

# **Aid and State Capacity:**

## **A Multi-Dimensional Quantitative Approach to the Effects of Foreign Aid on State Capacity**

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## Abstract

Prior scholarly literature has presented a multitude of varying results and perspectives on the relationship between foreign aid and its effects on the state capacity of aid recipient countries. Showing little consensus between various sorts of empirical research designs and studies, the foreign aid and state capacity scholarly landscape is still relatively uncertain. This study adds to existing research by approaching the measurement of the effects of foreign aid on the concept of state capacity from multiple dimensions, being fiscal, legal and bureaucratic-administrative. In past research, scholars tend to define and measure state capacity according to one or two of the range of dimensions through which state capacity can be studied. This research also adds to the present scholarly gap by including relatively under-studied non-DAC and Chinese aid donor data alongside the frequently studied DAC donor group.

Using a quantitative large-N cross-sectional research design, this research aimed to answer the research question, '*What are the effects of foreign aid on recipient countries' different dimensions of state capacity?*'. Data on three theoretically informed indicators were collected to measure change in state capacity between 2008 and 2018 along fiscal, legal and bureaucratic-administrative dimensions. Tax revenue, rule of law and government effectiveness were chosen as indicators for each dimension respectively. Data on aid commitments made between 2004 and 2014 by DAC, non-DAC and Chinese donors given to 135 (N=135) lower, lower-middle and upper-middle income recipient countries were collected to test for potential effects on state capacity. This research employed three multiple linear regression analyses as the main quantitative testing methodologies, alongside three quadratic regressions as additional checks for presence of a quadratic or diminishing relationship. The control variables employed within this research were average GDP growth, level of institutionalized democracy, presence of conflict and the initial value of each of the respective dependent variable measures.

The findings of this research presented mixed results showing that foreign aid did not act as a significant predictor for change in tax revenue and change in rule of law as part of the fiscal and legal dimension regression models. On the other hand, foreign aid did have a significant negative effect on government effectiveness as a measure of state capacity within the bureaucratic-administrative model. While the government effectiveness measure was significant and matched expectations, the negative effect was small and many controls proved insignificant across all three regressions. Additionally, the results of the three quadratic regressions were insignificant, meaning no evidence of a quadratic or diminishing relationship could be found. With two of the three models proving insignificant, a concrete negative relationship between foreign aid and state capacity can neither be confirmed nor denied. Further research that may prove beneficial would be to implement more varied indicators and control variables, as well as to explore other research designs that may better establish causality within the relationship such as time series or a mixed methods approach.

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## Chapter One: Introduction

### 1.1 The Landscape of Foreign Aid and State Capacity

Former World Bank President Sir James Wolfensohn said in 1995 that, ‘*While focusing on the macroeconomic numbers or on major reforms like privatization, we have ignored the basic institutional infrastructure, without which a market economy simply cannot function* – ‘ (Wolfensohn & Kircher, 2005, p. 115). In this speech, Wolfensohn called for the creation of a new development focused framework for the World Bank, one that addressed the detrimental shortcomings left by the Washington Consensus in the sphere of international development aid. This speech both reflected upon and foreshadowed the criticality of aid provision and state capacity for development as being more relevant now than ever. Despite the increasing levels of aid being channeled to developing countries, with over \$165.8 billion being contributed in development assistance and official aid in 2018 alone (World Bank, 2021a), these efforts still remain insufficient. Development aid is often seen to have negative effects on efforts to tackle the plethora of wicked problems and sustained challenges such as a lack of state capacity that plagues development progress today. Whether aid has a negative or positive effect on recipient countries has been a widely debated topic, with many academics often arguing towards the former.

The aggregate effects of aid are also contentious and are presented to frequently have varied empirical results, also in relation to state capacity. Logically, most aid is intended with specific programs, projects or plans set into motion to achieve delineated outcomes or targets in a recipient country, and often they involve improvements in elements of state capacity. One popular intended aid modality is the provision of technical assistance. With aims to improve government capacity through means such as workshops and trainings in necessary skills or best practices, technical assistance can thus help disseminate such previously unavailable knowledge (Dijkstra, 2018). This can in certain situations help improve local knowledge and skills, upgrade government processes and improve bureaucratic capacity when done successfully. However, it can also have negative effects such as leading to more government absenteeism or the eventual poaching of skilled government staff (Acharya et al, 2006). This occurs when donors establish separate implementation facilities or scout potential valuable employees in local governments who can provide insider knowledge to assist in aid project implementation.

With increasingly large flows of aid occurring in many differing modalities and the increased involvement of a diverse range of actors, aid is also often predicted to have both positive and negative unintended effects on good governance and state capacity of the recipient country (Dijkstra, 2018). The potential negative effects of aid have been identified taking many different forms. For example, the development of recipient dependence on aid and a reduction in domestic and political accountability,

given the lack of citizen participation in aid relations. Also relevant to this study are the potential negative effects on state capacity through reduction in bureaucratic and administrative quality for example (Moss, Pettersson & van de Walle, 2006). There may also be positive unintended effects linked to aid such as the adoption of higher quality standards for products, processes or even improvements in human rights and social issues through ratifications of treaties or agreements (Dijkstra, 2018). State capacity is thus an extremely important concept that finds itself centrally positioned to effect the proper functioning of states, their societies and economies. Good governance is popularly studied and conceptualized using political, judicial and administrative dimensions (Kaufmann, Kraay & Mastruzzi, 2011). While measuring state capacity does not necessarily always have to be inclusive of all good governance dimensions simultaneously, many studies often overlap or mix together concepts when choosing indicators and aspects. This study will focus on state capacity as defined by a selection of theoretically informed concepts that will indeed be inclusive of selected dimensions of good governance, but not solely limited to it.

Aid fragmentation is another aspect of aid with an effect on state capacity. This sees the increase in average number of donors per country, paired with the decrease in the average scale of projects (Kharas, 2007). Arising from growing aid fragmentation are the subsequent challenges of aid coordination, planning and effective implementation. With more aid agencies providing various and often opposing forms of aid to developing countries, this makes it increasingly difficult to coordinate aid and reap the benefits in the most efficient way possible. Due to recipient governments' often underdeveloped institutional and financial capacities, this causes them to often be submerged in aid, struggling to stay on top of all of the provided interventions. Aid fragmentation as an aspect of foreign aid can thus have sizeable effects on state capacity through decreasing a state's bureaucratic functionality and efficiency. This comes about as developing countries with already weak institutions, governance and state capacity struggle the most to effectively manage incoming aid-related tasks on top of their daily regular work, contributing to only further the inefficiency within the wider development aid architecture (Kharas, 2007). Additionally, this outlined proliferation of aid agencies providing an increasing amount of aid has also been reflected in a shift from more coordinated program-based aid to many smaller project-based aid interventions, which has been coined as 'institutional destruction' (Morss, 1984). More project-based aid means further fragmentation in the sense of varying evaluation and reporting criteria and higher transaction costs (Dijkstra, 2018). A large amount of donors also tends to create somewhat of a competitive environment, where donors and project implementors in recipient countries only care about the success of their own project and lose sight of overarching development goals and progress.

Another vital aspect of aid in relation to state capacity is that of aid conditionality. Most famously known through structural adjustment programs (SAPs), used by the International Financial Institutions (IFIs) over the last few decades. These have notably been criticized for their widespread

negative effects on recipient countries. These policies have also been argued to have negative effects on state capacity, through expecting developing countries' to already have the state and bureaucratic capacity to implement complex policies and exercise popular reforms such as privatization and decentralization effectively (Reinsberg et al, 2019). Some of these relevant negative effects are for example, a reduction in bureaucratic quality and the lessened sovereignty in government capacity and management of state processes. State capacity was thus included much less in decision making surrounding aid than the pursuit of rapid liberalization and privatization during the time (Lopes, 2012). This served as a stark reminder to both the states receiving aid and the IFIs, that aid conditions can be very influential but when done wrong, can also cause more harm than its counterfactual. With this stated, this has not stopped academics, policymakers and even the general population from ascribing to single popular paradigms, and pursuing their related policies, often to unsuccessful outcomes. Subsequent shifts in paradigm and change in focus of aid modalities have led the development aid narrative to begin to move away from the policies of the Washington Consensus and more towards a state capacity oriented focus. However, its effects still loom, embedded into inefficient aid landscapes, conflicting governance processes, and uncertain state capacities of developing countries around the world today.

Concurrently, the appearance of the Millennium Development Goals (MDGs) and their successors, the Sustainable Development Goals (SDGs) prompted a more hopeful and tangible shift in the development paradigm. Increased global alignment on this set of goals allowed world leaders to begin to subscribe to a somewhat universal global development agenda, which included the call for an improved and more sustainable approach to development aid. These developments in the provision of foreign aid embody the more future-oriented and state capacity focused approach of the post-Washington consensus, which still leaves much uncertainty regarding its effects. In large, the MDG and SDG era has also begun to shed light on the importance of the dynamics of state capacity in effective development vis-à-vis the provision of aid. This can be demonstrated by the increasing mention of state capacity in the promulgation of various consensuses and forums such as the Monterrey Consensus and the Addis Ababa Agenda, since the inception of the MDGs and SDGs (Young & Padilla, 2020). What is clear however, is that there is still much potential for progress and improvement.

For the better part of a century, these sustained mixed results of the effects of foreign aid on development levels and more specifically on state capacity of varying countries have made it abundantly clear that development as a highly complex and multi-dimensional concept, has no one defined approach or set of solutions. Thus, a salient emerging challenge defining the aid landscape today is not simply restricted to deciding which existing paradigms (if any) are most beneficial. One should delve deeper than that, not only limiting ourselves to questions such as in what form, where, when and how much aid should be given. Whilst these questions have proven indispensable thus far, these are not new questions within the field. Rather to gain a more nuanced understanding within the scope of this study,



more contemporary factors present in the narrative of the post-Washington consensus should be investigated. In this regard, this study will focus on the concept of development aid and its possible effects on different dimensions of state capacity of receiving countries. The concept of state capacity is rather multi-faceted and often defined in a multitude of ways. Traditionally it finds its roots in the ability of a state to collect taxes for reinjection into the country (Deserranno, Nansamba & Qian, 2020). Within this study, the traditional definition will be expanded on and other dimensions of state capacity will be drawn upon to seek to hopefully gain a more complete understanding of the effects of aid. To understand precisely the effects of development aid on developing countries' state capacities, this study poses the following research question:

*'What are the effects of foreign aid on recipient countries' different dimensions of state capacity?'*

While the concept of aid in relation to state capacity may not be new, many scholars have taken conflicting approaches using indicators for state capacity from different perspectives such as legal, fiscal, bureaucratic/administrative or political, often finding negative effects. Following this line of reasoning, many quantitative studies have also yielded varying levels of results, of which many have proven statistically insignificant and only revealing partial insights of the effects of aid on state capacity. This has been discussed by Warmerdam and de Haan (2012) as well as Bull (2016), where the authors mention a significant gap in research regarding the effects of aid on state capacity. This present study expects negative effects of aid on state capacity and aims to address the aforementioned gap and the accompanying problems of previous studies through the use of a selection of theoretically informed indicators representing the fiscal, legal and bureaucratic-administrative dimensions of state capacity, in order to provide more novel, complete and generalizable results.

## **1.2 Research Approach**

To properly address the research question, this study employs a quantitative large-N research design. Data concerning aid will be collected through the use of official Development Assistance Committee (DAC), non-DAC and Chinese donor country data from the OECD, World Bank and Aiddata.org (AidData), which will be expanded upon further in the methodology. A representative range of theoretically informed indicators will be carefully selected to best represent the widespread effects of aid on state capacity. The data concerning indicators measuring state capacity will be found through the use of cross-sectional data from the World Bank databases. To ensure a multi-dimensional approach to measuring state capacity, it is vital to adequately include variables covering the relevant dimensions such as fiscal, legal and bureaucratic-administrative to most accurately measure all of the potential effects that aid may have. This will be done for countries classified as developing that are receiving aid with sufficient available high-quality data.

### **1.3 Scientific and Societal Relevance**

This study is scientifically relevant as it aims to add to and further develop the existing conventional scientific discourse on development aid's influence on state capacity. This will be delivered by providing more externally valid and representative results through the novel selection of a range of multi-dimensional indicators that cover a combination of relevant theoretically informed aspects of state capacity. Additionally, the use of both DAC, non-DAC and Chinese donor data will add a less explored perspective, with new insights compared to the frequently explored strictly DAC country data studies. The existing scientific discourse on the subject has traditionally been defined by studies delivering mixed results, often being insignificant, ungeneralizable and containing varying and difficult to compare variables of state capacity (Bull, 2016). The study will thus follow and seek to further build upon and improve this existing discourse, by positing the expectations that aid will have negative effects on state capacity across the chosen indicators. State capacity especially as a concept, has also thus far been poorly defined with many variations in existing literature (Cingolani, Thomsson, & De Crombrughe, 2015). What this study seeks to provide is not only a new means to accurately measure state capacity in a theoretically inclusive manner, but also to produce more generalizable results from which higher quality robust conclusions can be drawn for further use in foreign aid and state capacity related research.

The societal relevance of this study goes beyond only being highly relevant in addressing the inefficient and fragmented aid architecture negatively influencing developing countries' economic and social development outcomes. While researchers tend to disagree and express uncertainty as to why there is a negative effect, this is precisely why it is increasingly relevant to try and establish what kind of negative effect it is and to what extent it occurs. This study is relevant for policymakers as identifying the effects of aid on state capacity can give valuable insights into policy changes or reforms that may promote more efficient distribution or targeting of aid to further development efforts. It is also relevant in terms of informing donor and recipient country aid related practices, as well as to embody a more even balance of market-state policy solutions for recipient countries in receiving aid and promoting capacity development.

Perhaps most critically, this study is also paramount as it finds itself contextually nested in a period of unprecedented global health crisis, that will most likely shake the development world to its core. While it is still too soon to tell the exact impacts of the COVID-19 virus, it has already dangerously disrupted and even reversed development progress in many senses (OECD, 2020). Countries have been looking increasingly inward to try and deal with this prolonged multi-dimensional virus that knows no borders. Meanwhile, those countries more vulnerable with already weak state capacities, who were previously reliant on development assistance, will suffer most. Development statistics trends are already gradually confirming such predictions. Remittances fell by a predicted 20% in 2020, Foreign Direct Investment (FDI) is predicted to fall 30-40% between 2020 and 2021 and GDP growth is expected to

suffer large drops to as low as -4.6% in some parts of the developing world (OECD, 2020). For precisely these pressing reasons, development assistance may be more important to study now than over the last few decades. Perhaps with an even more vital role to play, may be the now-worsened state capacities of countries in dealing with socio-economic development issues and the effects of the reception of aid within the context of a post-COVID-19 world. This makes it paramount to add robust findings to both the scientific and societal understanding of how aid affects state capacity, so that this may structure future policies and courses of action taken.

#### **1.4 Structure of the Research**

The structure of the study will now be presented and delineated. Following this introduction, a literature review of the most relevant studies on aid and state capacity will be carried out in order to build a solid understanding of the subject area. This will then be used to inform the theoretical framework of the study, which will act as a conceptual backbone to the analysis. The methodology then follows, explicating the details of the research design and the approaches taken in achieving the results. This then prompts the analysis section, in which a large-N quantitative analysis will be conducted in terms of the effects of aid on theoretically informed indicators of state capacity through the use of multiple and quadratic regression analyses. The findings will then be discussed, which will finally allow for conclusions, limitations and recommendations for future research and practice.

### **Chapter Two: Literature Review**

In order to establish a concrete empirical foundation, it is critical to analyze existing literature that will empirically inform the present study and provide further context. This will be carried out through presenting relevant findings of previously written works by scholars in the field. This literature review will begin by breaking down the importance of state capacity for development. This is followed by an explication of the Washington Consensus, its effects through aid conditionality and the shift towards a post-Washington Consensus paradigm and what this means in terms of state capacity. Finally, the existing studies and results regarding the relation between foreign aid and its influence on state capacity will be put forward. The aim of this literature review is to succinctly present the most relevant literature for this study and subsequently identify a gap within it. By doing so, it is possible to most accurately draw from and synthesize the needed theoretical concepts to employ during the rest of this research.

## **2.1 Importance of State Capacity for Development**

Empirical studies regarding the effects of state capacity and its importance for the development outcomes of countries have grown over time, but have also covered a wide and varying amount of aspects of state capacity and different effects (Cingolani, 2018). Despite appearing in a multitude of academic fields from economics to political science to public administration, one thing that holds constant across the literature is that state capacity, its related aspects and also the lack thereof, is a highly important factor for development. Demonstrating just that, using a novel database and employing an econometric panel data analysis, Dincecco and Katz (2016) find a significant and direct relationship where increased state capacity leads to improved economic performance and acts as a key determinant of long-run economic growth and development. Within this study, the dependent variable used was the annual growth rate of GDP per capita. To assure increased accuracy in the analysis of the influence on the dependent variable, controls such as annual population growth, presence of conflicts, convergence dynamics through lagged real GDP per capita and time lags were all implemented and considered in the analysis.

State capacity and bureaucratic autonomy has also been studied to have positive influential effects on health outcomes measured in terms of the Millennium Development Goals (MDGs) (Cingolani, Thomsson & De Crombrughe, 2015). Conducting a panel study between the years 1990 to 2010, Cingolani, Thomsson and De Crombrughe (2015) employed a novel indicator of bureaucratic autonomy to investigate state capacity's effects on the dependent variables of child mortality and tuberculosis prevalence rates as socio-economic and health indicators of the MDGs. Some of the control variables that were included were lagged GDP per capita, health expenditure, educational expenditure and population growth for example. The two dependent variables were measured using annual mortality rate of children under five per 1,000 and annual level of tuberculosis prevalence per 100,000, both taken from the WDI. They found that state capacity in terms of bureaucratic autonomy is a significant explanatory variable for the increase in the two aforementioned indicators, with fiscal capacity also having clear explanatory power for child mortality but less so for tuberculosis prevalence rates.

Acemoglu, Garcia-Jimeno, and Robinson (2015) also demonstrate the importance that state capacity may have on other development outcomes such as poverty prevalence, quality of life and public service provision through the development of a game-theoretic network model in Colombia. Using a network of municipalities, each with their own different defined relations to state capacity as well as a national state capacity, they also put forward a spillover effect. They controlled for factors such as population size, distance to closest highway, number of national level bureaucracy employees, density of rivers and land quality distribution. The authors find that changes in state capacity effectively spill over and translate into neighboring municipalities' local development when improvements are made on both a local and national level. Despite state capacity indeed having been shown to have various effects on development, its importance, consideration and role in the wider development paradigm has not

always been reflective as such. This can be reflected in the movement away from the considerations of aspects of state capacity in development efforts during the Washington Consensus period.

The Washington consensus was a set of ten policy reform propositions to be prescribed by the Washington-based International Financial Institutions to Latin American countries recovering from the debt crisis starting in the early 1980s (Williamson, 2000). These ten policy reform propositions included a wide spectrum of proposed actions, most notably trade liberalization, liberalization of foreign direct investment flows, privatization, deregulation and tax reform (Williamson, 2004). This change from the primarily state-centric approach in the development sphere pre-1980s, to a more market-oriented policy approach caused many far-reaching and multi-faceted consequences, notably a lessening of state power and capacity. Following the general trend towards embracing increasingly neoliberal policies championed by the likes of Ronald Reagan and Margaret Thatcher, the World Bank and other international development lending institutions also began to move away from tangible project-oriented lending to structural adjustment policy lending (Babb & Carruthers, 2008). According to Stiglitz (2007), a leading critic of the Washington Consensus, these policies often failed to consider countries' existing national development contexts, institutional quality and state capacity. In theory, the policies were originally meant to give more control to heavily indebted poor countries to structurally adjust their economies towards export orientation. However, this only seemed to remove autonomy and state capacity building mechanisms from governments through these internationally imposed policies (Killick, 1997). Growing tension prompted the realization that the current path of development aid under the market-oriented policies of the Washington Consensus was unsustainable and that another approach is needed.

In light of this, the post-Washington Consensus arose as a subsequent paradigm shift and reaction to the Washington Consensus and the aid conditionality that it entailed (Stiglitz, 2007). The post-Washington Consensus sought to recognize that there is a sizeable role for the state alongside the market, and that different aspects of state capacity such as institutional and bureaucratic capacity were important in carrying out policies. This realization was prompted in part by the success of the 'Asian Tiger' countries, which had more state-driven and export focused policies (Stiglitz, 2007). As part of the post-Washington Consensus, the championing of the old policy reform approach of the international development system was to be replaced by the increasing importance of institutional reforms and focus on aspects of state capacity, which had been previously left on the wayside (Williamson, 2004). This paradigm shift is relevant for this research as the change in focus from a more market-based view to increased consciousness of a state's capacity is highly informative in further defining aspects of state capacity today. The shift emphasized the importance of proper functioning bureaucratic and institutional capacity in achieving development outcomes.

## **2.2 Influence of Foreign Aid on State Capacity**

With the progression of the importance of state capacity in the development sphere established, and the current post-Washington Consensus paradigm conducive to consideration of the role of state capacity, it becomes necessary for this study to establish the link between the volume of foreign aid and state capacity. Thus, reviewing the effects of foreign aid on state capacity as well as the existing scholarly landscape on the topic is critical. Existing literature on the aid-state capacity relationship has shown widespread and conflicting results.

Contingent on the type of aid given, authors' noted effects on state capacity can paint vastly different pictures. For example, studies focusing on aid projects tend to present a more positive perspective on the aid-state capacity and governance relationships compared to studies focusing on the total volume of aid, which tend to yield more negative results. This positivity can begin to be demonstrated by Degnbol-Martinussen (2002), which in a review of previous literature, put forth that aid in the form of projects can facilitate governance in three ways. The first being to improve state capacity and the quality of public administration and resources, the second being to strengthen state-society institutional linkage such as the use of rule of law and the third, to empower civil society organizations to be increasingly critical of the government and work towards increased cooperation.

In contrast, scholars including for example Braütigam (1992) and Lancaster (1993) in the 1990s, began studying the potential of large amounts of foreign aid and its effects on governance in a more critical light. This more negative perspective on the aid-state capacity relationship characteristic of total aid volume studies can be demonstrated more clearly by Moss, Pettersson & van de Walle (2006). Conducting a review of economic and political science literature, they showed that high volumes of aid flows into developing countries can lead to aid-dependent governance and negative effects on state capacity, where for example aid replaces the incentive for tax collection in the short term. In the long term, large flows of aid can effect governments through moral hazard relating to governments then having less incentives to engage in necessary reforms, investment, capacity building and investment activities. They conclude that sizeable amounts of foreign aid given to states from international actors effectively reduce government accountability and legitimacy.

When further investigating the literature on the provision of large quantities of aid to developing countries, it becomes evident that aid is given for a myriad of reasons and often based on countless conditions. These motivations are usually quite difficult to identify and separate and thus are often unacknowledged and unaccounted for by scholars (Lancaster, 2009). When some of these motivations do become clear is when large international institutions like the IMF impose conditionality. Aid conditionality in the context of total aid volume and its effects on state capacity is a necessary factor to consider given its widespread use. Reinsberg et al (2019) describe aid conditionality as the mandating of far-reaching policy changes, usually with the broad goal of achieving macroeconomic stability.

Reinsberg et al (2019) also distinguish between two types of conditionality being structural and stabilizing conditions. The former being intrusive reforms that entail large scale deregulation, privatization, liberalization and sizable changes to bureaucratic and administrative operations affecting donor country state capacity. The latter involves less intrusive policies that aim to reduce balance of payments deficits through the setting of macroeconomic targets based on relevant indicators. By using data from the International Country Risk Guide (ICRG) as a measure of bureaucratic quality of state capacity from the years 1985-2014, Reinsberg et al (2019) found a significant and negative effect of structural conditions on the dependent variable of bureaucratic quality. Their study controlled for log of GDP per capita, level of democracy, incidence of civil war, trade openness, log of FDI inflows as a percentage of GDP and log of oil production per capita. Some noted negative effects were that IMF programs caused civil unrest, deterioration of state bureaucracies and a decrease in public services. For these reasons among many, aid conditionality as a policy tool embedded in the wider structural adjustment programs within the Washington consensus have been subject to much scrutiny and criticism, particularly for its negative development outcomes caused in developing nations, most famously in Sub-Saharan Africa.

Another more negative perspective on the effects of aid on state capacity is presented by Deserranno, Nansamba and Qian (2020). They use survey data collected by various NGOs in Uganda to study the effects of foreign aid on state capacity. This study operationalizes state capacity as the supply of government health workers and basic health services in a Ugandan village, which acts as the dependent variable. The study controls for clinic presence within ten kilometers of the village, number of households in the village and number of infant deaths in the past year. They find that foreign aid reduces the levels of investment in institutional and bureaucratic quality and general state capacity needed to promote development. Additionally, they explained their results through arguing that aid decreased government provision of public services given the occurrence of poaching of government workers by aid implementation organizations. This poaching ends up leaving negative effects on population well-being and service provision in villages, by consequently having a weaker institutional workforce to carry out vital governance processes as well as the management of aid itself.

Busse and Gröning (2009) continue this reasoning by putting forth that high volumes of aid has many negative, and often unintended effects. Controlling for openness to trade, press freedom, conflicts, and population size, they analyze a sample of 106 ODA receiving countries. Busse and Gröning (2009) create a composite indicator for the measurement of their dependent variable of quality of governance, being composed of three sub-components of ICRG indicators of corruption, law and order and bureaucracy quality. They subsequently employed an instrumental variable approach to analyze whether aid improves governance. The authors find that aid has a negative effect on governance of developing countries, particularly in Africa and they posit that current aid structures need to be reconsidered. Of the many possible explanations posited within the study, they discuss rent-seeking,

high transaction costs, delays caused by donor fragmentation and poaching of qualified local government officials for development projects, all of which can potentially lead to reduced governance and state capacity.

Aid has also been shown to have varying degrees of negative effects on bureaucratic – administrative and institutional quality. Knack (2001), using the quality of governance index from the ICRG database, studied the effects of aid on the dependent variable of quality of governance as measured through change in bureaucratic quality, corruption and rule of law indicators. Controlling for initial ICRG value, changes in GDP, population and per capita income, he found that there was a negative effect of aid on change in bureaucratic quality for the period 1982 to 1995. The results were found using OLS regression and 2SLS model estimations and they concluded that the size of the institutional gap in terms of change in bureaucratic quality grows as aid levels increase. Related to this, Selaya and Thiele (2012) studied the impact of aid on the dependent variable of change in average level of bureaucratic quality in terms of the modes of delivery used between grants and loan-based aid. They looked at aid data from the OECD's Credit Reporting System and used the Bureaucratic Quality Index of the ICRG in order to see whether grant or loan based aid had more of an impact and in which direction. After conducting a series of quantitative tests also involving the use of an OLS regression and a 2SLS model estimation. Controlling for initial bureaucratic quality and initial GDP per capita, Selaya and Thiele (2012) found that grant based aid, has a larger negative effect on change in bureaucratic quality than loans, especially when given as budget support and not as funding for specific projects.

However, some authors have posited the possibility for aid to have both positive and negative effects on bureaucratic quality and governance simultaneously and that the relationship need not be linear. Brazys (2016) conducting both a cross-sectional and panel analysis, seeks to investigate the often noted disconnect that occurs between aid and governance over time and to show the average impact levels of aid on changes in bureaucratic quality using the ICRG indicator of the same name. This is done by using quadratic regression and OLS techniques for the years 1995 to 2008 finding that there is a presence of a Laffer curve relationship. Within this study, a Laffer curve is explained as a quadratic function between aid and governance. It puts forth that the lower the levels of aid the less evident the negative effects on governance or the more the positive effects outweigh the negative effects. While as levels of aid increase, a point is reached where less marginal benefit is gained from good governance, and absorptive capacity begins to be depleted and thus the effects of aid start becoming increasingly negative. Brazys (2016) controls for change in per capita income, average levels of oil rents, occurrence of battle deaths and runs the tests using eight different dependent variables from ICRG quality of governance and WGI total and component measures. The study shows that aid has a positive but diminishing relationship with bureaucratic quality.



Based on the presented literature review, we can see that there has been a conflicting discourse with a plethora of different theoretical and empirical interpretations of state capacity itself, and approaches to investigating the relationship of foreign aid and state capacity. The existing literature is thus still inconclusive in terms of whether aid has a concrete effect in improving state capacity and governance. With the many differing perspectives now presented, this research will seek to add to the current discourse and address this gap in the field, by bringing a new approach to the relationship between foreign aid and state capacity. It will seek to theoretically establish and employ the use of fiscal, legal and bureaucratic-administrative dimensions that have been often only researched individually and not all at the same time in different studies. Additionally, this study will also seek to bring a novel expanded perspective by using previously rarely used non-DAC and Chinese aid donor data, to which most similar comparable studies have only consulted DAC donor countries in their quantitative analyses.

**Table 1**

*Summary of Empirical Studies for Aid-State Capacity Relationship*

<b>Author(s)</b>	<b>Dependent Variable(s)</b>	<b>Significant Control Variables</b>	<b>Outcomes</b>
<i>Deserranno, Nansamba and Qian (2020)</i>	Supply of government health workers and basic health services in a Ugandan village as a measurement of state capacity	Clinic presence within ten kilometers of the village and number of households in the village	Aid reduces investment in institutional and bureaucratic quality, provision of public services and decreases state capacity overall
<i>Busse and Gröning (2009)</i>	Composite Indicator being: Quality of Governance (ICRG corruption, law and order and bureaucracy quality)	Openness to trade, press freedom, conflicts, and population size	Aid has a negative effect on governance of developing countries
<i>Knack (2001)</i>	Change in governance in terms of bureaucratic quality, corruption and rule of law	Initial ICRG value, changes in GDP and per capita income	Aid has a negative effect on bureaucratic quality between 1982 to 1995
<i>Selaya and Thiele (2012)</i>	Change in average level of bureaucratic quality (ICRG Index) as a measure of change in state capacity	Initial bureaucratic quality and initial GDP per capita	Grant-based aid has a larger negative effect on bureaucratic quality than loans, especially when given as budget support
<i>Brazys (2016)</i>	Change in governance measured by a model for bureaucratic quality made of ICRG & WGI indicators	Change in GDP per capita, average levels of oil rents, occurrence of battle deaths	Aid has a positive but diminishing effect on bureaucratic quality

As seen above in Table 1, there have been a plethora of dependent variables and control variables employed throughout studies on foreign aid and state capacity. While the control variables presented above are all ones that have been found to be statistically significant, it is not feasible to include them all in this present study, as many are not as relevant for this given research context. For this reason, the choice of control variables will be based on a combination of relevance to this research's used data and methodology, as well as those that occur most frequently in the reviewed literature. As such, the control variables that will be employed are average GDP growth as an annual percentage, level of institutionalized democracy, presence of conflict, and initial values for each of the three dependent variable dimension measures being tax revenue, rule of law and government effectiveness. In order to account for change in a country's economic position over the time period measured, average GDP growth has been included as this is also common practice to include some form of control of income or measure of economic prosperity. Level of institutionalized democracy is an indicator that represents how democratically a state operates without dictatorship or any potentially disruptive political forces at play that may influence state capacity. Presence of conflict is a commonly employed control variable as conflict is an occurrence that has widespread effects on a country's use of resources and socio-economic goals and is thus important to control for when measuring the effects of aid on state capacity. Lastly, the three initial values of the dependent measures are taken to account for change and to control for the level of a country's state capacity in the beginning of measurement. The more in-depth technical operationalization and justification of the relevant control variables to be employed within this research will be further elaborated on in the methodology section.

## **Chapter Three: Theoretical Framework**

Following the presentation of the existing literature in the field, it is necessary to properly establish the theoretical bounds of this study. Within this section, the main concepts of foreign aid, state capacity and the deconstructed dimensions of state capacity for further use in this research will be delineated, defined and conceptualized. This is to best inform the overarching research design and to assist in the eventual answering of the main research question.

### **3.1 Foreign Aid**

The definition of foreign aid has been one that holds many variations and means of provision, and thus is important to theoretically establish exactly what is meant before by it moving forward in this research. Generally, foreign aid can be understood as the concessional transfer of resources from a donor government to a recipient government, non-governmental organization or international organization (OECD, 2021a). Its purpose while varied and dependent on context and situation, is to generally offer positive change and improvement of conditions of the recipient country through poverty reduction or capacity development for example (Lancaster, 2009). Bilateral aid as defined by the OECD, is the direct

transaction of aid from a donor country to recipient country, whereas, multilateral aid flows are flows delivered by an international institution with its own separate but often member-state informed development objectives (OECD, 2021a). Over the last few decades, Official Development Assistance (ODA) has been widely adopted as the most frequently used standard for development financing. According to the DAC, ODA is defined as, “government aid that promotes and specifically targets the economic development and welfare of developing countries” (OECD, 2021a). Important is that ODA only considers aid as flows from the DAC members or multilateral development institutions to the list of countries that qualify for ODA according to the DAC. This of course leaves out quite a few countries and their aid flows, especially considering that the majority of the DAC member countries are western, besides Japan and Korea. Additionally, ODA is further delineated by its means of provision and by the nature of the aid given. In regards to the means of provision, ODA can only be given by official local or national government approved agencies, executive agencies or by NGOs through governments. ODA also has the requirement of being concessional and has to have economic welfare and development as the main contingent objective. ODA has long been researched and used in empirical studies only using DAC member data. This research will use a more representative data sample by not limiting data to aid from only mostly western DAC donors, but also will consider non-DAC donors and Chinese aid data presented in comparable means of provision.

### **3.2 State Capacity**

Given this aforementioned shift in development paradigm that has taken place, the role of the state, its functions and capacity in terms of development have become more important. However, the concepts and aspects that make up state capacity still remain varied and widespread. As scholars have extracted and used many different indicators from theories, it is necessary to present the different theoretical options and approaches, as well as their benefits and drawbacks, to best inform the eventual selection of indicators for this study. The main relevant academic perspectives on state capacity will be outlined within this sub-section.

#### ***3.2.1 Defining ‘Good Governance’ and Extraction of Related Dimensions of State Capacity***

As we have seen a gradual shift towards the recognition of the importance of the state, so too has governance began to play an increasing part within the aid and state capacity discourse. The concept of good governance, similar to state capacity, is a complex and all-encompassing umbrella term that has no single widely accepted definition (Fukuyama, 2016). Governance is seen as vital in shaping effective provision of public services needed for development and thus is important when investigating concepts such as state capacity. With good governance established as a complex and multi-dimensional concept with no clear definition, it is vital to delineate the conceptual and theoretical foundations and origins

that will inform the selection of related dimensions for analysis in this research. In terms of good governance, the World Bank stresses broad characteristics such as transparency, accountability, civil society participation and following the rule of law (World Bank, 2002). Whereas North, Wallis, & Weingast (2009) opt for a slightly more tangible definition, by defining good governance as focusing on the quality of legal institutions, property rights, contract enforcement and democratic participation.

Within good governance research, a variety of different indicators often chosen are usually created from three broad theoretically classified dimensions being administrative, political and judicial (Dijkstra, 2018). The administrative or bureaucratic dimension is often associated with measuring bureaucratic quality. The political dimension usually focuses on aspects of various forms of voice and accountability, levels of democracy, types of political regimes, political stability and civil rights protection. The judicial or legal dimension addresses mainly indicators such as the protection of property rights, corruption and rule of law (Dijkstra, 2018). With such varied choice of indicators and dimensions, a common approach has thus been to investigate either within or across a selection of indicators within the three dimensions. Good governance can also be referred to using a more administrative and bureaucratic definition of the ability or capacity of government to engage in effective formulation and implementation of policies (Kaufmann, Kraay & Mastruzzi, 2011). This is often indicative of a more top-down perspective focusing on the effectiveness in the exercising of authority in governance processes.

While this study does not focus explicitly on the measurement of state capacity in terms of good governance, the dimensions that will indeed be used are mostly related and can be connected to the umbrella concept of good governance, given its theoretically far-reaching nature. Within this study, the legal and bureaucratic-administrative dimensions of good governance will be utilized and expanded upon through the use of different indicators and the addition of a fiscal dimension to analyze state capacity. In order to add to the theoretical framework of the study, these dimensions that constitute part of the umbrella term of good governance, with the addition of a fiscal dimension, will be broken down individually and elaborated upon within this subsection.

### ***3.2.2 Fiscal Dimension***

An influential historical and fiscal perspective put forth by Tilly (1990), saw the collection of taxes as evolving into the defining means of measuring a state's capacity. The main reasoning for this was the need for a well-functioning institutional, bureaucratic and administrative structure that could collect funds to bolster state institutions during times of war. Simply put, the more capacity state institutions had to raise money, the better the war efforts and the overall coercive capability of the state. While war-time taxation practices are now comparatively less relevant, the means of measuring state capacity through tax collection may be useful as a proxy measure for showing potential signs of state coercion

and control of violence, military power or even for health and educational quality. As a result, tax revenue still remains a main measure for state capacity as it proves useful in measuring the ability a government has to reinject collected resources back into state institutions, infrastructure or other capacity-oriented aspects. The more quickly and efficiently a government can collect taxes and then translate them into capacity building exercises, the better state capacity should be in theory. This subsequently makes it one indicator worth utilizing and investigating in the current research.

### ***3.2.3 Legal Dimension***

Legal capacity in the sense of the laws, regulations, order and an overarching legal framework that are both created, implemented and routinely enforced are vital in the measuring of a state's capacity, as these functions are one of, if not the most important functions of a government. Laws and institutions provide a basis not only for other governance processes but also as a noted precursor to the promotion of development, the proper functioning of markets and societal interactions and also relevant to this study, the quality and means of the processing of aid for example (De Janvry and Dethier, 2012). While legal capacity can be viewed in a more macro and top-down sense such as explained, it can also take the rights and perspectives of the citizen into account. Legal capacity can also entail the respect that citizens and other societal actors such as businesses have for the law, governmental and legal institutions and the general upholding of the law by judiciaries and other enforcement mechanisms (Dijkstra, 2018). Rule of law, property rights, level of corruption and the quality of contract enforcement by governments can be used as means in assessing some aspects of legal capacity.

Often aspects of both legal and political dimensions may overlap or be presented as complementary or even one and the same. Aspects such as political accountability, democratic access and participation, political pluralism and quality of the executive have all also been presented as part of the theoretical conceptualization of legal capacity (Fukuyama, 2016). However, in the scope of this study, the frequently studied political and democratic aspects will be omitted. The dimensions chosen thus far, while inclusive of various stakeholders roles in defining state capacity, focuses more on a broader state-level and policy oriented approach. This is thus not inclusive of nuanced political elements in comparison to the fiscal and bureaucratic elements.

### ***3.2.4 Bureaucratic-Administrative Dimension***

Pivoting away from the fiscal and legal dimensions of state capacity, another central perspective held is that of the importance of national bureaucracies and the administrative and institutional capabilities of a state. This approach to state capacity finds its conceptual and theoretical origins from the classical Weberian and political sociological works on state capacities and bureaucracy of the same time period

(Cingolani, Thomsson, & De Crombrugge, 2015). Huntington (1968) is one such scholar who saw the capacity of the state as directly related to the extent that its power is properly institutionalized. Huntington considered this institutionalization to be defined by aspects of autonomy, coherence, adaptability, complexity, and the timely coordination of political organizations in absorbing social transformations. This early work and the listed aspects it entails, can lead us to understand the importance of institutions such as national bureaucracies and more local government bodies in the proper functioning of a state and as a result, its capacity.

Rauch and Evans (2000) looked at this aforementioned level of bureaucratic ‘Weberianness’ and its effects on state effectiveness in terms of the dependent variable bureaucratic performance measured through a combination of ICRG, Business and Environment Risk Intelligence and Business International indicators. Examples of these indicators include bureaucratic quality, bureaucratic delays, extent and effects of red tape and corruption. Collecting new survey data filled in by country experts on bureaucratic features for 35 less developed countries and carrying out quantitative analysis through conducting OLS regressions, they identified several key aspects of effective bureaucracy that were previously unstudied within this context. This was carried out by looking at traditional structural Weberian aspects such as meritocratic recruitment, internal promotion, career stability and competitive salaries. Controlling for country income, level of education and ethnolinguistic diversity, they found that meritocratic recruitment did indeed predict bureaucratic performance, whilst the effects of the other structural aspects were less clear. While the found results were novel, the relatively small sample size of this study can raise questions of weak generalizability.

Taking a more conceptual and traditional administrative approach, Geddes (1994) defined state capacity as the power a state has to implement policies, to which the responsibility largely falls onto the national bureaucracy. She further highlights the importance of bureaucratic quality for state capacity and development through positing her ‘Politician’s Dilemma’ and associated model. This highlights that every leader faces a choice between appointing a bureaucrat, which increases the chance for development and growth or appointing a partisan manager to cement the politician’s position and secure reelection. This administrative and more policy implementation-centric focus put forth by Geddes (1994), while still finding itself nested within the broader bureaucratic Weberian tradition, represents a more practical approach to state capacity considering the role of politics in the process. The concepts discussed throughout the book by Geddes (1994) essentially show that a national bureaucracy’s quality and ability to implement policies can be utilized and translated into state capacity.

### ***3.2.5 Dimensional Interrelationship and Interconnectivity***

Whilst separately presenting and understanding the existing theoretical bounds of the three individual dimensions are pivotal in measuring the effects of aid on state capacity, it is necessary to highlight the interconnectivity and relationships that may exist between them. This is particularly relevant given the multi-dimensional approach taken within this research choosing to investigate all three dimensions as a measure of state capacity.

Besley and Persson (2009) reflecting on the origins of state capacity, proposed new dimensions in addition to the traditional means of collecting taxes. In this theoretical and empirical study, they created a model, where they posit that there are two types of state capacity, being fiscal and legal capacity and that past investments in these dimensions potentially affect current policy choices regarding state capacity. Some relevant measures that were included as indicators for legal capacity were property rights and presence of legal infrastructure. These were part of the measurement of legal capacity, which served as a dependent variable and thus are also relevant options for investigation of the effects of aid on state capacity. The authors posited a complementarity of fiscal and legal capacity within the model, suggesting an interconnected relationship between these two dimensions. Using this model, Besley and Persson (2009) find that common interest public goods such as inclusive political institutions and political stability influence state capacity and that past investments in fiscal and legal dimensions do indeed affect state capacity.

A similar approach was taken by Acemoglu (2005), in which a model was also created that seeks to prove that states with stronger state capacity collect tax revenues to reinvest in spending on productivity enhancing public goods and institutional development. In this study, a relevant question concerning the fiscal and legal dimensions of state capacity is raised: whether the optimal strength or capacity of the state is created more by the citizens' or the states' investments and how this influences economic development. Based on the model created, the author discusses that in his view an ideal equilibrium is possible, whereby citizens accept higher taxation and this subsequently causes lower citizen investment but on the condition that the government invests more heavily in public goods. Acemoglu (2005) also finds that while a state's capacity can more tangibly be measured through the ability to raise taxes, an even more telling indicator is the extent to which effective political and legal constraints are imposed on groups in society. Within the model, these constraints were posited as how easily citizens had the ability to replace the leader or government responsible for imposing taxation.

Hanson and Sigman (2011) expand on these dimensions by addressing the commonly held difficulty of conceptualizing the multifaceted concept of state capacity. This is done by delineating and focusing on three synthesized dimensions according to their study being, extractive, coercive and administrative capacities. Extractive capacity can be understood in the fiscal sense in terms of the ability of the state to collect tax revenue but also the collection of information and to form a connection between

revenue collection and good governance. Like Besley and Persson (2009), Hanson and Sigman (2011) also stress more of an interrelation between these aforementioned fiscal aspects and the legal dimension of property rights. Coercive capacity can be seen as a mixture of what other studies classify as the use of military power and bureaucratic aspects, as it focuses on ensuring citizen compliance but also the ability of states to implement policies. Finally, administrative capacity can be seen as a state's organizational capabilities to develop policy and provide public goods. Both coercive and administrative dimensions here draw from a Weberian perspective of the importance of the role of public administration in a state's capacity. Hanson and Sigman (2011) develop the expectation that the fiscal, legal and coercive dimensions are interlinked and mutually reinforcing. To test this, they employed a Bayesian Latent Variable Analysis to test whether indicators of these dimensions are related and also if they are feasible measures of state capacity. Controlling for log of GDP per capita, mean levels of democracy, and mean tax revenue as a percentage of GDP, they find that there are indeed strong interrelationships and conceptual interconnectivity between fiscal, legal and coercive dimensions with the measures employed and they use this understanding to produce a new general measure of state capacity.

In order to measure state capacity in the most complete manner possible within this current study, it will thus be imperative to extract relevant theory to inform the selection of indicators that represent important aspects from the stated dimensions of state capacity. From these presented studies, we can conclude that measurements of the quality of a state's bureaucracy in a multi-dimensional manner is vital in measuring a state's capacity. This research will thus investigate the effects that foreign aid has on the conceptually and theoretically established fiscal, legal and bureaucratic – administrative dimensions of state capacity, as demonstrated visually below in the conceptual model. With this being stated, this can allow for the formulation of the hypotheses that will represent and guide expectations moving forward during the remainder of this study. The hypotheses that will be investigated are:

***H1: 'Foreign aid will have a negative effect on state capacity as measured by the fiscal dimension.'***

***H2: 'Foreign aid will have a negative effect on state capacity as measured by the legal dimension.'***

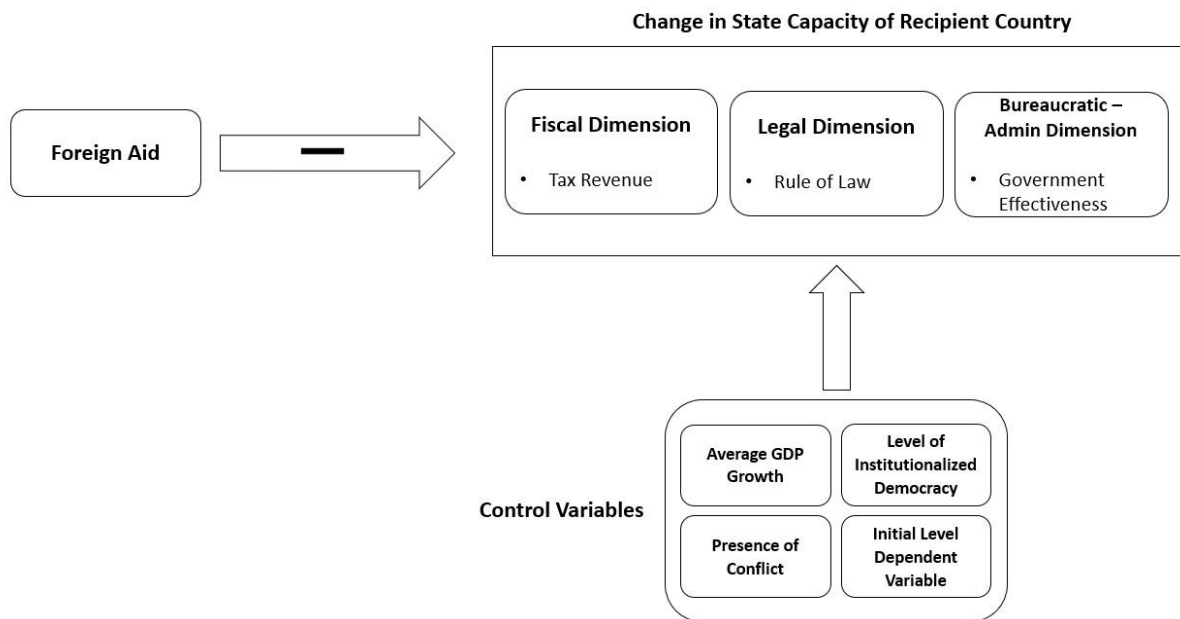
***H3: 'Foreign aid will have a negative effect on state capacity as measured by the bureaucratic-administrative dimension.'***

***H4: 'Foreign aid will cause diminishing returns and have a quadratic relationship with the fiscal, legal and bureaucratic-administrative dimensions of state capacity.'***



**Figure 1:**

*Conceptual Model*



## **Chapter Four: Methodology**

Having presented and established the theoretical bounds that will lay the framework for the current research, this will now be translated into practical terms to ensure empirical applicability. Within this chapter, the research design and the related considerations will be explicated, the choice of variables, databases, datasets and subsequent indicators will be operationalized, the tests conducted will be outlined and the validity and reliability of the research will be discussed.

### **4.1 Research Design**

This research employed a quantitative and cross-sectional Large-N research design in order to analyze the collected data and provide an answer to the posited research question and hypotheses. This was done through the selection of as much reliable country aid data as possible, as well as the collection and use of theoretically informed indicators and control variables. A cross-sectional research design was chosen within this research due to the practical ability to collect data at one certain set point in time surrounding the independent, dependent and control variables being tested. This is critical as both foreign aid and state capacity, as previously established, are highly complex and multi-dimensional concepts and while measuring their relationship across time through a time-series analysis would be

beneficial, it was beyond the scope and capabilities to do so accurately for this research. Additionally, cross-sectional research designs are inexpensive and comparatively more practical regarding the use of free online database data collection as opposed to more expensive subscription based data.

Properly identifying and controlling for potential causal variables can help prevent omitted variable bias within the analysis. The control variables that were implemented in this study are: *average GDP growth (annual %)*, *presence of conflict*, *level of institutionalized democracy*, *initial value of tax revenue*, *initial value of rule of law and initial value of government effectiveness*. The initial value controls are only included for the dependent measure of the corresponding regression analysis, meaning one matching initial value variable would be employed per regression. All of these control variables were chosen based on their use in related studies as theoretically presented and established in the literature review. More detailed elaboration regarding the choice of control variables will follow in section 4.2.3. Additionally, by including these control variables, this accounted for the theoretically informed aspects that may also have an influence on a state's capacity and thus emphasize and display the effects of foreign aid on state capacity more robustly and accurately. With this stated, three multiple regression analyses and three quadratic regressions were conducted using SPSS. The quadratic regressions will be explained further in the data analysis chapter. While multiple regression analyses have been chosen in order to test the influence and effects of the independent variable of foreign aid on the dependent variable of change in state capacity measured along fiscal, legal and bureaucratic-administrative dimensions, whilst implementing control variables to isolate these potential effects. To do so, the following regression equation has been estimated for use moving forward in this research:

$$\Delta StateCap = \beta_0 + \beta_1 Aid + \beta_2 AverageGDPGrowth + \beta_3 ConfPres + \beta_4 InstiDemo + \beta_5 InitialDependentValue + \varepsilon$$

Where  $\Delta StateCap$  is change in state capacity as measured through the change between 2008 and 2018 in the three separate dimension-based indicators of fiscal, legal and bureaucratic-administrative state capacity. Change in state capacity over time has been used as the main type of measurement as opposed to simply using state capacity at a certain year, as state capacity measurements may usually show very small or gradual changes when analyzed at one point in time. Potential changes and effects may thus be more evident when taken across time. Additionally, when regressing the change in state capacity measure onto the initial level of the variable as a control, one can also control for slow-moving factors and differences in state capacity levels across countries allowing for potential change in initially very high or low country values. The year 2018 was chosen as the most recent year of the 11 year range, given the widespread availability of data across all dependent measures during this year. *Aid* is the total averaged DAC, non-DAC and Chinese donor group foreign aid volume divided by GDP for each recipient country. The *aid* element of the equation was measured as aid divided by GDP and subsequently an average was taken across 11 years between 2004 and 2014 and is expected to have a

negative coefficient sign. The remaining variables are the control variables of average GDP growth (*AverageGDPgrowth*), presence of conflict (*ConfPres*), level of institutionalized democracy (*InstiDemo*), and the initial value of the accompanying dependent variable measure used (*InitialDependentValue*). Thus, one initial value would be used per regression being either initial tax revenue, initial rule of law or initial government effectiveness. These control variables are all expected to have positive signs for the coefficients meaning positive effects on the dependent variable, except for presence of conflict and the respective initial values of the dependent variable measures, which would be expected to have negative effects. The following sub-sections will explore the methodological approaches used within this study regarding operationalization and indicator selection, data collection and processing, and will lastly also address the validity and reliability of the study.

## **4.2 Operationalization – Variables, Data and Indicators**

### ***4.2.1 Dependent Variable – State Capacity***

#### ***4.2.1.1 Fiscal Dimension Indicator***

As both literature and surrounding theory have noted the importance of the collection of taxes in assessing fiscal state capacity, a tax related measure was included. The indicator for fiscal capacity dimension was the *total tax share of GDP*. This was measured through finding the *change in tax revenue as a percentage of GDP* by subtracting tax revenue in 2008 from tax revenue in 2018. Tax revenue as a percentage of GDP can be understood as mandatory tax transfers paid to the central government for reinjection and public use. This is a necessary measure of the fiscal dimension of state capacity as it includes tax revenues received by all levels of government, making it a representative measure of capacity on a state level. The data for this indicator was collected from the WDI (World Bank, 2021a). Just as with most international aggregated development databases, both the WDI and WGI of the World Bank are subject to missing data and poor reporting from lower income countries. This causes some values to act as more approximations but this will almost always be present when working with country data and should not affect the overall conclusions or ability to conduct proper quantitative tests.

#### ***4.2.1.2 Legal Dimension Indicator***

The indicator for the legal dimension was the *change in rule of law*, measured through a rule of law estimate indicator as collected from the WGI between the years 2008 and 2018 in order to calculate the change in rule of law by again subtracting 2008 values from 2018 values (World Bank, 2021b). This indicator sought to measure citizens and societal actors' confidence in the rules created by the government such as contract enforcement, likelihood of crime and police enforcement and thus has strong ties to measuring perceived accountability and legitimacy of the government. This indicator acted

as a means to show the quality and level of effectiveness of the general legal framework and functioning of laws that the government is responsible for implementing (Kaufmann, Kraay & Mastruzzi, 2011). This may involve factors mentioned such as regulatory enforcement or order and security, but also includes powers of government and absence of corruption within government processes. While indicators such as property rights and regulatory enforcement are often employed as well, change in rule of law acts as both a macro and micro focused indicator that also encompasses the aspects of enforcement and of the upholding of citizens rights for example.

#### ***4.2.1.3 Bureaucratic – Administrative Dimension Indicators***

For the bureaucratic-administrative dimension, the chosen indicator was *change in government effectiveness* as collected from the WGI (World Bank, 2021b). Identical to the previous two indicators, the years taken are also 2008 and 2018 in order to calculate the change in government effectiveness. This indicator can be understood as the perceptions held regarding the quality of public sector operations. Some of these operations include the ability for policy formulation and implementation of public policy, government commitment and credibility in policy creation, public service quality and the proper functioning and independence from political pressure of a state's civil service. This indicator serves a public sector oriented approach, focusing on the quality and effectiveness of government processes, which is vital in understanding and measuring a state's capacity.

Each of the six aggregate WGI indicators are created by calculating a weighted average from each of the 30 different relevant sources of governance for each country. These processed WGI indicators are then available and presented for use in two ways. The first presents values from -2.5 to +2.5 and the second using percentile rank from 0-100. In both of these methods of presentation, positive and higher values correspond to better governance outcomes (World Bank, 2021b). This study used the first method being the -2.5 to +2.5 method of presentation.

**Table 2**

*Dependent variable indicator selection, measurements and sources per dimension. Date of database access was May 2021.*

<b>State Capacity Dimensions</b>	<b>Indicator</b>	<b>Measurement</b>	<b>Data Source</b>
<i>Fiscal</i>	Total Tax Share of GDP	Change in Tax Revenue as a % of GDP (2018-2008)	World Bank WDI (2021a)
<i>Legal</i>	Rule of Law	Change in Rule of Law Estimate (2018-2008)	World Bank WGI (2021b)
<i>Bureaucratic-Administrative</i>	Government Effectiveness	Change in Government Effectiveness (2018-2008)	World Bank WGI (2021b)

#### **4.2.2 Independent Variable - Foreign Aid**

The data for the independent variable foreign aid have been extracted from OECD aid databases and from AidData. Data regarding official DAC donor countries aid have been extracted from the OECD ODA database, which only presents ODA flows from the DAC donor countries to the World Bank income groupings of low, lower-middle and upper-middle income DAC recipient countries. DAC donor countries consist of 30 members, made of 23 European countries, the EU, Japan, South Korea, Australia, The United States, Canada and New Zealand, all of which are relatively high income countries (OECD, 2021b). There are also six observers consisting of various development banks, the World Bank, IMF and the United Nations Development Program. Non-DAC aid donor data have been extracted from the OECD non-DAC donor ODA database also along the same country income classifications. Finally, due to the exclusion of complete and reliable Chinese aid data from the non-DAC donor OECD database, data regarding Chinese ODA-like aid flows to developing countries have been extracted from AidData, given it being the most reliable and complete database available regarding transparency of Chinese aid to the rest of the world. Data from AidData was presented in mostly project-based aid across the years 2000-2014 and the flows considered for analysis are categorized as ODA comparable classifications of Chinese aid. Additionally, due to the data from AidData only possessing project-based commitments and not aid disbursement, aid commitments from the years of analysis for the independent variable of 2004 to 2014 were utilized for all the OECD DAC, Non-DAC and Chinese aid data. This was to ensure maximum comparability in analysis and was the only available form of annual aid flow data available for the Chinese data.

Data for the DAC and Non-DAC datasets were available for extraction on a yearly aggregated aid volume value to recipients. The Chinese data required combining the multiple aid flows from China as a donor to single recipients to ensure a comparable value representing a single total volume of aid per recipient as received from China for the years of analysis. Once the independent variable data had been collected from the three databases, the total aid volume value in current millions of US Dollars was calculated by adding each donor group's aid towards a given recipient country together per year. Following this, in order to account for and accurately compare the effects of aid between differently sized countries, the total aid volume in millions of US Dollars per year was divided by the GDP of each recipient country of the corresponding year. This is an important step for accurate comparison, as the same amount of aid volume given to a recipient country with a relatively smaller economy can have vastly different effects than an equivalent amount given to a country with a larger economy. Having then a value of combined GDP adjusted aid for all three donor groups across all years, an average was calculated running from 2004 to 2014. The natural log of this average was then taken in order to try to account for skewness in the distribution of the data points to create a normal distribution.

#### **4.2.3 Control Variables**

The control variables that were employed are: average *GDP growth as an annual percentage*, *presence of conflict*, *level of institutionalized democracy*, *initial level of tax revenue*, *initial level of rule of law* and *initial level of government effectiveness*. Data on 'average *GDP growth*' were collected from the World Bank WDI data. Almost all previously presented studies in the literature review included some form of control for a country's increase in income or GDP as economic growth may be a contributing factor that leads to improved state capacity. This is precisely why an average of '*GDP growth*' was implemented to account for potential changes and differences in country's levels of economic activity over the 11 years analyzed.

For the second control, conflict data was collected from the Uppsala Conflict Data Program. This database provides yearly conflict data from 1946 to 2019 on armed conflicts where a minimum of one party in conflict is a state or government (Pettersson and Öberg, 2020). Thus, using this data from the years 2008 to 2018, a dummy variable was created for the control variable '*presence of conflict*' within the selected recipient countries. Countries who had any ongoing or newly started conflicts in years between 2008 and 2018 were given a value of '1' and the countries without conflict were given a value of '0'. This control is important to include as countries engaged in any form of civil or international conflicts tend to have very different resource allocations and development foci compared to those experiencing relative peace. Additionally, accounting for conflict is important as the state capacity of states experiencing varying levels of conflict is likely to be affected. '*Presence of conflict*' was also taken across an 11 year time span of 2008 to 2018 and subsequently averaged. This time span

was chosen given the assumption that the effects of those controls on a country were expected to appear immediately.

The third control variable '*level of institutionalized democracy*' was extracted from the Polity IV index database for the year 2008 given that political systems and related institutions tend to only make noticeable changes in the very long run. The Polity IV dataset codes yearly data from 1776 to 2020 measuring associated democratic qualities and autocratic authorities in states and their accompanying institutions. The Polity IV index grants each country a 'Polity Score', which ranges from '-10 to a +10', with -10 being a hereditary monarchy and +10 being a consolidated democracy. Additionally, the Polity Score can be converted into regime classifications as well, with autocracies falling under '-10 to -6', anocracies from '-5 to +5' and democracies from '+6 to +10'. There are also three value types of -66, -77 and -88. -66 represents system missing values, -77 shows the classification of an anarchic system present treated as a '0' and -88 shows current transitioning systems treated as system missing values. Level of institutionalized democracy is a component and composite indicator making up part of the Polity IV index. It is composed of three elements being: '*the guarantee of civil liberties to citizens in daily lives and in political participation*', '*existence of institutionalized constraints on the exercise of power by the executive*' and the '*presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders*' (Marshall, Gurr & Jaggers, 2016, p. 14). This composite indicator is made of a weighted additive 11-point scale (0-10). In this case weighted means that the different elements that make up this composite indicator are given value scores and when said element is applicable it adds up between zero and ten to make the final score. While it is acknowledged that there may be overlap with the change in rule of law variable, there is still unique aspects measured by this indicator that may be important to control for. For example, this indicator places high weight or importance on measuring the constraints and exercising of power by the executive, whilst rule of law focuses more on the perceptions and confidence that citizens have in rules of society as expressed through the courts, police, property rights. Additionally, accounting for different types of authority from autocracy to democracies is also a relevant factor to control for.

Finally, the remaining three controls all took the initial level of the dependent variable measures in the year 2008, in order to control for the initial state capacity levels. There is also an intentional four year gap between both the beginning and the end of the range of years measured for foreign aid being 2004 to 2014, and the years 2008 to 2018 as the measurement years for state capacity. This was done to include a time lag of four years from the year of analysis to account for the fact that the effects of aid take time to adequately manifest within recipient countries, as well as to make sure to avoid reverse causality.

**Table 3:**

*Independent and control variable indicator selection, measurements and sources per dimension. Date of database access was May 2021.*

<b>Variables</b>	<b>Measurement</b>	<b>Data Source</b>
<b><i>Foreign Aid (Independent)</i></b>	Average AID/GDP (2004 to 2014)	AidData.org (2018) OECD (2020a) OECD (2020b)
<b><i>Average GDP Growth (Control)</i></b>	Average GDP Growth (Annual %) (2018- 2008)	World Bank WDI (2021a)
<b><i>Presence of Conflict (Control)</i></b>	Dummy variable for conflict within a country (2018-2008)	<i>Uppsala Conflict Data Program (2020)</i>
<b><i>Level of Institutionalized Democracy (Control)</i></b>	Institutionalized Democracy Composite Indicator (2008)	Polity IV Index (2016)
<b><i>Initial Level Tax Revenue as a % of GDP (Control)</i></b>	Tax Revenue as a % of GDP (2008)	World Bank WDI (2021a)
<b><i>Initial Level Rule of Law (Control)</i></b>	Rule of Law Estimate (2008)	World Bank WGI (2021b)
<b><i>Initial Level Government Effectiveness (Control)</i></b>	Government Effectiveness (2008)	World Bank WGI (2021b)

### **4.3 Validity and Reliability**

Within this research, the utmost caution and care has been taken to assure that all relevant forms of validity and reliability were maximized in terms of what is feasible with the time, resources, and theoretical and methodological bounds present. The needed methodological steps have been taken to assure validity and reliability within this research and to aim for the most accurate, generalizable and robust findings possible.

In terms of validity, this research will ensure that both internal and external validity are considered and implemented. Internal validity considers whether the research truly measures the effect



that is intended to measure. According to van Thiel (2014), this can be broken down into the sufficient operationalization of the theoretical constructs in question and confirming whether the research's hypothesized causal relationship between independent and dependent variables actually exists. Within this research, this was ensured through only using indicators to measure the variables that are theoretically informed and employed in similar studies as presented in the literature review and theoretical framework. By using theoretically established variables and indicators that are grounded in previous research integrated within the framework of this research itself, this can help to ensure that variables are properly operationalized and will measure what they are supposed to measure.

Control variables were implemented to try to remove the potential interference and effects on the variables being tested and to try to isolate the relationship as much as possible for the most accurate results. Additionally, as cross-sectional research designs by nature often struggle to present concrete relational causality given the lack of temporality present as compared to a time-series research designs, this research tried to compensate as much as possible given the available data. This was done by including a time lag for both the independent and control variables of four years prior to the stated most recent year of the change-based measurement for the dependent variable indicators, being 2018. There was no time lag implemented for the level of institutionalized democracy and the initial values of the dependent variable measures, which were taken in the year 2008 as explained in the previous section. The aim was that spuriousness, endogeneity and reverse causality, while perhaps not able to be completely eliminated within this research, would still be reduced as much as possible in hopes of their effects reaching a relatively inconsequential level.

External validity refers to how generalizable the present research is, in terms of whether its methods and results may be employed across space, time and in various institutions (van Thiel, 2014). Given the quantitative nature of this research, assuring external validity is vital. This was done firstly by conducting statistical tests on the largest possible sample size in order to ensure maximum population generalizability for those developing countries receiving foreign aid. Not limiting the aid donors to purely DAC countries as done traditionally thus far, by including previously scarcely studied and included data sets of non-DAC and Chinese aid data will also increase generalizability in this sense.

Reliability means that results are achieved in a systematic, well-defined, certain manner and that measurement is not left up to coincidence, randomness or interpretation (van Thiel, 2014). Consistency and replicability of the methods, analysis and the results of this study are also vital in achieving reliability. By having a research design and analysis that is replicable and repeatable, this can allow other researchers to do the same study and check for potential flaws and add improvements to the conducted research, which can ideally add to the results and further the progress of the field. These noted aspects will firstly be achieved through using only previously employed and validated indicators, datasets and theoretically established dimensions. The datasets, indicators methodologies and factor

breakdowns are publicly available and papers offering critiques and benefits for use in analysis are also accessible. By using a large, international and publicly available sample, this can also help other researchers replicate the present study or investigate related aspects or relationships. Lastly, to further ensure accuracy, consistency and replicability, the different considerations, intermediate steps and any relevant omissions or adjustments within the analysis were documented in detail. By exercising caution and transparency in consideration of these abovementioned factors, this research aims to produce robust results that are both valid and reliable.

## **Chapter Five: Data Analysis**

After outlining the methodology of the research, this chapter will analyze the statistical tests, as well as the results and their implications on the overall relationship between foreign aid and state capacity. This chapter will begin by discussing the descriptive statistics to help gain a more complete understanding of the data being tested, as well as to provide vital statistical context that can later help draw informed conclusions about the relationship in question. Following this, the correlations between variables will be presented and analyzed, which finally leads into the discussion of the results of the regression analyses conducted.

### **5.1 Descriptive Statistics**

Having collected the raw data, the next step entailed commencing the initial analysis by understanding what potentially notable trends and patterns could be identified within the data. Firstly, looking towards table 4, the relevant data frequency numbers are displayed and broken down into the World Bank and OECD income-level groupings used for this research. We can see a total number analyzed of 135 (N=135), with the majority of countries receiving aid falling into the upper-middle income classification containing 56 and the group of countries with the lowest incomes making up 29 of the 135 total.

**Table 4***Aid Recipient Country Grouping Frequencies*

<i>Recipient Country Income-Level Groupings</i>	<i>Number of Countries per Group</i>	<i>Percentage (%)</i>
<i>Low-income</i>	29	21.5
<i>Lower-middle income</i>	50	37.0
<i>Upper-middle income</i>	56	41.5
<i>Total</i>	135	100

When investigating total aid volumes to the recipient countries in question, it can help to see the origins of the aid flows and how much each respective grouping sends. Table 5 clearly demonstrates the large difference in sheer volume of aid provision, where the 30 DAC member countries donate the vast majority of aid with a total of around \$823 billion to all of the 135 recipient countries in the 11 year period investigated of 2004 to 2014. This is of course within bounds of expectation, given that the DAC members are composed of some of the most economically powerful and high-income countries, who have committed to providing certain volumes of aid as part of their DAC membership commitments. The non-DAC member countries included however, are not bound by DAC recommendations or rules. These included non-DAC countries, are only the countries that are recognized by and that report aid statistics to the OECD such as the United Arab Emirates, Romania and Latvia to name a few. The non-DAC group provided the lowest amount of aid of the three groups at around \$21 billion. This held also when compared to the much higher value of around \$138 billion provided solely by China as an individual country donor.

**Table 5***Total Raw Aid Volumes Given per Donor Group*

<i>Donor Group</i>	<i>11-year Total Aid Given 2004 - 2014 (Current USD)</i>	<i>Percentage (%)</i>
<i>DAC</i>	823,336,000,000	83.7
<i>Non-DAC</i>	21,321,000,000	2.1
<i>Chinese</i>	138,389,000,000	14.2
<i>Combined Total</i>	983,046,000,000	100

Displayed in table 6 are the summary of the full range of descriptive statistics for the independent, dependent and control variables. After running the descriptive statistics, as well as accompanying frequency distribution histograms, it became clear that the ‘*Total Aid/GDP Average 2004 to 2014*’ variable had a skewed distribution, and thus in order to adjust it to a normal distribution for more accurate processing in the tests for this research, a natural logarithm transformation was carried out. The other variables were also checked and no other variables required a transformation. The distributions were checked by creating frequency distribution graphs for each variable and determining whether the distributions were normal and could be used or were skewed and needed to be transformed. These graphs along with the SPSS computed skewness statistics per variable for double checking can be found in Appendix B. Regarding the dummy control variable presence of conflict, 87 countries were not engaged in any form of violent conflict during the years of data collection between 2008 to 2018, whilst 48 countries had active conflicts in this same timeframe. This may be a relevant addition to mention given its use to control for the effects of conflict, violence and the subsequent predicted instability that it brings to state capacity.

**Table 6**

*Descriptive Statistics For All Variables*

	<i>Minimum Value</i>	<i>Maximum Value</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Median</i>	<i>N</i>
<i>Total Aid/GDP Average 2004 to 2014</i>	0.00	0.637	0.055	0.091	0.026	135
<i>LN Total Aid/GDP Average 2004 to 2014</i>	-15.67	0.00	-3.89	2.11	-3.52	135
<i>Change in Tax Revenue</i>	-20.50	24.67	2.06	7.79	1.10	135
<i>Change in Rule of Law</i>	-1.35	0.84	0.039	0.32	0.072	135
<i>Change in Government Effectiveness</i>	-1.37	0.99	0.025	0.35	0.033	135
<i>Average GDP Growth</i>	-4.92	9.91	3.71	2.28	3.48	132

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<i>Level of Institutionalized Democracy</i>	0	10	4.50	3.55	5	114
<i>Presence of Conflict (Dummy)</i>	0	1	0.36	0.48	0.00	135
<i>Initial Tax Revenue</i>	4.28	38.44	15.99	6.60	15.32	135
<i>Initial Rule of Law</i>	-2.61	1.13	-0.59	0.65	-0.65	135
<i>Initial Government Effectiveness</i>	-2.40	1.11	-0.58	0.61	-0.62	135

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## 5.2 Pearson's Correlation Test

Having presented the descriptive statistics, correlation tests were conducted between all of the variables used within the regression models in order to see how strongly related the variables are with one another. By doing this, it can help understand the level of association and significance between the independent, dependent and the control variables. Important to remember is while a Pearson's Correlation test presents the strength of possible association and the level of significance, it does not denote the direction of the relationship. As seen in table 7, the results of the correlation test overall shows collectively weak correlation coefficients, with most falling below 0.50. This means that for the majority of the variables there is a limited association between them in either direction and no multicollinearity. The signs of the correlation coefficients seemed to go against expectations being mostly positive for the correlations between the independent and dependent variable measures. However, the correlation coefficient signs were somewhat mixed between positive and negative for the control variables, with the initial value and presence of conflict controls mostly showing negative correlations, whilst the GDP growth control showed fully positive values and the level of institutionalized democracy presented mixed positive and negative values. We can see that the highest correlation coefficient is that of 0.801 between the two control variables initial levels of government effectiveness and initial levels of rule of law. These two variables are never included together in the same regression test as they are each run separately in their own respective model with their matching dependent variable measure and thus should not affect measurement to a large degree.

**Table 7***Correlation Table Matrix*

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>1 – Change in Tax Revenue</b>	1									
<b>2 – Change in Rule of Law</b>	0.123	1								
<b>3 – Change in Government Effectiveness</b>	0.135	0.593	1							
<b>4 – LN Average Total Aid/GDP</b>	0.257**	0.054	0.038	1						
<b>5 – Average GDP Growth</b>	0.109	0.211*	0.215*	0.67	1					
<b>6 – Level of Institutionalized Democracy</b>	0.009	-0.016	-0.044	0.043	-0.154	1				
<b>7 - Presence of Conflict</b>	-0.089	-0.037	-0.108	-0.090	0.143	-0.219**	1			
<b>8 – Initial Tax Revenue</b>	-0.315**	-0.075	-0.125	0.015	-0.263*	0.242	-0.265	1		
<b>9 – Initial Rule of Law</b>	-0.027	-0.216*	-0.153	0.122	-0.261*	0.407**	-0.253*	0.365*	1	
<b>10- Initial Government Effectiveness</b>	-0.104	-0.012	-0.184*	-0.188*	-0.177*	0.407**	-0.120	0.349**	0.801**	1

\* Means significant at the 0.05 confidence level (2-tailed). \*\* Means significant also at the 0.01 confidence level (2-tailed).

### 5.3 Multiple Regression Analyses

In order to test the expectations that foreign aid has negative effects on state capacity as measured by indicators of the fiscal, legal and bureaucratic-administrative dimensions, three multiple linear regressions and three quadratic regressions were conducted. The results of the multiple linear regressions in terms of the dependent variable measures change in tax revenue, change in rule of law and change in government effectiveness with the implemented controls are displayed in table 8.

**Table 8**

*Output of Coefficients Multiple Regression Analyses*

<i>Dependent Measure used in Regression</i>	<b>Change in Tax Revenue 2018-2008</b>	<b>Change in Rule of Law 2018-2008</b>	<b>Change in Government Effectiveness 2018-2008</b>
<b>Constant</b>	4.272 (3.472)	-0.095 (0.119)	-0.267 (0.141)
<b>LN Average Total Aid/GDP 2004 to 2014</b>	0.490 (0.310)	-0.008 (0.014)	-0.035** (0.016)
<b>Average GDP Growth</b>	-0.076 (0.348)	0.029* (0.013)	0.045*** (0.015)
<b>Level of Institutionalized Democracy</b>	0.537** (0.202)	-0.002 (0.008)	-0.002 (0.010)
<b>Presence of Conflict</b>	-0.489 (1.469)	-0.081 (0.055)	-0.122 (0.062)
<b>Initial Level of Corresponding Dependent Variable</b>	-0.391*** (0.114)	-0.084 (0.054)	-0.053 (0.061)
<b>F</b>	3.721***	1.918	2.964**
<b>Adjusted R<sup>2</sup></b>	0.193	0.040	0.081
<b>N</b>	135	135	135

*Standard Errors are in parentheses. \* Means significant at the 0.10 confidence level. \*\* Means significant at the 0.05 confidence level (2-tailed). \*\*\* Means significant also at the 0.01 confidence level (2-tailed).*

### ***5.3.1 Fiscal Dimension Regression***

For the first multiple regression model concerning the fiscal dimension, as measured through the change in tax revenue as a percentage of GDP between 2008 and 2018, a significant regression equation was found with  $F = 3.721$ , a p-value of  $0.006 < 0.01$  and with an adjusted R-squared value of 0.193. A low adjusted R-squared value of 0.193 means that only around 19.3% of the dependent variable state capacity in terms of the fiscal measure of change in tax revenue is explained by the model, while controlling for average GDP growth, institutionalized democracy, presence of conflict and initial levels of tax revenue. The adjusted R-squared statistic is useful in this scenario as it adjusts the R-squared value or explained variance based on how many independent and control variables are used as predictors within the model. This allows for better understanding of what variables may be inconsequential for the relationship investigated within the model.

The independent variable of aid as seen in table 8 as ‘LN Average Total Aid/GDP’, has an unstandardized  $\beta$ -Coefficient of 0.490 and is statistically insignificant with a p-value of  $0.119 > 0.05$ . With the  $\beta$ -Coefficient of the independent variable being insignificant and having a positive instead of negative sign as expected, this means that it is unable to discern if and how much a unit of increase in aid has on the fiscal dimension measure of state capacity and will likely not hold if tested in a larger population. This finding goes against the set expectations of aid having a negative impact on fiscal state capacity, as it is shown that ‘LN Average Total Aid/GDP’ is not a significant predictor of change in tax revenue with the implemented controls. The significant F-value for the fiscal dimension regressions indicate that the variables included in the model may be significant jointly, but the insignificant coefficient of the ‘LN Average Total Aid/GDP’ variable may fail to be significant individually on the dependent measure. Two of the included control variables were seen to be significant at the 0.05 confidence level being institutionalized democracy and initial level of tax revenue, both of which having the expected signs. Even when interpreting the  $\beta$ -Coefficient values at a 10% significance level, all already insignificant values remained insignificant. This means that the insignificant control variables of average GDP growth and presence of conflict do not seem to have a noticeable significant effect on the relationship between foreign aid and change in tax revenue as a measure of the fiscal dimension of state capacity.

### ***5.3.2 Legal Dimension Regression***

The second multiple regression tested foreign aid and the legal dimension measure of state capacity, change in rule of law. An insignificant regression equation was found with an  $F = 1.918$  and p-value of  $0.097 > 0.05$ , with a very low adjusted R-squared value of 0.040 or 4%. Within this model, we can see that foreign aid as represented by ‘LN Average Total Aid/GDP’ in table 8, has an unstandardized  $\beta$ -coefficient with the expected sign of  $-0.008$  and is proven to be insignificant with a p-value of  $0.547 >$



0.05. Similarly to the results of the regression of the tax revenue model, this goes against previously stated expectations, showing there is no significant relationship between foreign aid and the legal measurement of state capacity being change in rule of law. Despite the sign of the  $\beta$ -Coefficient for 'LN Average Total Aid/GDP' within this model being negative as expected, accurate conclusions cannot be drawn given its insignificant nature, meaning that 'LN Average Total Aid/GDP' is not a significant predictor of change in rule of law as a measure of the legal dimension of state capacity. Within this model, only the average GDP growth control was found to be significant with the expected positive sign. Even when testing at the 10% significance level none of the other controls were significant, meaning that average GDP growth seemed to be the only one having an effect on the relationship.

### ***5.3.3 Government Effectiveness Dimension Regression***

For the last multiple regression analysis concerning the bureaucratic-administrative dimension, measured through the change in government effectiveness, a significant regression equation was found with  $F = 2.964$ , a p-value of  $0.015 < 0.05$  and with an adjusted R-squared value of 0.081 or 8.1%. Within this final model, we can see that foreign aid as represented by 'LN Average Total Aid/GDP', has an unstandardized  $\beta$ -coefficient of -0.035 with a sign that matches expectations and is significant with a p-value of  $0.030 < 0.05$ . This  $\beta$ -coefficient can be interpreted to mean that a percent increase in foreign aid as a percent of GDP on average leads to a reduction in government effectiveness of 0.035 points. The  $\beta$ -coefficient of 'LN Average Total Aid/GDP' being significant may mean that it is thus a predictor of the bureaucratic-administrative dimension of state capacity measured through change in government effectiveness. Within this model, none of the control variables were statistically significant except for average GDP growth, and additionally presence of conflict only when examined at a 10% significance level. Both significant control variables had the expected signs, being positive for average GDP growth and negative for presence of conflict. However, pairing this with a low adjusted R-squared value, means that the possibility of other unforeseen and unaccounted for variables explaining the variance within the model is high and thus needs to be considered when interpreting results. Out of all three of the dimension-based measures for state capacity, this measure within the model has matched the expectations of aid having negative effects on this bureaucratic-administrative dimension of state capacity, despite being a rather small value change.

### **5.4 Insignificant Control Variables and Effects on the Models**

Given that all three models had a few control variables included that proved to be insignificant, it would be interesting to see if there are any significant improvements on the F-value and changes in the adjusted R-squared values of each respective model when removing insignificant controls. For the first model of change in tax revenue, removing the insignificant control variables of average GDP growth and

presence of conflict saw the F-value increase with a large amount from previously being 3.721 and significant at the 0.01 confidence level to 6.353 and still significant at the same level. This caused a corresponding adjusted R-squared change from previously being 0.193 to 0.220. This shows that the inclusion of average GDP growth and presence of conflict reduces part of the significance and explanatory power of the model. Not including for example average GDP growth to account for increases in income within the model would also fail to accurately measure country differences in income and economy, which can have other negative effects for measurement accuracy.

For the second model of change in rule of law, removing all the insignificant control variables and leaving the significant average GDP growth, showed an increase in the F-value from previously being 1.918 and insignificant to 3.096 and significant at the 0.05 confidence level. There was also an accompanying adjusted R-squared decrease from 0.040 to 0.031. This shows that while there is an increase in F-value and a change in significance of the model, there is actually a decrease in adjusted R-squared value, meaning that it is likely not the most beneficial to remove the controls.

Lastly, for the third model for change in government effectiveness, removing all the insignificant control variables left only the average GDP growth control variable and this caused a change in F-value from previously being 2.964 to 3.371. An accompanying change in adjusted R-squared was also found from previously being 0.081 to 0.035. This means that removing the insignificant controls in this model would cause a much larger decrease in the adjusted R-squared value than an increase in F-value and would subsequently only lose explanatory power. Also worth noting is that the  $\beta$ -coefficient values for the independent variable of 'LN Average Total Aid/GDP' were all insignificant across all three models after removing the insignificant control variables. While the change in tax revenue and rule of law  $\beta$ -coefficient values were already insignificant, this removal of insignificant control variables caused the previously significant 'LN Average Total Aid/GDP'  $\beta$ -coefficient for change in government effectiveness to become insignificant.

## **5.5 Quadratic Multiple Regression Analyses**

After interpreting the mostly unexpected results for the multiple linear regressions, checking whether there is another type of relationship present also seemed exceedingly relevant to try and understand any other possible explanation for the relationship between foreign aid and state capacity. One such previously posited relationship was explored by Brazys (2016), that found that aid had a positive and diminishing relationship with bureaucratic quality as a measure of state capacity. In order to see if this diminishing relationship was evident within the chosen dimension-based measures, three quadratic regressions were conducted. Presented below is the quadratic regression equation used and the result of the regressions can be seen in table 9.

$$\Delta StateCap = \beta_0 + \beta_1 Aid + \beta_2 Aid^2 + \beta_3 AverageGDPGrowth + \beta_4 ConfPres + \beta_5 InstiDemo + \beta_6 InitialDependentValue + \varepsilon$$

**Table 9**

*Output of Coefficients Quadratic Multiple Regression Analyses*

<i>Dependent Measure used in Quadratic Regression</i>	<b>Change in Tax Revenue 2018-2008</b>	<b>Change in Rule of Law 2018-2008</b>	<b>Change in Government Effectiveness 2018-2008</b>
<b>Constant</b>	5.107 (3.955)	-0.146 (0.150)	-0.322 (0.176)
<b>LN Average Total Aid/GDP 2004 to 2014</b>	0.830 (0.812)	-0.027 (0.036)	-0.055 (0.041)
<b>LN Average Total Aid/GDP Squared 2004 to 2014</b>	0.025 (0.055)	-0.001 (0.003)	-0.002 (0.003)
<b>Average GDP Growth</b>	-0.081 (0.351)	0.029** (0.013)	0.045** (0.015)
<b>Level of Institutionalized Democracy</b>	0.541** (0.204)	-0.002 (0.008)	-0.001 (0.010)
<b>Presence of Conflict</b>	-0.377 (1.501)	-0.084 (0.056)	-0.125** (0.063)
<b>Initial Level of Corresponding Dependent Variable</b>	-0.389*** (0.155)	-0.089 (0.055)	-0.058 (0.062)
<b>F</b>	3.088*	1.641	2.497**
<b>Adjusted R<sup>2</sup></b>	0.180	0.034	0.075
<b>N</b>	135	135	135

*Standard Errors are in parentheses. \* Means significant at the 0.10 confidence level. \*\* Means significant at the 0.05 confidence level (2-tailed). \*\*\* Means significant also at the 0.01 confidence level (2-tailed).*

As seen in table 9 above, two significant quadratic regression equations were found being the change in tax revenue and change in government effectiveness quadratic regression models. The change in tax revenue model had an F-value of 3.088, an accompanying significant p-value of  $0.012 < 0.05$  and an adjusted R-squared of 0.180. Whilst the change in government effectiveness model had an F-value of 2.497, a significant p-value of  $0.027 < 0.05$  and an adjusted R-squared of 0.075. Change in rule of law proved to be insignificant with an F-value of 1.641, a p-value of  $0.143 > 0.05$  and an adjusted R-squared of 0.034. Looking at the respective  $\beta$ -coefficient values for the 'LN Average Total Aid/GDP' variable and its quadratic form 'LN Average Total Aid/GDP Squared', one can see that whilst across all three dimensions coefficient values did decrease, the signs remained the same and they were all found to be insignificant. This means that within these models, there is no evidence of a quadratic relationship present between foreign aid adjusted for GDP and the chosen measures for state capacity. Additionally, when comparing these quadratic model values to the previous values of the normal multiple linear regressions to see if there is any improvement by including the quadratic form in the model, there seems to be barely any change to the adjusted R-squared values and some mostly limited change to the F-values. These values can be seen compared below in table 10. Table 10 clearly demonstrates that all F-values decrease and the accompanying adjusted R-squared values between models also decrease, meaning that there is no large improvement or benefit in adding the quadratic form of the variable.

**Table 10**

*F-value and Adjusted R-Squared change between multiple linear and quadratic regression models*

	<b>Change in Tax Revenue (Multiple Linear)</b>	<b>Change in Tax Revenue (Quadratic)</b>	<b>Change in Rule of Law (Multiple Linear)</b>	<b>Change in Rule of Law (Quadratic)</b>	<b>Change in Government Effectiveness (Multiple Linear)</b>	<b>Change in Government Effectiveness (Quadratic)</b>
<b>Adjusted R<sup>2</sup></b>	0.193	0.180	0.040	0.034	0.081	0.075
<b>F</b>	3.721***	3.088**	1.918	1.641	2.964**	2.497**

*Standard Errors are in parentheses. \* Means significant at the 0.10 confidence level. \*\* Means significant at the 0.05 confidence level (2-tailed). \*\*\* Means significant also at the 0.01 confidence level (2-tailed).*

## 5.6 Discussion of Results

Having presented and discussed the results of the multiple and quadratic regression analyses, it is necessary to relate back and compare the statistical findings to previous empirical studies presented in the literature review, as well as the concepts discussed in the theoretical framework to see how strongly the initially stated expectations of the research were confirmed or disproven.

Based on the findings of the three multiple regression analyses that were conducted to investigate the effects of aid on the fiscal, legal and bureaucratic-administrative dimensions of state capacity, the results have mostly proven contra to set expectations informed by previous research. Within this study, it was expected that foreign aid will have a negative or worsening effect across the three dimensions of state capacity under investigation, whilst controlling for potential intervening variables such as average GDP growth, level of institutionalized democracy, presence of conflict and the corresponding initial levels of the dependent variable measures within the recipient countries.

For the fiscal dimension measure, the  $\beta$ -coefficient went against the posited expectation of aid having negative effects on state capacity. This means that when total GDP-adjusted average aid from DAC, non-DAC and Chinese groups is given to a country, this had a relatively small positive effect on change in tax revenue collected as a percentage of GDP as a measure of state capacity. Despite the fiscal regression model measuring the effect of aid on state capacity being significant, the  $\beta$ -coefficient for foreign aid was insignificant and the sign did not match the expectations. This means that for the first hypothesis, '*Foreign aid will have a negative effect on state capacity as measured by the fiscal dimension*', the null hypothesis cannot be rejected due to insignificance causing the inability to determine whether aid has an actual effect on state capacity in terms of the fiscal measure of change in tax revenue. Delving deeper in connection with previous research, the results of this study go against the findings of Moss, Pettersson & van de Walle (2006). They hypothesized that high volumes of aid flows can lead to significant large-scale negative effects on state capacity, as expressed through the development of aid-dependency and the reduction of incentives for short term tax collection. The regression model for fiscal capacity within this research shows that foreign aid actually increases tax revenue as a percentage of GDP, however the insignificant nature of the results mean that one cannot conclusively say that there is enough evidence to completely dismiss tax collection reduction as a product of increased aid.

The result of the present study, albeit going against initially stated expectations and previously stated literature presented in the literature review, has been found in prior research before. Clist (2016) replicating the study of Benedek et al. (2014), sought to take an econometric approach in trying to find the effects of grant and loan based foreign aid on tax revenue. Despite failing the replication in hopes of finding negative effects of foreign aid on tax revenue, instead Clist (2016) found modest and positive effects of foreign aid on tax revenue. He finds that previous studies that demonstrated negative effects were often subject to poor data quality concerns and often use multiple datasets to construct single dependent variables, that often have differing and poorly aligned definitions. While this is an interesting theoretical possibility to explore in more depth in additional research at a later stage, with the  $\beta$ -coefficient for change in tax revenue being insignificant in this case, its effects cannot be concretely concluded upon.

Furthermore, the results for the legal dimension as measured through change in rule of law also challenged the findings of Moss, Pettersson & van de Walle (2006) and other related studies. They state that recipient countries that receive high volumes of foreign aid suffer from reduced government accountability and legitimacy. Given that within the presented model, albeit matching expectations with a negative decrease, the analysis has found the  $\beta$ -coefficient to be insignificant. This means that it cannot be concluded whether aid is an accurate predictor of change in the rule of law based measure for state capacity. Thus, for the second hypothesis '*Foreign aid will have a negative effect on state capacity as measured by the legal dimension*', just like for the fiscal dimension, the null hypothesis cannot be rejected. This result challenges the popularly held notion within the field that foreign aid establishes patterns of reduced quality of governance and institutions, moral hazard and increased aid dependency of national governments (Moss, Pettersson & van de Walle 2006, Busse and Gröning 2009 & Knack 2001). Rule of law as operationalized within this study measures the legitimacy and accountability of the legal framework, its creation and enforcement and the overall legitimacy of the government by citizens subject to these institutions. While moral hazard and aid dependency weren't explicit foci of the tests and were not controlled for, these are often manifestations of negative effects of aid on state capacity or one set of outcomes that can be distinguished as established in previous literature.

With both the results of the models for fiscal and legal dimensions of state capacity running against expectations, these contrasting findings go against previous literature. These two selected fiscal and legal measures seem to not align with prior theory positing the dimensional interrelation and interconnection of the fiscal and legal dimensions of state capacity. Besley and Persson (2009) proposed the complementarity of these two dimensions through a creation of a model, which held that past investments in fiscal and legal capacity dimensions informed policy choices regarding state capacity. This was confirmed and an interconnected relationship was suggested between the two dimensions and their related indicators. While the present study employs theoretically informed indicators for both the fiscal and legal dimension being change in tax revenue and change in rule of law respectively, both their results followed the same pattern, with both being largely insignificant. Hanson and Sigman (2011) also proposed a conceptual interconnectivity between these two dimensions and additionally went a step further by adding the coercive or bureaucratic aspect to it as well. While this idea of interconnectivity between dimensions has been found in the more focused studies by Besley and Persson (2009) and Hanson and Sigman (2011), this did not necessarily seem to be the case within this present study or it is unable to ascertain given the insignificant results of the fiscal and legal dimensions.

The final regression model measuring change in government effectiveness for the bureaucratic-administrative dimension of state capacity, showed different findings compared to the results of the fiscal and legal dimensions. The  $\beta$ -coefficient for change in government effectiveness was found to be both negative as expected and significant. This means that foreign aid as a predictor variable has measurable and significant effects on government effectiveness and subsequently on the bureaucratic-

administrative dimension of state capacity. For the third hypothesis, the null hypothesis can thus be rejected with the results being significant and showing the expected negative effect. This aligns with previous theory and literature posited that there are varying levels of negative effects of aid on bureaucratic, administrative and institutional quality (Knack 2001, Deserranno, Nansamba and Qian 2020, Busse and Gröning 2009). Knack (2001) found that increasing foreign aid has a direct negative effect on bureaucratic-administrative state capacity measured through bureaucratic quality and leads to a growing institutional gap. Aid having a comparatively more negative effect on government effectiveness and related bureaucratic-administrative capacity as opposed to the other two dimensions also aligns well with past theory. Morss (1984) for example, put forth that donor and aid project proliferation was posited to have major implications for government institutions in developing countries. This is especially relevant given the approach of this study in adding the inclusion and analysis of the non-DAC and Chinese donors. This proliferation of donors also goes hand in hand with aid fragmentation and is theorized to force governments to comply with the often conflicting wishes of multiple donors, each with their own agenda. This often then leads to a major decrease in government effectiveness in not only dealing with aid related processes, but it can also reduce effectiveness in the daily activities of national bureaucracies. In regards to this, institutional destruction can thus be said to be a likely outcome of foreign aid and viewed through this theoretical perspective, it makes sense that government effectiveness is the most negatively impacted within this study's models. The insignificant results of the fiscal and legal dimensions however, make it unable to empirically conclude whether government effectiveness will always be the most negatively affected when compared with fiscal and legal dimensions. Whether this dynamic would hold between these three dimensions is something for future research to determine. Based on the results of this analysis, one can only conclude that total aid volume given by the three donor groups does have an effect on the bureaucratic-administrative dimension of state capacity.

With the fiscal and legal dimension models for state capacity showing insignificant and inconclusive results regarding the relationship between foreign aid and state capacity, three quadratic regression analyses were conducted in order to see if there was potentially any other type of relationship present. This type of quadratic relationship was discussed by Brazys (2016), who found that aid had a positive but diminishing relationship with change in bureaucratic quality as aid volumes increased. Given that this present study also investigates aid volumes and includes a bureaucratic-administrative dimension, such a relationship was worth exploring. Whilst the coefficients did decrease in value, the quadratic regressions returned insignificant results and thus no quadratic relationship was present for any of the models. This means that for the fourth hypothesis, *'Foreign aid will cause diminishing returns and have a quadratic relationship with the fiscal, legal and bureaucratic-administrative dimensions of state capacity'*, the null hypothesis cannot be rejected. Brazys (2016) findings corroborate

the widely held perspective that too much aid can often be counterproductive, while the results of the quadratic regressions within this research have been unable to determine such a relationship.

This present research has taken a novel approach by including the relatively unstudied non-DAC and Chinese donor groups included alongside the frequently studied DAC group. The inclusion of these two additional donor groups and the increased aid volumes that they bring, can lead to potentially large differences in results compared to if only DAC donors aid flows were considered in similar designed studies. This means that within the scope of this study, there are likely to be even more differences in dimensions of state capacity when comparing the inclusion of these groups versus only looking at DAC donors. Taking the significant model of government effectiveness in this research for example, government effectiveness was worsened by increased aid volumes, which aligned with previously posited theory. This should then mean that the inclusion of higher volumes from Non-DAC and Chinese aid should demonstrate a larger effect size when compared to if this present study solely considered DAC donor aid flows. While unable to say with certainty whether this effect of increased aid volumes brought from the addition of these two groups would hold for the insignificant fiscal and legal dimension models, this is what previous theory and empirical results would also predict. The inclusion of these donor groups also give rise to many different potential influencing factors such as donor groups motivations, donation patterns, the types of aid each donor group gives and the differences between each country and their relation to the donor group classifications. While these aspects were not investigated within this research, this still leaves open a very large potential for differences to account and control for between simply studying DAC donors and including these additional groups and all of the expanded contextual factors that it may entail. Additionally, the inclusion of these two groups and the subsequent large volume of aid they bring, likely makes it even more important to find and include more representative controls that account for any possible external effects on the relation of aid and state capacity. This is precisely why the inclusion of non-DAC and Chinese donor data needs to be further investigated and researched in the context of state capacity and beyond.

Considering that for five of the six models for both the multiple linear regressions and the quadratic regressions, unexpected results were found with insignificant  $\beta$ -coefficients for the independent variable, robustness checks are not as applicable in these cases. However, the multi-dimensional approach of using the three different dimensions of fiscal, legal and bureaucratic-administrative dimensions in measuring the single concept of state capacity helps bolster robustness in and itself. This comes about as it takes three different theoretically informed approaches of looking at and measuring a single concept, alongside the controls used within the model. This should raise the likelihood of delivering more internally valid results that are indicative of the relationship, or in this case the uncertainty or lack of relationship between the first two dimensions and foreign aid provision.



## Chapter Six: Conclusions, Limitations and Further Research

### 6.1 Conclusions

This research began by laying the contextual, theoretical and empirical groundwork in which the wider concepts of foreign aid and state capacity are nested. The plethora of varying existing empirical results and conclusions on the relationship between aid and state capacity have ranged from negative to positive and even including diminishing effects. Prior research has also thus far mainly concentrated on analyses using only DAC donor data and on one or two dimensions of state capacity. The present study sought to expand on these practices by adding the previously seldom analyzed datasets of aid coming from emerging non-DAC donors and the rapidly expanding Chinese aid involvement as well. This study took a multi-dimensional approach in order to contribute to the field and fill the gap in the aid-state capacity discourse. This comes in terms of adding more generalizable insights into understanding the complex concept of state capacity and its relation to aid. The aim of this study was to answer the research question, *‘What are the effects of foreign aid on recipient countries’ different dimensions of state capacity?’*.

This research question was answered using three multiple regression analyses as part of a large-N cross-sectional quantitative research design. These regressions focused on finding the effects of GDP-adjusted total aid received from DAC, Non-DAC and Chinese donor groups on the fiscal, legal and bureaucratic-administrative dimensions of state capacity for 135 recipient countries. The research found mixed results suggesting that within the employed regression models, foreign aid does not act as a significant predictor of change in tax revenue and change in rule of law between 2008 and 2018 for the fiscal and legal dimensions. Whilst foreign aid did act as a predictor of a negative effect in change in government effectiveness for the bureaucratic-administrative dimension of state capacity. The insignificant results from the fiscal and legal dimension regression analyses did not fall in line with expectations and thus both the first and second null hypotheses were unable to be rejected. With the present data and research design in place, one cannot concretely determine whether there is an effect present within these two dimensions. The result for the change in government effectiveness regression model did fall in line with previous literature, positing a negative aid and state capacity relationship, which subsequently allowed for the successful rejection of the third null hypothesis. With the lack of presence of a quadratic relationship, the fourth null hypothesis was unable to be rejected. Interestingly as well, was that no one control variable proved to be consistently significant across the conducted multiple linear regressions. However, despite the frequency of inclusion in past studies, presence of conflict as a control went against expectations. It appeared to be consistently insignificant albeit having the expected coefficient signs across all three regressions, whilst some of the other control variables differed in their effects on the relationship between the regression analyses. One such example was the fact that the average GDP growth variable displayed a negative coefficient sign within the fiscal tax

revenue model, when this was expected to be positive. This also applied to the level of institutionalized democracy showing very weak negative coefficient signs for both the legal and bureaucratic-administrative models while expected to be positive.

Whilst the present research is unable to draw concrete conclusions for the fiscal and legal dimensions on the basis of insignificant results, when compared to the bureaucratic-administrative dimension, this only assists in proving that there are potentially sizeable differences in effects on different state capacity dimensions. In order to examine this further, more and better defined measures of the dimensions should be included in the research with both the same data sets and with different aid donor groups in order to see if this may produce more significant results. The body of literature on the specific relationship between foreign aid and many of the dimensions of state capacity is still left largely inconclusive and relatively under-researched. While this present study may have contributed to the knowledge gap by offering new insights into less explored combinations of dimensions and indicators, as well as the use of new datasets, it has come up short on finding firm significant results across the board. Nonetheless, hopefully this research can guide and inform future researchers on what to change, improve upon or omit when conducting further research. The limitations and future recommendations will now be discussed in more detail in the next section.

## **6.2 Limitations and Further Research**

Having conducted and discussed the analysis and subsequent results, it is necessary to acknowledge and explain the found limitations and potential suggestions of improvement and future research possibilities. Such limitations will relate mainly to the data collection and choice of research design.

Firstly, a main limitation present within this research is related to the boundaries of the cross-sectional research design and its inability in establishing proper causality. This comes about given the lack of consideration of the effects of temporality on the variables measured within cross-sectional designs, despite trying to account for change in variables and employing time lags. Thus, a potential suggestion for future research would be employing a quantitative large-N time series analysis. This should allow more concrete measurement that can measure changes in state capacity over time and establish more concrete causal relationships. Relatedly, another consideration is that some state capacity dimensions and more specifically the measures chosen to analyze them, may only be more visible in the very long run and thus may not show noticeable or significant changes in reaction to the provision of aid. While the effects of aid may already start to be absorbed within the four years used as a time lag, it may well be possible that some heavily ingrained and institutionalized structures may only change years down the line, if at all. By taking note of this, hopefully more reliable and robust causal inferences can be made regarding the relationship between aid and the dimensions of state capacity.

Secondly, given that many of the control variables employed in the multiple regression analyses proved to be insignificant to varying degrees and combinations, this can mean that there are perhaps more suitable controls that may isolate and better prove the relationship. This may potentially make a difference in improving the models analyzed. This was corroborated by looking at the changes made in the models once the insignificant controls were removed. This however, is not a complete solution as being left with a single significant control for most of the models likely means that there are uncontrolled factors that were not found and employed in this study. Thus, it is vital to find and use other more representative control variables for factors that may affect the aid-state capacity relationship in future research.

Thirdly, a general limitation applicable across the field of aid research, is the lack of reliable, updated and complete Chinese aid data. The only available easily accessible data on Chinese aid is from Aiddata, which only runs from 2000 until 2014 and is also missing the amount of detail and quality reporting standards that are applied to the OECD statistics. The ability to use more complete and reliable up to date Chinese aid data would vastly improve the ability to draw accurate conclusions regarding the fast growing provision of Chinese aid. Relatedly, the Chinese aid data also being presented only in aid projects and through commitments means that in order to keep comparison equal, commitments also had to be taken as the method of aid for comparison. Using aid disbursements in the analysis could also be a suggested alternative future option for research that may yield different results.

For further future research, another interesting avenue to explore would be a qualitative case study based on a selection of low to middle income countries that all receive similar high amounts of aid from all three donor groups. This would allow for a more zoomed in research that seeks to study more measurable impacts that aid may have on their respective state capacities. Alternatively, a mixed methods approach could also fill in possible weaknesses presented by either a fully quantitative or qualitative study. Another interesting research expansion could be to compare a few of the countries that receive the most aid from each of the separate donor groups. This will allow for a more direct comparison in order to see the effectiveness of aid coming from either DAC, non-DAC or Chinese aid on state capacity and to see if there are any overlaps or perhaps any important factors that limit or enhance state capacity instead of just purely the volume of aid. While this research took some initial steps in pursuing a more multi-dimensional approach to studying the relationship between aid and state capacity, much is left unexplored and investigated. In order to shed further light on establishing stronger connections and achieving answers, these concepts must be subject to further academic scrutiny and analytical rigor, in hopes of achieving robust results that can be used to inform concrete policy and developmental action in the future.

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## Appendices:

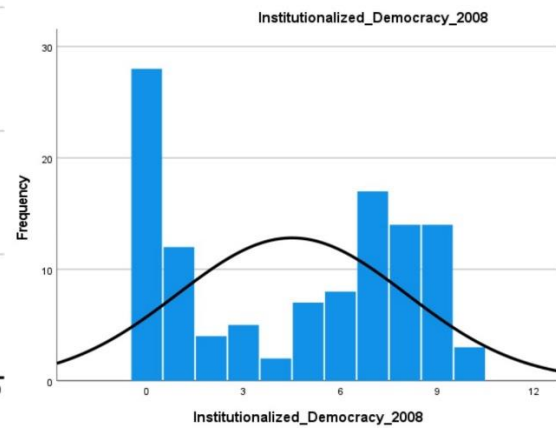
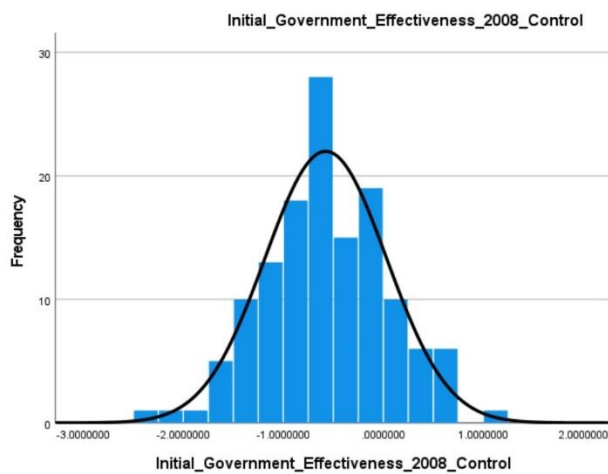
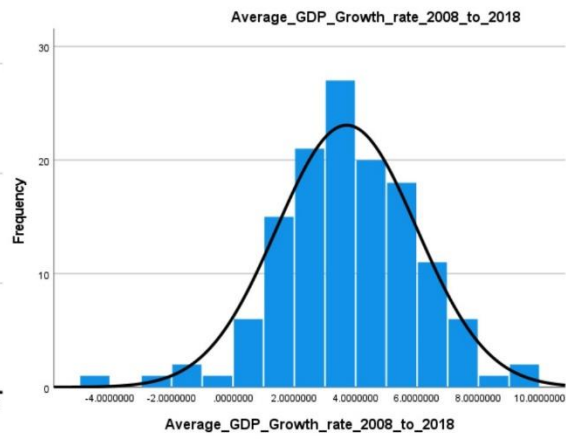
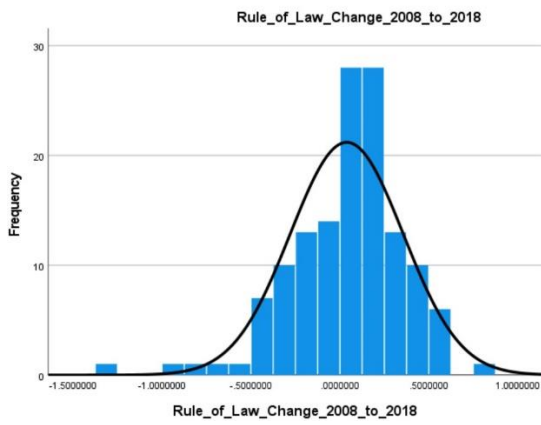
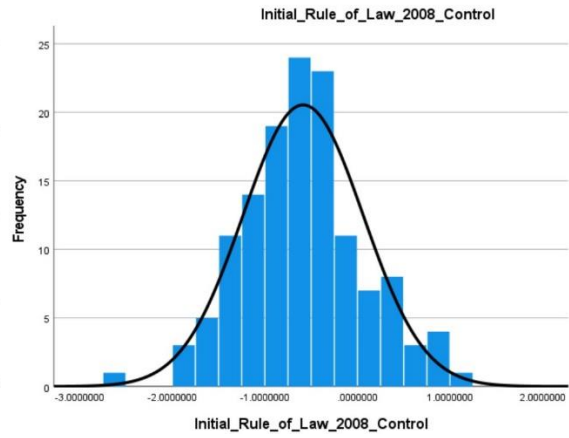
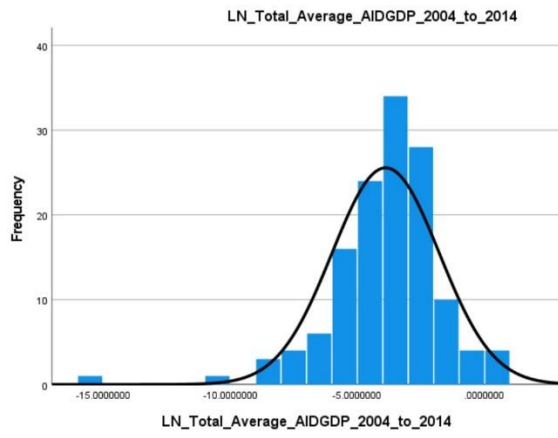
### Appendix A:

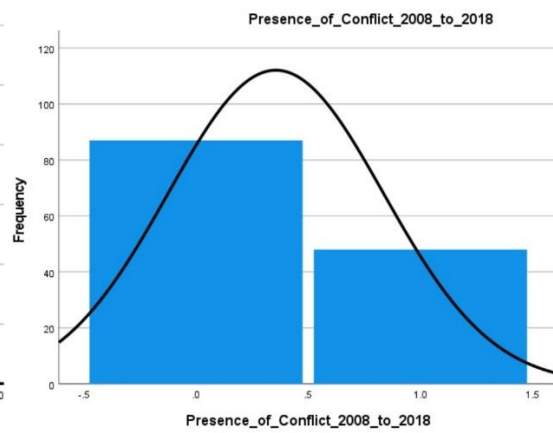
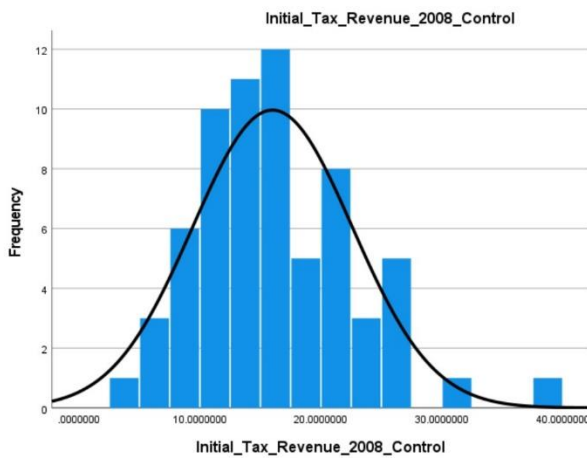
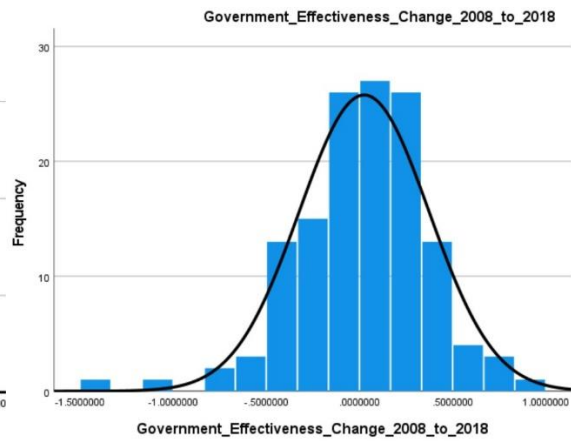
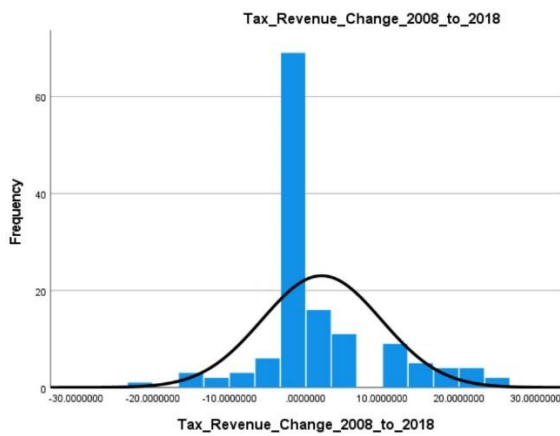
*List of recipient countries included in analysis. Based on World Bank Income Groupings of low, lower-middle and upper-middle income countries.*

Afghanistan	Comoros	Honduras	Moldova	South Sudan
Albania	Congo, Dem. Rep.	India	Mongolia	Sri Lanka
Algeria	Congo, Rep.	Indonesia	Montenegro	St. Lucia
American Samoa	Costa Rica	Iran, Islamic Rep.	Morocco	St. Vincent and the Grenadines
Angola	Cote d'Ivoire	Iraq	Mozambique	Sudan
Argentina	Cuba	Jamaica	Myanmar	Suriname
Armenia	Djibouti	Jordan	Namibia	Syrian Arab Republic
Azerbaijan	Dominica	Kazakhstan	Nepal	Tajikistan
Bangladesh	Dominican Republic	Kenya	Nicaragua	Tanzania
Belarus	Ecuador	Kiribati	Niger	Thailand
Belize	Egypt, Arab Rep.	Korea, Dem. People's Rep.	Nigeria	Timor-Leste
Benin	El Salvador	Kosovo	North Macedonia	Togo
Bhutan	Equatorial Guinea	Kyrgyz Republic	Pakistan	Tonga
Bolivia	Eritrea	Lao PDR	Papua New Guinea	Tunisia
Bosnia and Herzegovina	Eswatini	Lebanon	Paraguay	Turkey
Botswana	Ethiopia	Lesotho	Peru	Turkmenistan
Brazil	Fiji	Liberia	Philippines	Tuvalu
Bulgaria	Gabon	Libya	Russian Federation	Uganda
Burkina Faso	Gambia, The	Madagascar	Rwanda	Ukraine
Burundi	Georgia	Malawi	Samoa	Uzbekistan
Cabo Verde	Ghana	Malaysia	Sao Tome and Principe	Vanuatu
Cambodia	Grenada	Maldives	Senegal	Venezuela, RB
Cameroon	Guatemala	Mali	Serbia	Vietnam
Central African Republic	Guinea	Marshall Islands	Sierra Leone	West Bank and Gaza
Chad	Guinea-Bissau	Mauritania	Solomon Islands	Yemen, Rep.
China	Guyana	Mexico	Somalia	Zambia
Colombia	Haiti	Micronesia, Fed. Sts.	South Africa	Zimbabwe

## Appendix B:

Frequency Distribution Graphs and skewness check per variable.





While the distributions were checked to be normal using the graphs above, the skewnesses were also checked using SPSS skewness statistic presented below. Any value falling between -1 and +1 indicates that the variable is not skewed. The natural log of the Aid/GDP variable was already taken to adjust the skewness and adjust for differences in aid and therefore is not included in the below table.

Variables	Skewness
Tax Revenue Change	0.304
Rule of Law Change	-0.967
Government Effectiveness Change	-0.536
Average GDP Growth	-0.373
Institutionalized Democracy	-0.096
Presence of Conflict	0.610
Initial Tax Revenue	0.737
Initial Rule of Law	0.216
Initial Government Effectiveness	-0.010