*** | 0.005406 | -1.3 | -1.43499 | 0.005406 | -0.8 |
| Mortality Rate | 0.032175 | 0.148609 | 3.1 | 0.1522816* | 0.148609 | 15.2 |
| Growth in GDP Per Capita | 0.017235 | 0.136794 | 1.6 | -0.0853 | 0.136794 | -8.5 |
| Exports as % of GDP | -0.0307266*** | 0.491727 | -2.9 | -0.01179 | 0.491727 | -1.2 |
| Regime Type | -0.02142 | 0.145128 | -2.0 | -0.2177475** | 0.145128 | -21.7 |
| Population Growth | -0.15826 | 0.033472 | -15.0 | -0.0648 | 0.033472 | -6.5 |
| % of Population Employed | -0.0313031** | 0.265672 | -3.0 | -0.01381 | 0.265672 | -1.4 |
| Growth in GDP Deflator | 0.000956 | 17.42619 | 0.1 | 0.0007372** | 17.42619 | 0.1 |
| Muslim Majority | -1.398009*** | 0 | -139.7 | -1.02162 | 0 | -102.1 |
| Oil Exporter | -1.411125*** | 0 | -141.0 | -0.42701 | 0 | -42.7 |
| Landlocked | -1.658364*** | 0 | -165.7 | 0.040266 | 0 | 4.0 |
| North America | 0.646925 | 0 | 64.7 | - | - | - |
| South America | -1.424837** | 0 | -142.4 | 0.198766 | 0 | 19.9 |
| Africa | 0.527368 | 0 | 52.6 | -1.48801 | 0 | -148.4 |
| Middle East | 0.8039399** | 0 | 80.3 | 0.949773 | 0 | 94.9 |
| Asia | 1.440359*** | 0 | 144.0 | 0.430281 | 0 | 43.0 |

*, **, *** denote statistical significance at the 10%, 5%, and 1% level.

Performing the sensitivity analysis has shown that with the exception of Case A all of the

other military variables maintained their significance and in most cases their direction. The

predictive capabilities of the model can be further examined by looking at the classification

tables in appendix A & B. in it one can see that using a probability of 0.5 the model correctly

predicts at least 90% of the cases across the definition of instability.

So if all the countries are predicted to not have state failure then we would be correct at least 90% of the time. Given the specification and predictive power of the model we can create a ranking system for the countries in the dataset that are most likely to have state failure. From the table in appendix C the results show that Angola tops the list with a 30% probability of state failure. for the second case we find that Armenia has a 47% chance of state failure and internal violence, while for the third case we find that Mauritania has an almost 77% chance of state failure and internal wars, while Myanmar has a 20% chance of state failure and a coup.

CHAPTER V

CONCLUSION

This analysis, examined the relationship between the military and political instability for 115 countries across 17 years. This analysis was unique in how it approached the definition of political instability, how it viewed the military and through the use of maximum likelihood estimation techniques the relationship between some characteristics of the military and political instability were measured. The results showed that all the military variables except percent of the population in the military were significant in the first case. However this did not hold when the model was expanded to include other variables with previous military rule remaining as the only significant variable. In the second case, conscription, military expenditure percent of population in the military previous military rule and religious diversity were significant in explaining the onset of state failure and internal war. It also suggested military size was inversely related to instability. Once again in the third case conscription, military expenditure, past military regimes, ethnic diversity and religious diversity were significant with conscription and religious diversity decreasing the likelihood of instability. In the final case the only significant variables were past military regimes and military size, with both of these events being shown to have a positive relationship. The findings of this study suggested the only military characteristic that was significant throughout was past military regime in the country. This suggests that the effects of military regimes linger long after the regime has been replaced.

There are several short comings to be noted in this analysis, one of which lies in ho political instability was defined as the onset of very few extreme events. Not only does the focus of a few extreme events ignore the wide scope of instability it also limits the number of cases in which instability can be measured. Furthermore the study only focused on the occurrence and excluded impact. Performing the analysis in this manner excludes the full scope of the effects of military characteristics on political instability. Another issue lies in the type of variables used to proxy for various military characteristics. For example military expenditure might give us insights as to the relationship between current regimes and the military but there may be good reason for us to suspect these figures, simply because defense expenditure is a very sensitive issue. Some countries might choose not to report their military budget or provide misleading information in order to maintain secrecy which could lead to biased estimates in any analysis. However the framework presented here may serve as a starting point for other research in this field. For example this analysis did not examine the effects of the military on political stability when a regime is an autocracy versus when it is a democracy. Furthermore due to the short time period and nature of the data, the analysis was unable to examine if the relationship holds if we shift the focus to foreign militaries.

APPENDIX

**Table 6: Classification Table of Estimated Model for Case A with a cut off value of 0.5**

| Classified | TRUE | FALSE | Total |
|---|---|---|---|
| + | 10 | 2 | 12 |
| - | 39 | 1673 | 1712 |
| | | | |
| Total | 49 | 1675 | 1724 |
| Sensitivity | | Pr( + D) | 20.41% |
| Specificity | | Pr( -~D) | 99.88% |
| Positive predictive value | | Pr( D +) | 83.33% |
| Negative predictive value | | Pr(~D -) | 97.72% |
| | | | |
| False + rate for true ~D | | Pr( +~D) | 0.12% |
| False - rate for true D | | Pr( - D) | 79.59% |
| False + rate for classified | + | Pr(~D +) | 16.67% |
| False - rate for classified | - | Pr( D -) | 2.28% |
| **Correctly classified** | | | 97.62% |

**Classified as + if predicted probability >=.5**

**Table 7: Classification Table of Estimated Model for Case B with a cut off value of 0.5**

| Classified | TRUE | FALSE | Total |
|---|---|---|---|
| + | 20 | 12 | 32 |
| - | 94 | 1598 | 1692 |
| | | | |
| Total | 114 | 1610 | 1724 |
| Sensitivity | | Pr( + D) | 17.54% |
| Specificity | | Pr( -~D) | 99.25% |
| Positive predictive value | | Pr( D +) | 62.50% |
| Negative predictive value | | Pr(~D -) | 94.44% |
| | | | |
| False + rate for true ~D | | Pr( +~D) | 0.75% |
| False - rate for true D | | Pr( - D) | 82.46% |
| False + rate for classified | + | Pr(~D +) | 37.50% |
| False - rate for classified | - | Pr( D -) | 5.56% |
| **Correctly classified** | | | 93.85% |

**Classified as + if predicted probability >=.5**

**Table 8: Classification Table of Estimated model for Case C with a cut off value of 0.5**

| Classified | TRUE | FALSE | Total |
|---|---|---|---|
| + | 47 | 14 | 61 |
| - | 151 | 1512 | 1663 |
| | | | |
| Total | 198 | 1526 | 1724 |
| Sensitivity | | Pr( + D) | 23.74% |
| Specificity | | Pr( -~D) | 99.08% |
| Positive predictive value | | Pr( D +) | 77.05% |
| Negative predictive value | | Pr(~D -) | 90.92% |
| | | | |
| False + rate for true ~D | | Pr( +~D) | 0.92% |
| False - rate for true D | | Pr( - D) | 76.26% |
| False + rate for classified | + | Pr(~D +) | 22.95% |
| False - rate for classified | - | Pr( D -) | 9.08% |
| **Correctly classified** | | | 90.43% |

**Classified as + if predicted probability >=.5**

**Table 9: Classification Table of Estimated model for Case D with a cut off value of 0.5**

| Classified | TRUE | FALSE | Total |
|---|---|---|---|
| + | 1 | 1 | 2 |
| - | 23 | 1260 | 1283 |
| | | | |
| Total | 24 | 1261 | 1285 |
| Sensitivity | | Pr( + D) | 4.17% |
| Specificity | | Pr( -~D) | 99.92% |
| Positive predictive value | | Pr( D +) | 50.00% |
| Negative predictive value | | Pr(~D -) | 98.21% |
| | | | |
| False + rate for true ~D | | Pr( +~D) | 0.08% |
| False - rate for true D | | Pr( - D) | 95.83% |
| False + rate for classified | + | Pr(~D +) | 50.00% |
| False - rate for classified | - | Pr( D -) | 1.79% |
| **Correctly classified** | | | 98.13% |

**Classified as + if predicted probability >=.5**

**Table 10: Country Rankings based on model specification          Top 15 for All Cases**

| Rank | Country | Case A | Rank | Country | Case B |
|---|---|---|---|---|---|
| 1 | Angola | 0.3061511 | 1 | Armenia | 0.4734353 |
| 2 | Congo Kinshasa | 0.2869706 | 2 | Angola | 0.4508262 |
| 3 | Rwanda | 0.2031458 | 3 | Algeria | 0.4254321 |
| 4 | Guinea-Bissau | 0.1900324 | 4 | Mauritania | 0.3775893 |
| 5 | Sierra Leone | 0.1802820 | 5 | Mali | 0.3738092 |
| 6 | Central African | 0.1342669 | 6 | Pakistan | 0.3697733 |
| 7 | Niger | 0.1339337 | 7 | Congo Kinshasa | 0.3269491 |
| 8 | Cote d'Ivoire | 0.1316810 | 8 | South Africa | 0.2736813 |
| 9 | Azerbaijan | 0.1195234 | 9 | Laos | 0.2734862 |
| 10 | Congo-Brazzaville | 0.1180815 | 10 | Thailand | 0.2600241 |
| 11 | Myanmar | 0.1096003 | 11 | India | 0.2434248 |
| 12 | Burundi | 0.0999467 | 12 | Sudan | 0.2338147 |
| 13 | Cameroon | 0.0970355 | 13 | Myanmar | 0.2123209 |
| 14 | Liberia | 0.0881145 | 14 | Vietnam | 0.1923772 |
| 15 | Zimbabwe | 0.0861781 | 15 | Central African | 0.1889096 |

**Table 11: Country Rankings based on model specification**

| Rank | Country | Case C | Rank | Country | Case D |
|---|---|---|---|---|---|
| 1 | Mauritania | 0.778843 | 1 | Myanmar | 0.192681 |
| 2 | Myanmar | 0.713463 | 2 | Sierra Leone | 0.171692 |
| 3 | India | 0.542464 | 3 | Rwanda | 0.128263 |
| 4 | Sri Lanka | 0.476109 | 4 | Zimbabwe | 0.110859 |
| 5 | Jordan | 0.42817 | 5 | Tajikistan | 0.099788 |
| 6 | Pakistan | 0.388896 | 6 | Niger | 0.095973 |
| 7 | Turkey | 0.353041 | 7 | Mauritania | 0.093888 |
| 8 | Nicaragua | 0.334991 | 8 | Egypt | 0.082249 |
| 9 | Morocco | 0.286686 | 9 | Gambia, The | 0.062117 |
| 10 | Cambodia | 0.282814 | 10 | Uganda | 0.051525 |
| 11 | El Salvador | 0.27959 | 11 | Guinea-Bissau | 0.04633 |
| 12 | Liberia | 0.275995 | 12 | Laos | 0.044618 |
| 13 | Oman | 0.262375 | 13 | Azerbaijan | 0.043668 |
| 14 | Saudi Arabia | 0.259978 | 14 | Vietnam | 0.041665 |
| 15 | Guinea-Bissau | 0.250721 | 15 | Congo-Brazzaville | 0.041203 |

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