
EFFECTIVE AID REVISITED

AN EXTENSION AND FOLLOW-UP OF RESEARCH ON DEMOCRACY'S
IMPACT ON AID EFFECTIVENESS



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ABSTRACT

This thesis investigates the impact of democracy on aid effectiveness in recipient countries by employing a two-step approach. In a first step, the effect of democracy on the relationship between foreign aid and poverty reduction, proxied by changes in the Multidimensional Poverty Index, is measured. In a second step, a follow-up study to Kosack's 2003 study "Effective aid: How Democracy Allows Development Aid to Improve the Quality of Life" is conducted by applying an adjusted research design to more recent data. This step examines the effect of democracy on the relationship between foreign aid and quality of life growth.

The rationale of the thesis, backed by existing statistical evidence and a combination of neoclassical economic and selectorate theory, is that aid is more effective in countries that are more democratic. However, using multiple linear regressions, this study reveals no robust evidence of democracy neither fostering aid effectiveness nor decreasing it. Furthermore, the follow-up study to Kosack (2003) does not support Kosack's previous results. This underlines that the field continues to warrant further investigation.

Key words: Aid effectiveness, Democracy, Developing countries, Foreign aid, Human development, Multiple Linear Regressions, Neoclassical economic theory, Poverty reduction, Selectorate theory

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CHAPTER 1: INTRODUCTION

This chapter starts off with the problem definition (1.1), followed by a section on the aim of the study (1.2). Then, the research question (1.3) and the research design (1.4) are introduced. The chapter continues with an overview of the academic and social relevance of the study (1.5) and concludes with a road map of the rest of the thesis (1.6).

1.1 PROBLEM DEFINITION

Foreign aid has been at the centre of development politics since the end of World War II – first, as a means to restore the war-wrecked European countries and later to promote development in developing countries (Moyo 2009). Hereby, the declared primary aim of the Western countries has been to achieve development for the entire world. To do so, they often transfer resources bi- and multilaterally. According to prominent streams of research, the poorest countries are believed to be cornered in a *poverty trap*, meaning that they are unable to lift themselves out of poverty (Easterly 2006). Those countries are victims of a *financing gap*, as they are unable to invest sufficient funds into infrastructure and human capital to boost development. Consequently, foreign aid is distributed to close that gap. Developed countries provide aid to build roads, schools and other infrastructure thought to trigger capital accumulation. Because of successful investments, the growth rates in the respective countries increase. In sum, with the support of donor countries, self-sustained growth can be achieved and consequently future aid is no longer necessary. However, these attempts have only produced mixed results. In fact, Easterly (2006) highlights that the West has already spent \$2.3 trillion on development aid over the last five decades, with only marginal improvements in the developing world.

Foreign aid is an essential part of the Western development policies and politics. However, academics and practitioners alike continue to challenge the effectiveness of foreign aid and the past decades have seen a scholarly debate focused mainly on the effect of aid on economic growth. Various studies produce competing findings. In a 2006 working paper called “A Primer of Foreign Aid”, Radelet highlights three contrasting assumptions regarding the aid-growth relationship: 1) aid has a positive relationship with growth on average across countries, 2) aid has no effect on growth, and may actually undermine growth, and 3) aid has a conditional relationship with growth, helping to accelerate growth under certain circumstances. Since approximately the turn of the millennium, a growing body of empirical evidence suggests that the third assumption – aid has a conditional relationship with growth – holds some truth. Burnside & Dollar (2000) conducted a study that has garnered substantial attention. The authors find empirical evidence for the proposition that aid stimulates growth only in countries with what they consider “good policies”, such as trade openness. Other scholars used other conditional factors in their studies, for

example export price shocks (Collier & Dehn 2001), climatic shocks (Guillaumont & Chauvet 2001) or climate-related circumstances (Dalgaard, Hansen & Tarp, 2004). These studies also find that aid leads to economic growth only under certain conditions. However, other scholars have successfully challenged some of these findings. For instance, the results of the Burnside & Dollar (2000) study do not withstand a robustness test by Easterly, Levine and Roodman (2004). In comparison, Roodman (2007) concludes that the findings of Dalgaard et al. (2004) on the role of climate in this context are robust. Despite the inconclusive evidence, scholars have come to a shaky consensus that foreign aid works under certain conditions.

This area of research has strong implications for policy makers around the world and across institutions as they apply the results into practice, even though the findings concerning the conditional role of the climate (Dalgaard et al. 2004) have no policy implications. The World Bank's scheme for allocating concessional International Development Association funds is an instance where the concept of aid conditionality was applied (Radelet 2003).

One of the most pressing topics in aid effectiveness research today is finding the facilitating conditions for effective aid. Most research conducted on this is based on aid effectiveness defined as economic growth. Little research investigates the conditions of aid effectiveness concerning human development. The most prominent contribution to this field is an article by Kosack (2003) titled "Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life". Kosack adds a different aspect to the discussion by considering aid's ability to improve the quality of people's life in a certain country instead of merely the economic growth there. His study concludes that there is a positive relationship between foreign aid and the quality of life in democratic countries. Contrarily, he finds aid to be non-effective and possibly harmful in autocracies. Thus, foreign aid seems to be more effective in democratic regimes.

Partially as a result of such findings, international aid donors are increasingly imposing conditions of democratization, such as enhanced political rights and civil liberties, on the aid receiving countries in order to promote democracy and human rights (Banik 2010). They do this in part to foster aid effectiveness, as several studies indicate that aid works better in democratic countries (e.g. Svensson 1999; Kosack 2003). Consequently, investigating the effect of democracy on aid effectiveness becomes increasingly important. To this end, the aim of this thesis is to provide further insights into the field of conditional aid effectiveness. In particular, the thesis investigates the intervening effect of democracy on foreign aid effectiveness with regard to development.

1.2 RESEARCH OBJECTIVE

The primary goal of this thesis is to support and extend the existing body of knowledge on the intervening effect of democracy in the foreign aid – development link. More precisely, this interaction effect is tested for two operationalisations for democracy and two operationalisations for development, providing robustness checks on two fronts. In doing so, this study provides further clarity on aid effectiveness and its conditionality in regards to democracy.

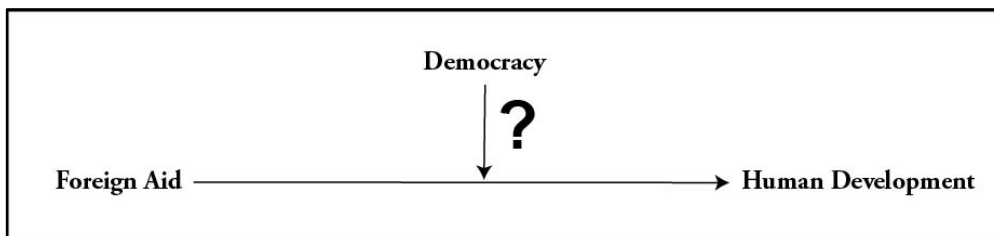
1.3 RESEARCH QUESTION

To fulfil the research objective laid out in the previous section, this thesis attempts to find an answer the following research question:

What effect does democracy have on the foreign aid – development relationship in developing countries?

With regard to the research question, the dependent variable is *development* and the independent variable is *foreign aid*. The intervening variable *democracy* affects the relationship between these variables. Figure 1 shows a graphical depiction of the research question.

FIGURE 1: GRAPHICAL DEPICTION OF THE RESEARCH QUESTION



In order to be able to provide a well-founded answer to the research question, it is necessary to tackle the following sub-questions:

SQ₁

What is the theory and empirical evidence behind the claim that democracy impacts aid effectiveness?

SQ₂

What evidence does the empirical analysis provide in regards to the effect of the level of democracy on the relationship between foreign aid and poverty reduction?

SQ₃

What evidence does the empirical analysis provide in regards to the effect of the level of democracy on the relationship between foreign aid and quality of life growth (follow-up to Kosack's 2003 study)

1.4 RESEARCH DESIGN

To answer the central research question, this thesis makes use of the method of deduction. Babbie (2013: 22) defines deduction as “the logical model in which specific expectations of hypotheses are developed on the basis of general principles”. In other words, a theoretical framework leads to one or more hypothesis, which are subsequently tested through empirical analysis. In this thesis, the theoretical framework results in a hypothesis on the intervening effect of democracy on the foreign aid – development link. This is then tested empirically. Accordingly, the theoretical framework results in an answer to the first sub-question and the statistical analysis answers the second sub-question. In addition, this study also aims to validate the results of a previous study on the effect of democracy on aid effectiveness proxied with quality of life growth by Kosack (2003) through a follow-up study. This aim is formulated in the third sub-question, which is also answered by the means of statistical analysis.

In order to answer the central research question, it is necessary to select an appropriate methodological design which is both feasible and provides sufficient internal and external validity to the analysis. As this study investigates the effect of democracy on the foreign aid – development relationship on a large scale, a quantitative approach is an appropriate framework. That is because a quantitative research design results in higher external validity than a qualitative research design (VanderStoep & Johnson 2009). Moreover, a quantitative design implies that the findings can be generalized. The chosen quantitative design is a cross-sectional research design. As part of the empirical analysis is a follow-up study to Kosack’s study (2003), a similar design to his was selected. In the subsequent analysis of democracy’s effect on the link between foreign aid and poverty reduction, the cross-sectional design provides sufficient external validity due to the large number of cases that are included. In sum, a quantitative cross-sectional observational study is a valid choice in order to provide a well-founded answer to the central research question.

This study follows a twofold research approach in order to achieve its objective: In a first step, this thesis investigates the effect of democracy on the foreign aid – poverty reduction link. This part of the study (called *Foreign Aid, Democracy & Poverty Reduction*) provides further insight on the effect of democracy on the relationship between foreign aid and poverty reduction. Then, in a second step, a follow-up study to Kosack’s 2003 study “Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life” is conducted to further test the validity of his results and the underlying argument. This second part of the analysis is called *Follow-up to Kosack (2003)*. Both parts follow the methodological approach that Kosack used in his study in 2003.

Both parts of this study examine aspects of human development. The United Nations Development Programme (UNDP) introduced the human development concept, defined and refined by

Mahbub ul Haq and Amartya Sen, to the world society in its Human Development Report 1990. This report (UNDP 1990: 1) defines human development as

“a process of enlarging people’s choices. The most critical ones are to lead a long and healthy life, to be educated and to enjoy a decent standard of living. Additional choices include political freedom, guaranteed human rights and self-respect”.

This definition shows that human development is a very broad concept that is difficult to measure. However, scholars have been successful in establishing well-founded measures of human development by investigating partial aspects of it. The two aspects of interest for this thesis are poverty (reduction) and quality of life (growth). An in-depth introduction to these concepts follows in chapter two, but a first outline is provided at this point.

Following Alkire & Foster (2011), *poverty* is a multi-dimensional construct and consists of multiple deprivations that occur simultaneously. Alkire & Foster call this *acute poverty*. The three dimensions of poverty are health, education and living standards. Contrary to most other measures of poverty, this construct diminishes the importance of the solely monetary dimension. That is because this measure captures the social aspects of poverty rather than the economic aspects. The multi-dimensional poverty construct is not a substitute to economic measurements of poverty; rather it complements the vast body on economic poverty research. Thus, *poverty reduction* is defined as the improvements in the three dimensions of poverty operationalised as improvements in the Multidimensional Poverty Index (MPI). A more detailed description of the operationalization of poverty follows in chapter three.

Sen’s Capability approach is the basis for *quality of life*. This notion of human development goes well beyond financial aspects as Sen (1999: 14) states that

“the usefulness of wealth lies in the things that it allows us to do—the substantive freedoms it helps us to achieve. . . It is as important to recognize the crucial role of wealth in determining living conditions and quality of life as it is to understand the qualified and contingent nature of this relationship. An adequate conception of development must go much beyond the accumulation of wealth and the growth of gross national product and other income-related variables. Without ignoring the importance of economic growth, we must look well beyond it.”

In his view, human development is not about accumulating money, but about what you can do with it. These are the functionings and capabilities of people. *Functionings* are the core of being, i.e. eating, sleeping etc. *Capability* is the access of individuals to functionings. In this vein, access means freedom to choose between different functionings and functioning combinations. In essence, capability means having the freedom to choose a life for yourself that you find valuable. In this sense, quality of life is determined by what people can do and be. However, it is difficult to

determine universal capabilities as individual needs and wants vary, but Sen himself developed a measure later adopted by the UNDP for measuring quality of life and growth in quality of life, namely the Human Development Index (HDI).

1.5 ACADEMIC & SOCIAL RELEVANCE

The *academic relevance* of this thesis topic is based on the inconclusiveness of the results of previous research on aid effectiveness. In recent years, an increasing number of scholars have conducted research aimed at finding the conditions for successful aid. Only a very limited number of researchers introduce democracy to the equation, and those who do focus more on the question whether the democracy level of a country has an impact on the sum of aid they receive (e.g. Alesina & Dollar 2000), not on whether the level of democracy has an impact on the effectiveness of aid. Additionally, even though extensive research has been conducted on the effects of foreign aid (e.g. Burnside & Dollar 2000; Dutta, Leeson & Williamson 2013; Hossein 2014), the link between foreign aid and poverty reduction has not been investigated as intensively. However, it is important to understand the impact that democracy has on the aid – development link because if democracy has no or a negative effect on the effectiveness of aid, scholars have to intensify their search for other conditions of successful aid. Contrarily, if democracy increases the positive effect of aid on development, theorists can investigate further on the specific circumstances behind this relationship.

By following up on Kosack (2003), this study aims to expand the empirical evidence on the foreign aid – democracy – aid effectiveness relationship. Moreover, this study tries to clarify the causal mechanism underlying this relationship by focussing on poverty reduction as a means to measure aid effectiveness. This will enrich the body of aid effectiveness literature.

In general, research in this area is important because it provides more information on the conditions of effective aid. Most studies introducing democracy to aid effectiveness research rely on outdated data (e.g. Kosack 2003) or introduce democracy in a different setting (e.g. Bueno de Mesquita, Morrow, Siverson & Smith 2002; Boone 1996). A deeper understanding of this using recent data can facilitate finding suitable solutions to the problem of poverty.

The *social relevance* of this subject is that poverty is still a pressing issue in our time. Most recently, the world has seen a large tide of refugees, fleeing war and poverty. In order to prevent mass migration, policy makers and politicians need to look at solving the underlying economic and social problems, many of which are linked to poverty, within the countries of origin.

Much money is already being spent to alleviate poverty. According to Moyo (2009: 28), “more than US\$ 2 trillion of foreign aid has been transferred from the rich countries to the poor

over the past fifty years”. The Organization for Economic Development (OECD) (2015) reported that in 2013 alone, the members of the Development Assistance Committee (DAC) have distributed more than US\$ 135 billion. In order to allocate foreign aid effectively, a better understanding of whether aid is more effective in fighting poverty in more democratic countries than in less democratic countries is necessary.

1.6 ROAD MAP

This *first chapter* focused on the problem definition, the research objectives and the research question. Furthermore, the research design was briefly introduced and light was shed on the academic and social relevance of this study on aid effectiveness. *Chapter two* provides the theoretical framework and the literature review, introducing the relevant empirical research on the subject. The chapter gives an overview of the literature on conditional aid effectiveness in general in combination with the introduction of the most important contributions on the aid – democracy – poverty relationship. The *third chapter* presents an overview of the research design of this study. It also offers more information on the sample and the statistical procedures used. Moreover, the concepts and variables of this thesis are operationalised in this chapter. The presentation of the statistical results and the analysis of those is done in *chapter four*. This thesis concludes with *chapter five*, summarizing the most important results and giving answers to the central research question and the three sub-questions. In addition, this chapter provides the limitations of the study, the policy and academic implications of this research as well as suggestions for further research.

CHAPTER 2: THEORETICAL FRAMEWORK

The second chapter of the thesis illustrates the theoretical framework. This chapter answers the first sub-question: What is the theory and evidence behind the c that democracy affects aid effectiveness? In order to give a substantiated answer to this question, this chapter is organized as follows: the first section introduces the concepts of poverty, human development, foreign aid and democracy (2.1). Then, the theoretical foundation of the foreign aid – development link is presented, including an account of how this link may be affected by the level of democracy (2.2). The next section gives an overview of the available empirical evidence on the foreign aid – development relationship in general and on the foreign aid – democracy – development relationship in particular (2.3). Then the backbone of this thesis, Kosack's 2003 study, is introduced (2.4). An overview of the control variables used in this study follows (2.5). The chapter closes with a short conclusion (2.6).

2.1 RESEARCH CONCEPTS: POVERTY, FOREIGN AID & DEMOCRACY

This study investigates the effect of democracy on the foreign aid – development link. However, development is a very broad concept and difficult to measure (Walker, Tomlinson & Williams 2010). Consequently, it is necessary to use a proxy for development. There are different ways to measure human development. One of the most prominent proxies for it is poverty reduction. However, other measures of development are also worth investigating. For example, Kosack (2003) employed quality of life growth as a measure for human development. This allows a different perspective on the concept and counteracts an over-focus on economic measures while disregarding the social aspects of development. This thesis employs both of these measures of human development – poverty reduction and quality of life growth. In doing so, both lines of thought are applied.

In the next part, the four central research concepts (poverty and poverty reduction, quality of life growth, democracy and foreign aid) are explained in further detail.

2.1.1 POVERTY AND POVERTY REDUCTION

Poverty. There is no perfect definition of poverty and poverty has a different meaning to different people around the world. However, there are two dominant definitions of poverty. The first one is *absolute poverty*. The United Nations define this as “a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. [Absolute poverty] depends not only on income but also on access to services.” (United Nations 1995: 57). In other words, this definition refers to a set of standards that is the same in all countries. Moreover, these standards do not change over time. The second definition is *relative poverty*. Townsend (1979: 31) states that people live in relative poverty when “they lack the resources to obtain the types of diet, participate in the activities and

have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the society to which they belong". In essence, this definition refers to standards defined in terms of the society in which an individual lives. Therefore, these standards differ between countries and over time. Large-scale poverty research relies mostly on the absolute definition of poverty, as it is suitable to provide well-founded and cross-country comparable data.

As indicated in the first chapter, this thesis employs a third definition of poverty, namely *acute poverty*. Alkire & Santos (2014: 252) define acute poverty as "a person's inability to meet simultaneously the minimum internationally comparable standards in indicators related to the Millennium Development Goals (MDGs) and to core functionings". Put differently, acute poverty is a serious deprivation to the access of basic human necessities. These necessities include food, medical care and education. In general, this definition is closely associated with the United Nations definition of absolute poverty as it incorporates the deprivation of human needs. However, it even goes beyond this concept of absolute poverty and covers a more diverse set of indicators to capture poverty on a broader basis. Acute poverty fits in the spectre of the absolute poverty framework as it looks at internationally comparable measures and does not use country specific measurements.

In general, all the definitions above exhibit a multidimensional approach to the phenomenon. They all share an economic and a social dimension, though some definitions include further dimensions such as an environmental dimension. The economical dimension of poverty, sometimes called income poverty, points at the insufficient access funds necessary to lead and sustain a long and healthy life. The World Bank defines economic or income poverty as earning below the international poverty line of a \$1.25 a day (in 2005 prices). According to this definition, 14.5% of world's population was living in extreme poverty in 2011 (World Bank 2015). This percentage rose up to 36.27% if the people living in moderate poverty are included (living on less than \$2 a day). In contrast to the economic dimension, the social dimension of poverty points at non-monetary poverty, such as the lack of access to health care or education. The social dimension is harder to measure as the definition of indicators is difficult. That is because determining indicators is always subjective and people perceive poverty differently. Additionally, data for measurements are often scarce and there are no absolute numbers or percentages indicating how many people are suffering from social poverty, as it is the case for economic poverty. Moreover, measurements of the social dimension vary greatly as indicators vary significantly as well.

Poverty reduction. As there is a multitude of poverty definitions there are at least as many definitions of poverty reduction. The most widespread delimitation of poverty is income poverty. Poverty reduction in this regard means lifting the highest percentage of people from below the pov-

erty line of \$1.25 a day as possible. It is easy to measure this operationalisation of poverty reduction. However, this measure is not sufficient to capture the multi-dimensional approach of poverty in this thesis. With regard to the social definition of poverty used in this thesis, poverty reduction is a change of the percentage of people suffering from acute multidimensional poverty in the observed countries.

2.1.2 QUALITY OF LIFE GROWTH

As stated in chapter one, *quality of life* is closely linked to Sen's Capability approach. The core of his approach is the functionings and capability of people: in essence, what an individual is free to do and be. The functionings and even more the capabilities are limited through the access of social and financial resources. Thus, *quality of life growth* is the growth in the access to these resources improving the individual's freedom to lead a "valuable life".

2.1.3 DEMOCRACY

As with the term poverty, there are many definitions of democracy. For instance, there is the *minimalist definition* of democracy, highlighting the aspects of political participation and competition. According to this definition, political participation and competition require a minimal level of political rights and freedoms (Diamond 1996). Schumpeter (1947: 269) formulated one of the most prominent minimalist definitions as he states that democracy is a structure "for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people's vote". As this definition accentuates the electoral aspects of democracy, it is also known as electoral democracy. In this conception, right to vote is the bare minimum of political rights and freedoms (Banik 2010).

In addition, there is the concept of *liberal democracy*. In contrast to the minimalist definition, liberal democracy is a very broad concept that builds on a variety of aspects that a country must meet to be considered democratic. One advocate of this definition is Diamond (1996), who argues that there is more to democracy than just elections. For example, a democratic country must also amplify the significance of democratic institutions, including the checks and balances system and the rule of law.

While the two definitions of democracy mentioned above are significantly different, there are many definitions in between them and there is a lively debate on which is most appropriate. One such disagreement is about the merit of an electoral definition of poverty. Dahl (1971) proposes an extension of Schumpeter's electoral democracy definition. He includes a set of requirements to establish polyarchy. This is a subdivision of democracy and "a key characteristic of a democracy is the continued responsiveness of the government to the preferences of its citizens" (Dahl

1971: 1). This definition features the same idea of contestation introduced by Schumpeter (1949) and the need for voters to actively participate in the political process. However, Przeworski, Alvarez, Cheibub & Limongi (2000) oppose Dahl's notion. They contend that the concepts of, for example, participation or accountability should not be part of a democracy definition as they find that "the question whether or not regimes characterized by freedom of opinion, widespread participation, and repeated elections are in fact responsive is best left open for investigation, rather than resolved by definition" (Przeworski et al. 2000: 33-34). These scholars then formulate a different, yet still minimalist, definition as they state that democracy is "a system in which parties lose elections" (ibid: 10). According to Banik (2010), their definition has two key elements: 1) the government should be directly or indirectly filled and 2) this has come to occur through contested elections.

This thesis employs the liberal and the minimal definitions of democracy in order to test whether the operationalization of democracy has an effect on the results.

2.1.4 FOREIGN AID

Foreign aid takes many forms. ODA, distributed by the Development Assistance Committee of the OECD, is the most important form of aid due to its size and influence. The OECD (2003) defines ODA as

"flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions. Lending by export credit agencies – with the pure purpose of export promotion – is excluded".

Additionally, technical co-operation costs are included in ODA. Moreover, transfer payments to private individuals, donations from the public and commercial loans are treated as ODA. Contrarily, grants, loans and credits for military purposes are excluded.

Often foreign aid is tied to economic and/or political conditions. The conditions are highly controversial amongst scholars as some argue that the imposed conditions are ineffective and possibly even detrimental for promoting growth and welfare (e.g. Minoiu & Reddy 2007; Doucouliagos & Paldam 2010) while others suggest that conditionality works (e.g. Alvi, Mukherjee & Shukralla 2008). Another important issue regarding foreign aid is that donor interests overshadow the initial goal of fostering development. Thus, countries may give aid for the wrong reasons and not to the countries that need it the most (Alesina & Dollar 2000). McGillivray (2003) finds that past colonial links and political alliances are main determinants of foreign aid and that such

strategic factors are at least as important as variables reflecting recipient needs. A study by Alesina and Dollar (2000) supports this finding.

2.2 THEORETICAL ARGUMENTS

In order to integrate the dispersed theoretical insights on the link between foreign aid and development, one must consult *neoclassical economic theory* and *selectorate theory*. The former sheds light on the relationship between foreign aid and poverty reduction, while the latter introduces democracy as a determinant of the use of aid.

2.2.1 FOREIGN AID & POVERTY REDUCTION – NEOCLASSICAL ECONOMIC THEORY

According to the OECD (1999), ODA and other forms of foreign aid are the traditional instruments to tackle poverty. This belief is based on neoclassical economic theory. The general assumption behind this reasoning is that foreign aid leads to growth, which in turn leads to poverty reduction, as illustrated in figure 2 below.

FIGURE 2: NEOCLASSICAL GROWTH MODEL



To shed more light on the underlying mechanism indicated by neoclassical economic theory, one can say that foreign aid assumedly supplements rather than replaces domestic investment. In theory, foreign aid assists in lifting the poverty trap and subsequently promotes self-sustaining economic growth. The foundations of this model stem from Solow (1956) and Swan (1956). In short, they assume that savings rates, technology, population growth and increases in productivity are determinants of the per capita income of a country. However, these determinants depend partly on exogenous triggers, for instance on foreign aid. Solow and Swan believe these exogenous triggers to increase technical progress in a country, which will translate into growth of consumption and accordingly into economic growth.

The link between growth and human development as a part and proxy of poverty has been the subject of numerous studies in social sciences. Most scholars generally agree on the significance of economic growth to improve human development and thus, poverty reduction (e.g. Anand & Ravallion 1993; Ranis, Stewart & Ramirez 2000). Many researchers (e.g. Alkire 2002; Kosack 2003; Deutsch & Silber 2005) base their definitions of human development (and accordingly, poverty reduction) on Sen's work, who states that "human development cannot be separated from expanding the supply of food, clothing, housing, medical services, educational facilities,

etc. and from transforming the productive structure of the economy, and these important and crucial changes are undoubtedly matters of economic growth” (1988: 12). In other words, Sen highlights a relationship between material and human well-being. Moreover, he argues that redistributive policies are the means to achieve development in areas such as education, healthcare or poverty reduction. In general, Sen’s argument is that economic growth implies a higher GDP per capita that could translate into funds for people to afford basic commodities, which will lift them out of poverty. However, this effect is not automatic. This is in line with the model mentioned above.

2.2.2 DEMOCRACY & THE USE OF AID – SELECTORATE THEORY

In 2003, Bueno de Mesquita, Smith, Siverson and Morrow published a book introducing a new theory on the provision of public goods. In their book, the authors make two underlying assumptions: 1) political leaders strive for a maximization of their time in office and 2) the selectorate and the winning coalition are the two pillars of any kind of constitution. The leader needs a certain share of the population to continue to be in power. This portion is the winning coalition. The selectorate is a group of individuals “from which a leader draws supporters to form a winning coalition” (Bueno de Mesquita & Smith 2009: 314).

TABLE 1: FEATURES OF THE SELECTORATE THEORY

Regime type	Selectorate	Winning Coalition
Democracy	Stable	Large
Autocracy	vary/volatile	Small

SOURCE: BASED ON BUENO DE MESQUITA ET AL. (2003)

The scale of the selectorate and the winning coalition in a democracy differs greatly from those in an autocracy. As table 1 illustrates, autocracies depend only on small winning coalitions that need to be satisfied, while selectorates can vary significantly across and even within countries. Contrarily, democracies have quite a stable selectorate and a winning coalition that consists of a large part of the selectorate (Bueno de Mesquita & Smith 2009). In both democracies and autocracies, political survival depends on the leader’s ability to gain support of the winning coalition of the selectorate by allocating the state’s resources between public and private goods (Bjella 2012). While public goods have benefits for the entire population, private goods primarily favour the members of the winning coalition. Thus, the relative size of the winning coalition determines how the state allocates its resources between the two types of goods (Bjella 2012). In order to stay in office, political leaders will assign resources to coalition members to secure their support. In the case of a small winning coalition (as in most autocracies), political leaders can employ the

resources to benefit a relatively small share of the population through the distribution of private goods among them. However, the distribution of private goods becomes progressively more inefficient and expensive as the coalition size increases (Bjella 2012). That is because large winning coalitions are not sustainable in the long run when using this type of goods. Consequently, in democracies the provision of public goods is more important to remain in office. In sum, “leaders choose between a public goods or a private rewards policy focus depending upon how many supporters they need to survive in office” (Smith 2008: 780).

Applied to the context of foreign aid, selectorate theory implies that democracies are better at distributing aid for the common good than autocratic regimes (Bjella 2012). That is because a democratic regime needs to provide public goods to a large portion of the selectorate in order to stay in power. In sum, based on selectorate theory, this thesis hypothesises that democratic countries provide more public goods than autocracies and that democracies are more likely to and better at allocating the resources from aid towards poverty reduction than autocratic countries. Thus, democracies are more likely to use aid funds for the provision of public goods than autocracies (Bjella 2012). For example, democracies are more likely to invest in projects for the public good such as public schools open to the entire population, while autocracies tend to spend more money on private schools for an elite circle. According to selectorate theory, aid in democracies will expand the availability and accessibility of public goods (e.g. access to education, clean water or health care). These public goods constitute the framework the poor need to break away from poverty, leading to increased poverty reduction (Bjella 2012).

2.3 EMPIRICAL EVIDENCE

The main problem regarding the empirical literature on effective aid is the absence of a widely accepted and coherent theory explaining how aid works and under which circumstances it is effective. Without that, there are no guidelines for creating measurements of aid effectiveness (Easterly 2003). Thus, the insights of past research are dispersed and at times even contradictory. Moreover, most studies assess aid effectiveness only in terms of economic development and not on social or human development. Nevertheless, these studies hold important implications for the effectiveness of aid, because they explore the individual links of the investigated topic, i.e. does foreign aid lead to development and what is the effect of democracy on development?

2.3.1 FOREIGN AID & DEVELOPMENT

A large body of literature considers aid effectiveness with regard to the impact of aid on aggregate economic growth, which researchers use as a proxy of development. While earlier empirical studies find no or even negative effects of aid on growth (e.g. Boone 1996; Rajan & Subramanian 2008; Doucouliagos & Paldam 2009), an increasing number of scholars are concluding that

aid has a positive effect on growth (e.g. Minoiu & Reddy 2007; 2010; Feeny & McGillivray 2010). For instance, Arndt, Jones & Tarp (2010) contradict the findings of Rajan & Subramanian (2008) by employing the same approach and raw data but finding a positive long run effect of aid on growth. This finding is in line with neoclassical growth theory (see Solow 1956; Swan 1956). Clemens, Radelet, Bhavnani & Bazzi (2011) revisit the dynamic panel evidence the three most influential studies on the effect of foreign aid on growth, namely the studies by Boone (1995), Burnside & Dollar (2000) and Rajan & Subramanian (2008), gathered. These studies explore an “early impact” of aid on growth (e.g. through infrastructure development) but fail to establish this effect in their statistical analyses. Clemens et al. (2011) make use of the same data as the authors of the three original studies. They strictly conserve the original regression specifications, adding only sensible assumptions about the timing of aid effects. For all three cases, they find evidence of aid having a positive effect on growth in the long run, which contradicts the earlier findings. Moreover, a meta-analysis on the aid – growth link by Mekasha & Tarp (2013) finds empirical support for aid increasing growth, and a time-series study by Juselius, Møller & Tarp (2014) results in further support for that claim. Another recent study by Arndt, Jones & Tarp (2015) widens the scope of aid effectiveness beyond economic growth by including its effect on social sectors (i.e. education). They ask, “What has aid accomplished over the past four decades?” and conclude that

“based on results covering a wide range of outcomes, aid can point to a series of accomplishments with a positive impact on the growth and development process. There is no evidence that aid is detrimental. Aid has contributed to economic growth by stimulating its proximate determinants – e.g., physical capital accumulation and improving human capital, particularly education and health” (Arndt et al. 2015: 15).

Thus, the authors find evidence that aid increases growth indirectly.

In sum, recent evidence suggests a positive link between foreign aid and growth, which is a common proxy for development. Unfortunately, there are only few recent studies on the effect of foreign aid on poverty reduction, which is another important predictor of development. A very recent country study by Woldekidan (2015) explores the role of foreign aid in reducing poverty in Ethiopia. The examined period is 1975 to 2010. The scholar employs a multivariate cointegration analysis on time-series data and concludes that foreign aid has a significant positive effect on most measures of poverty reduction, such as a reduction of the infant mortality rate and an increase in household consumption expenditure. However, the effect on the gross primary school enrolment is negative. Moreover, the study highlights that economic growth plays a significant role in reducing poverty.

2.3.2 DEMOCRACY & DEVELOPMENT

In 1993, Przeworski & Limongi published an article on the effect of democracy on economic growth. They examine 18 empirical studies that generated 21 findings on the effectiveness of aid in terms of economic growth in authoritarian or democratic regimes. Their article highlights that eight of these findings found evidence supporting the claim that democracy fosters economic growth. However, the same number of results backs the notion that authoritarian regimes are favourable for economic growth. The five other findings suggest that the regime type has no effect on economic growth. Przeworski & Limongi conclude that there are other factors affecting economic growth than the type of the political regime. However, they make only guesses on what these factors might be (e.g. property rights, pressures for immediate consumption or a dictator's political autonomy). In sum, the authors state that "political institutions do matter for growth, but thinking in terms of regimes does not seem to capture the relevant differences" (Przeworski & Limongi 1993: 51).

Almost twenty years after Przeworski & Limongi (1993), Knutsen (2012) provides an overview of the relevant literature on the effect of democracy on economic growth. His review shows that there is still scholarly dissent whether or not democracy fosters growth. However, Knutsen finds that more recent studies (that utilise more data and better methodological approaches than older ones) indicate that the assumption that democracy reduces economic growth is wrong. Moreover, the belief that democracy has no effect on growth is losing validity as recent studies show that democracy has positive, yet indirect (e.g. enhancing human capital), effects on economic growth.

Other scholars explore the relationship between regime type and the provision of public goods, such as education, health and social security (e.g. Kaufman & Segura-Ubiergo 2001; Avelino, Brown & Hunter 2005; Nooruddin & Simmons 2006). In this vein of research, Lake & Baum (2001) are the authors of a prominent study. They look at the effect of regime types on the provision of public goods in education and healthcare. The authors find evidence supporting their hypothesis that democratic regimes earn less monopoly rents while maintaining a higher level of services than autocracies do. The studies on the effect of regime type on public goods provision mentioned above support the findings of Baum & Lake. They all conclude that democracies cater a higher level of public goods. These findings support the predictions of selectorate theory. However, the extent of the effect is limited and varies across studies.

One main implication of selectorate theory in regards to poverty reduction can be drawn from the assumption of (unconditional) aid being more effective in large coalition regimes (Buono de Mesquita & Smith 2007), because democracies are more likely to provide general access to

public goods than autocracies. Previous studies support this theoretical construct as most indicate that democracies actually are better at providing public goods than autocracies (e.g. Przeworski et al. 2000; Lake & Baum 2001). In a related study by Nooruddin & Simmons (2006) on how domestic political considerations shape the distribution of cuts made by governments in IMF programs, the authors find that democracies allocate larger shares of their budgets to public services in comparison to non-democratic countries.

2.3.3 CONDITIONAL AID EFFECTIVENESS

In 1995, Boone published his paper “Politics and the Effectiveness of Foreign Aid”. His study adds a new stance to the debate on aid effectiveness as he introduces a political dimension to the discussion. Boone focuses on the relationship between aid, growth and policies by exploring the diverging impact of aid in three regime types, i.e. elitist, egalitarian and laissez-faire. The scholar employs multiple panel data regressions based on a sample consisting of 97 countries and covering a period of twenty years. Boone uses data on non-military foreign aid transfers, national accounts, human development indicators, and indexes of political liberties and political regime. Moreover, he includes the control variables GNP/capita, country characteristics, GNP/capita growth and terms of trade. Boone conducts instrument specification tests, and examines robustness by applying alternative sub-samples and regression techniques. These techniques include Ordinary Least Squares (OLS), fixed effects (FE) and IV estimates using Two-Stage Least Squares (2SLS).

Boone highlights that elitist regimes strive for maximizing the welfare of the ruling coalition by transferring foreign aid to a high-income political elite. Egalitarian governments seek to increase the welfare of their citizens with low endowments to reduce poverty while laissez-faire governments pursue to maximize the welfare of a minimal but substantial share of the population, for instance through lower taxes. Boone discovers that models of elitist regimes best predict the impact of aid. However, aid itself neither increases investment nor growth, nor enhances living conditions of the poor, but does increase the size of government. Boone concludes that all regime types tend to use foreign aid not for investment but for consumption. Moreover, Boone finds no evidence that aid is more effective in democracies or repressive regimes. An interesting finding of his study is that liberal political regimes and democracies have lower infant mortality (by 30% on average) than the least free regimes. Thus, Boone concludes that “short term aid programs targeted to support new liberal political regimes, and to encourage greater political and social liberties, may be a more effective means of promoting growth and reducing poverty than current aid programs” (Boone 1995: 34).

Following Boone, Svensson (1999) investigates the effect of civil and political liberties (as proxies for democracy) on aid effectiveness in 58 recipient countries. He uses data from the 1970s and 1980s, which he divides into two 10-year periods. As a robustness check of the results, Svensson examines the averaged data of four 5-year periods of the same period. He chooses to employ the indicators of political and civil rights from Freedom House Index to measure democracy, following a rather broad conception of democracy. Svensson conducts his regressions using OLS and 2SLS. In his analysis, he controls for fractionalization, financial depth, fiscal surplus, population, GDP/capita and school attainment.

The results of his study “Aid, Growth and Democracy” indicate that aid is more effective (in terms of economic growth) in countries with institutionalized checks on governmental power, i.e. democracies. These checks take the form of democratic institutions and include free speech, the right to organize, political parties and elected representatives. In less democratic countries, foreign aid tends to be less effective. Svensson concludes that the level of political and civil liberties is a condition of and defines the extent of effectiveness of foreign aid. These findings are contradictory to Boone’s (1995). Svensson argues that this might be due to different focal points, different data sets or differences in sample sizes.

Another study inspired by Boone’s findings in 1995 was published by Burnside & Dollar (2000). Their article “Aid, Policies and Growth” gained a lot of attention, as their study was the first to explore the impact of policies on the aid – growth relationship. Burnside & Dollar hypothesize that aid is effective at enhancing economic growth, conditional on sound economic policies. In their study, the scholars control for assassinations, ethnic fractionalization, GDP/capita, institutional quality, macroeconomic policy and the policy index.

As Boone (1995; 1996) and Svensson (1999) before them, they use both ordinary OLS and 2SLS to estimate their equations. Applying cross-country regressions on 56 countries, the authors were able to find empirical support for their hypothesis. They conclude that “aid has a positive impact on growth in developing countries with good fiscal, monetary, and trade policies but has little effect in the presence of poor policies” (Burnside & Dollar 2000: 847).

“Aid, Policies and Growth” has been highly influential in the field of aid effectiveness. The Economist (2002) stated, “there is now a strong body of evidence, led by the research of David Dollar, Craig Burnside and Paul Collier, all economists at the World Bank, that aid does boost growth when countries have reasonable economic policies”. Thus, the study contributed greatly to the understanding of conditional aid effectiveness. The Burnside & Dollar article triggered a lot of scholarly and political attention. Moreover, their findings have been subject to intensive

scrutiny. Using different datasets, different estimators or different regression specifications, replication studies were unable to validate the initial findings (e.g. Dalgaard & Hansen 2001; Lensink & White 2001; Easterly 2003; Easterly et al. 2004). Nonetheless, these scholars were unable to find evidence contradicting Burnside & Dollar's original findings.

2.4 KOSACK (2003): EFFECTIVE AID

The foundation of this thesis is the article "Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life", published by Kosack in 2003. In his study, Kosack explores the impact of foreign aid on development using the proxy Human Development Index in 48 developing countries. The author understands aid effectiveness as the ability to improve the quality of life in developing countries. Moreover, he introduces democracy as an intervening variable, expanding his study into the field of conditional aid effectiveness. The main source for data of democracy is the Polity index from the Polity IV study. To establish a robust effect, the author also includes two other measures of democracy, namely the Freedom House index and an index Przeworski, Alvarez, Cheibub, and Limongi (2000) developed. In order to determine a causal direction of aid affecting the quality of life and not vice versa, Kosack incorporates a time lag of one period. As a statistical method, the author uses OLS and 2SLS to estimate his equations.

In general, his study did not result in evidence supporting a significant relationship between aid and the quality of life. However, when including the interaction term democracy, the impact of foreign aid becomes not only statistically significant but also substantial. More precisely, Kosack's results show that the effect of foreign aid on the quality of life is significantly stronger if a country is highly democratic than if it is authoritarian. Accordingly, the more autocratic a country is, the lower the improvement of the quality of life through foreign aid. Moreover, aid received by autocratic countries may even be harmful for quality-of-life growth. Kosack concludes, "to work, aid needs democracy" (2003: 14).

The study's outcome counters Boone's (1996) study, which found that the regime type has no effect on the effectiveness of aid. Kosack himself offers two possible reasons for this: 1) other than Boone, who used a threefold dichotomous measure for democracy, Kosack used a continuous measure for democracy and was thus more capable to capture the fluid effect of the level of democracy in a country. 2) While Kosack utilises a time gap, giving aid some time to unfold its effect, Boone explores the effect of aid on development simultaneously.

In sum, the relevant empirical studies on conditional aid effectiveness produce inconclusive results. One study (Boone 1995) finds the regime type to have no effect on the effectiveness of aid, while the other three studies gather support for the claim that democracy fosters aid effec-

tiveness. Below, table 2 gives a summary of the relevant empirical literature, including an account of their control variables.

TABLE 2: SUMMARY OF EMPIRICAL STUDIES ON CONDITIONAL AID EFFECTIVENESS

Study	Dependent variable	Interaction term	Control variables	Main finding
Boone (1995)	Several HDI indicators	aid*political regime	country characteristics GNP/capita terms of trade	Regime type has no effect on aid effectiveness
Svensson (1999)	Economic growth	aid*democracy	fractionalization financial depth fiscal surplus population GDP/capita school attainment	Democracy increases aid effectiveness
Burnside & Dollar (2000)	Economic growth	aid*policy	assassinations ethnic fractionalization institutional quality macroeconomic policy policy index	Good fiscal policies and other macroeconomic policies increase aid effectiveness
Kosack (2003)	Quality of life growth	aid*democracy	arms imports institutional quality macroeconomic policy terms of trade	Democracy increases aid effectiveness

2.5 CONTROL VARIABLES

The effect of democracy on the aid – growth link should not be the product of other confounding variables. Thus, it is important to include control variables. The selection of the control variables for this study is largely based on Kosack's study (2003). Due to omitted variable bias, the estimated effects might be inconsistent without including control variables.

In general, variables that have been used in previous studies on aid effectiveness include, for example, GDP per capita, institutional quality, openness, inflation, Foreign Direct Investment (FDI) and corruption (see e.g. Easterly & Levine 1997, Burnside & Dollar 2000, Hansen & Tarp 2001, Easterly 2003, Kosack 2003, Rajan & Subramanian 2005).

The control variables this study integrates have to meet two criteria:

- 1) all control variables have to be relevant to the topic and have the support of theory or previous research,
- 2) and data for the control variables have to be available and reliable.

Table 3 below gives an overview on the chosen control variables and their previous use. Some of the studies in the “used by...”- column have economic growth as the dependent variable (indicated through bold font) and thus, control variables for poverty reduction in these studies may be different. However, at least two studies that examine development as the dependent variable use almost all control variables. Merely Kosack (2003) uses the *Initial quality of life* once before. To mimic his study as closely as possible, this study includes the variable. Additionally, the first part of the analysis includes the *Initial level of poverty* to ensure comparability between both parts of the study. These decisions justify the selection.

TABLE 3: CONTROL VARIABLES

Control variable	Used by...
Initial level of poverty & Initial quality of life	Kosack (2003)
Institutional quality	Knack & Keefer (1995)
	Chong & Calderon (2000)
	Kosack (2003)
	Lohani (2004)
	Bahmani-Oskooee & Oyolola (2009)
Macroeconomic policy	Ravallion (2001)
	Kosack (2003)
Change in terms of trade	Boone (1995)
	Kosack (2003)

The control variables fulfil both criteria mentioned above and consequently the different parts of the analysis include them. For both parts of the statistical analysis, the same control variables apply (with the exemption that only the first part of the analysis uses the *Initial level of poverty*, while the second part uses the *Initial quality of life*). The justification for each variable follows in the next section.

Initial level of poverty & Initial quality of life

As these variables are the initial levels of the dependent variables, which have already been defined, it is not necessary to define neither the initial level of poverty nor the initial quality of life. The choice to use these variables in this study is supported by their previous use by Kosack (2003). It is important to control for the initial level of the respective dependent variable as initially high quality of life or a low level of poverty can be associated with a lower quality of life growth or lower poverty reduction.

Institutional Quality

To define institutional quality, one has to define institutions first. According to North (1990: 3) “institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction.” The quality of these institutions (e.g. rule of law, control of corruption or government effectiveness) can be assessed using many different indicators (e.g. ICRG, BERI or a measure developed by Knack & Keefer 1995). It is important to control for the institutional quality of a country as it affects poverty reduction. Theory and previous studies deem high institutional quality to have a positive effect on poverty reduction and quality of life. The justification of the control variable lies in its extensive use in previous studies (e.g. Knack & Keefer 1995; Chong & Calderón 2000; Kosack 2003).

Macroeconomic Policy

The United Nations Economic and Social Commission for Western Africa (UNESCWA 2016) define macroeconomic policy to be

“[t]he set of government rules and regulations to control or stimulate the aggregate indicators of an economy frames the macroeconomic policy. Aggregate indicators involve national income, money supply, inflation, unemployment rate, growth rate, interest rate and many more. In short, policies framed to meet the macro goals”.

Macroeconomic policies are highly important as a control variable for this study and Kosack (2003) highlights their significance for human development. With regard to poverty reduction, neoclassical economic theory suggests that economic growth is a key factor for reducing poverty and the macroeconomic policy of a country is highly influential for its economic growth. Moreover, this control variable has been used in previous research (e.g. Ravallion 2001).

Change in Terms of trade

The Encyclopædia Britannica (2016) defines Terms of trade as “relationship between the prices at which a country sells its exports and the prices paid for its imports”. The change constitutes the shift in this ratio. Kosack (2003) and Boone (1995) also use this variable. Terms of trade control for “fluctuations in the international economy” (Kosack 2003: 4) that studies indicate to have an effect on poverty reduction and quality of life. This effect can be positive when the terms of trade are positive for the developing countries (meaning that they can import goods for a relatively low price and export goods for a relatively high price) or negative in case the conditions in the international economy change.

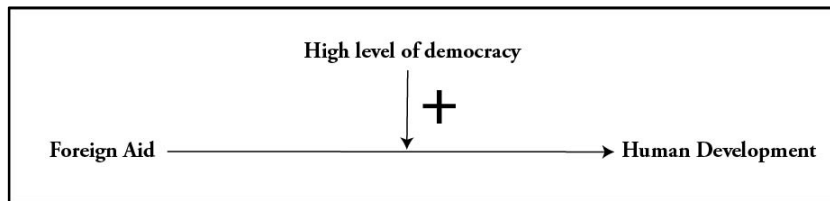
2.6 CONCLUSION

This chapter presented the theoretical framework on the intervening effect of democracy on the link between foreign aid and development with accounts on the individual parts of this relation, such as the isolated link between foreign aid and poverty reduction or democracy and growth. Furthermore, the chapter gave an account of the empirical evidence on the link between aid and development, including the effect of democracy on that relation. This review of empirical literature holds valuable implications for the design of this study, such as the selection of the most suited control variables, which this chapter also introduced. In sum, the literature review provides enough empirical support for the assumption of democracy affecting aid effectiveness to establish the following hypothesis:

H₁ Foreign aid in democratic countries is more effective in promoting development than in autocratic countries.

Figure 3 shows an illustration of this hypothesis.

FIGURE 3: GRAPHICAL DEPICTION OF THE HYPOTHESIS



Throughout this chapter, it becomes clear that there is a need for further research on the conditions for effective aid. The evidence presented above leads to the hypothesis that there is a positive effect of democracy on the aid – development relation.

CHAPTER 3: METHODOLOGICAL FRAMEWORK

This chapter illustrates the methodological framework of the thesis. It starts with a presentation of the research design (3.1), followed by an introduction of the statistical model employed (3.2). Then, the operationalization of the variables and an overview of the sample and time frame are displayed (3.3). Next, the methods of the statistical analysis are described (3.4). It follows a section on the main similarities and differences between this the statistical analysis of this thesis and Kosack's study from 2003 (3.5). The chapter closes with a short conclusion (3.6).

3.1 NON-EXPERIMENTAL QUANTITATIVE CROSS-SECTIONAL DESIGN

One of the most important decisions social scientists face when conducting research is selecting an appropriate research design.

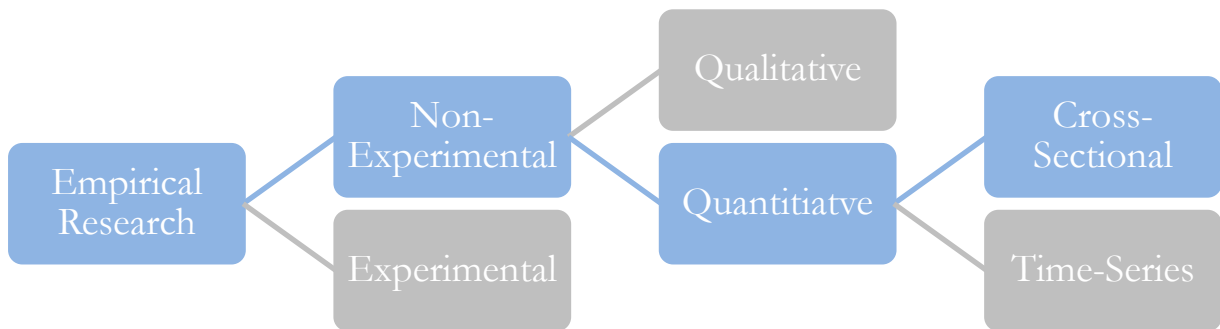
The first choice researchers have to make after they decide on a topic is whether to employ an experimental or non-experimental design. According to Buttolph Johnson & Reynolds (2008: 127), to undertake an experiment, it is necessary “to control exposure to [an independent variable], the assignment of subjects to different groups, and the observation or measurement of responses and behaviour”. However, in political sciences, experimental designs are very difficult if not impossible to utilise, as they typically cannot fulfill these basic requirements. Consequently, this thesis employs a non-experimental design, which Kellstedt & Whitten (2013: 83) define as “a research design in which the researcher does not have control over values of the independent variable, which occur naturally”. This method is chosen because of the “lack of researcher control over application of the independent variable [and because it is not possible] to measure the dependent variable before and after exposure to the independent variable occurs” (Buttolph Johnson & Reynolds 2008: 180). In particular, while a change of the level of democracy can be observed in different countries, it is impossible for the researcher to observe instances in which this was the only change in a country in a given period. Consequently, it would be unclear whether it was the level of democracy or other contaminating variables that contributed to (possible) changes in the dependent variable. As a result, there is no treatment of the variables and the study relies entirely on observations and statistical control.

The second decision researchers must make is whether to use a quantitative or a qualitative design. The distinction between a quantitative and a qualitative design is that the former makes use of statistical methods to explore relationships in a large number of observations, while the latter focuses on a small number of in-depth observations to investigate specific characteristics of a phenomenon. Qualitative research is often used to strengthen the internal validity of quantitative findings. This study makes use of a quantitative research design to identify general trends or

patterns that can be reapplied in different scenarios. This provides a high level of external validity of the results (Gschwend & Schimmelfennig 2007).

Lastly, the researcher has to choose between the two types of non-experimental studies, namely cross-sectional and time-series studies. While the first concentrates on variations across various units at a single point in time, the second revolves around one single unit and its variation over multiple points in time (Kellstedt & Whitten 2013). This study employs a cross-sectional design as it explores the effect of democracy on the foreign aid – development relation in as many developing countries as possible at a single point in time. The benefit of a cross-sectional study design is that it allows researchers to compare many different variables at the same time.

FIGURE 4: SELECTION OF RESEARCH DESIGN



Overall, a non-experimental quantitative cross-sectional research design is employed (see figure 4). Both empirical parts of the thesis utilise this study design.

As this study uses a cross-sectional design, the measurements for the individual variables should be taken at one point in time. However, previous studies have shown that no immediate direct effect of aid on development (e.g. Boone 1995). Instead, aid needs time to unfold its effect. To overcome this hurdle, this thesis employs a time lag, measuring the dependent variable over a four-year period after the measurement period for the independent variables.

3.2 STATISTICAL MODEL

In general, a multiple regression equation with an interaction term takes the following form:

$$Y = \alpha + \beta_1 X + \beta_2 D + \beta_3 X * D + \beta_{4...n} C_{1...n} + \varepsilon$$

Y = Dependent variable

α = intercept/ constant

$\beta_{1...n}$ = standardized regression coefficient

X = Independent variable
D = Intervening variable
C_{1...n} = Control variables
ε = error term

In this equation, β₃ captures the interaction effect between the independent variable and the intervening variable.

This thesis employs a two-step approach, so there are also two regression equations. In the following, the first part of the thesis is referred to as “*Foreign Aid, Democracy & Poverty Reduction*” while the second part is called “*Follow-up to Kosack (2003)*”.

With regard to the dependent, independent and intervening variables, one can construct the following regression equations:

For the first part of the analysis, *Foreign Aid, Democracy & Poverty reduction*, the following regression equation (Eq. 1) applies:

$$r_i = \alpha + \beta_1 i_i + \beta_2 a_i + \beta_3 d_i + \beta_4 a_i d_i + \beta_5 z_i + \epsilon_i$$

α = intercept/ constant
β_{1...4} = standardized regression coefficient
ε = error term

In essence, poverty reduction (r) relies on the initial level of poverty (i), aid receipts relative to GDP (a), the level of democratization (d), the interaction between democratization and aid/GDP (ad) and various other exogenous variables (control variables) which may affect poverty reduction (z). Each variable is indexed by country (i).

For the second part of the statistical testing, *Follow-up to Kosack (2003)*, the following regression equation (Eq. 2) is applied:

$$q_i = \alpha + \beta_1 i_i + \beta_2 a_i + \beta_3 d_i + \beta_4 a_i d_i + \beta_5 z_i + \epsilon_i$$

α = intercept/ constant
β_{1...4} = standardized regression coefficient (slope)
ε = error term

Essentially, quality-of-life growth (q) depends upon the initial quality of life (i), aid receipts relative to GNI (a), the level of democratization (d), the interaction between democratization and aid/GNI (ad) and various other exogenous variables (control variables) which may affect the change in quality of life (z). Again, each variable is indexed by country (i).

The interaction effects between the measures of democratization and aid receipts/GDP are included to investigate whether the effect of aid on development varies with regards to the level of democracy in the observed countries.

3.3 OPERATIONALIZATION

The main research concepts of this thesis – aid, poverty and democracy – are controversial in academia and difficult to capture and measure. In particular, the conception and measurement of the dependent variable – poverty reduction - has triggered a lot of discussion among scientists. The operationalization of the research concepts is decisive for the quality of the study’s findings. Therefore, the following section gives an extensive account of the operationalization of the dependent, independent and intervening variables. Moreover, the population, sample and time frame for the analyses are introduced.

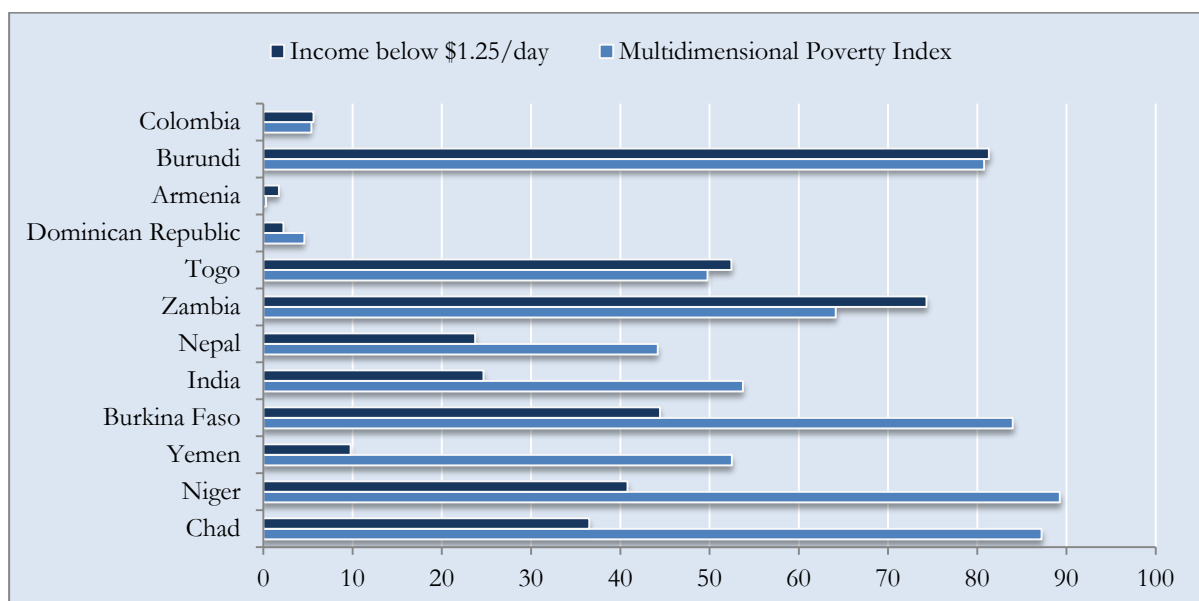
3.3.1 DEPENDENT VARIABLES – DEVELOPMENT

As the empirical analysis of this thesis consists of two parts, two dependent variables are operationalized.

POVERTY REDUCTION

The dependent variable of the first part of this study is human development substituted by poverty reduction. The following figure 5 illustrates the diverging results of measuring poverty through different indices, namely the economic index of people living below \$1.25/day and the MPI.

FIGURE 5: POPULATION LIVING IN POVERTY (% OF POPULATION), SELECTED COUNTRIES (2014)



SOURCE: DATA FROM ALKIRE, CONCONI, ROBLES & SETH (2015)

While in some countries the percentage of people living in poverty remains the same regardless of the index (e.g. Colombia or Burundi), in other countries the figure indicates that if poverty is measured through the MPI, a much larger percentage of the population is living in poverty (e.g. Chad or Yemen). Contrarily, there are also countries (such as Zambia) in which a higher percentile is living in poverty when the \$1.25/day measure is applied. Due to these discrepancies, the choice of poverty indicator is an important one. This thesis employs the MPI in order to give as accurate of a reflection of poverty as possible.

The dependent variable poverty reduction is operationalised as changes in the Multidimensional Poverty Index (MPI) as developed by the Oxford Poverty & Human Development Initiative (OPHI) and the UNDP in 2010. According to them, a person does not live in poverty if he/she is deprived in less than three of the ten weighted indicators of multidimensional poverty (Alkire & Santos 2010). These ten indicators are aligned across the three poverty dimensions education, health and living standards. The dimensions are equally weighted by 1/3 each (Kovacevic & Calderon 2014). The measures for the indicators are dichotomous, meaning either a household is deprived in an indicator or not. There is no such thing as to be partly deprived in a poverty indicator. Table 4 gives an overview of the indicators.

Data for the MPI, which is a measure for acute poverty (see chapter two), have been provided by the Oxford Poverty & Human Development Initiative on a yearly basis since 2010. This thesis employs the most recent comparable data published in 2014 (Alkire et al. 2014). The MPI for the 34 sample countries is measured at the beginning and end of the individual periods and then the difference is calculated by subtracting the score of the latest year from the one in the first year. Then, this score is divided by the number of years of the period. Accordingly, positive values indicate poverty reduction and negative signal an increase in poverty. The annualised reduction or growth constitutes the change in the measure in order to provide data for the variable poverty reduction.

TABLE 4: INDICATORS OF THE MULTIDIMENSIONAL POVERTY INDEX

Dimension	Indicator	Deprived if...	Weight
Education	School attendance for school-age children	...any school-aged child of the household is not attending school up to class 8.	1/6
	School attainment for household members	...no household member has completed five years of schooling.	1/6
Health	Child mortality	...any child has died in the family within the last 60 months.	1/6
	Nutrition	...any adult or child for whom there is nutritional information is malnourished. ¹	1/6

¹ Adults are considered malnourished if their BMI is below 18.5. Children are considered malnourished if their weight-for-age is below minus two standard deviations from the median of the reference population as according to the WHO.

Living Standards	Electricity	...the household has no access to electricity.	1/18
	Drinking water	...the household has no access to improved drinking water sources within 30 minutes walking distance.	1/18
	Sanitation	...the household has no access to improved sanitation facilities (e.g. flush/pour flush toilets or latrines).	1/18
	Solid fuel for cooking and heating	...the household has no access to solid fuel for cooking and heating. For instance, a household is deprived in this indicator if cooking fuel is wood, charcoal or dung.	1/18
	Finished floor	...the household home has floor made of dirt, sand or dung.	1/18
	Assets	<p>...the household has no assets that²</p> <ol style="list-style-type: none"> 1) allow access to information (e.g. radio, TV, telephone) 2) support mobility (e.g. bike, car or a motor-boat) 3) support livelihood (e.g. refrigerator, own agricultural land or own livestock) 	1/18

Of course, the MPI is still limited by being an aggregate. Nonetheless, it is a strong proxy for poverty as it is capable of capturing multiple aspects at once, giving a comprehensive perspective on poverty and poverty reduction.

QUALITY OF LIFE GROWTH

The dependent variable of the second part of this study is quality of life growth. Kosack used the same proxy for development in his 2003 article. Kosack operationalised quality of life using the Human Development Index (HDI). As this part of the study aims at validating his findings, it makes sense to use the same dependent variable. Data for the HDI are taken from the 2015 version of the Human Development Report (UNDP 2015) and a visualisation of the components and their weighting are depicted in table 5 below³. To calculate growth in quality of life in the recipient countries the HDI score from four years ago is subtracted from the most recent rating. More precisely, the score from 2010 is subtracted from the score in 2014.

TABLE 5: INDICATORS OF THE HUMAN DEVELOPMENT INDEX

Dimension	Indicator	Weight
Long and healthy life	Life expectancy at birth	1/3
	Mean years of schooling	1/6
Education index	Expected years of schooling	1/6
	GNI per capita (PPP US\$)	1/3

² A household is not deprived, if it has one of the assets of group 1 and another asset from group 2 or 3.

³ For a detailed explanation of the composition and calculation of the HDI, see the report.

Despite its popularity (e.g. Wolff, Chong & Auffhammer 2011; Gomane, Girma & Morrisey 2005), there are several significant problems with the HDI. For one, equally weighting the contributing variables is problematic as it may lead to an overestimation of one variable, diminishing the impact of the other factors (Noorbakhsh 1998). If one variable improves significantly, this could lead to a skewed HDI, which might disregard important negative changes in the other dimensions. Additionally, the HDI consists of three dimensions (health, education and standard of living) each of which are only represented by one main index (although the index for education consists of two sub-indices). The dimension standard of living, for instance, is measured only by a single indicator based on gross national income at purchasing power parity per capita. Consequently, this sub-index is insufficient to represent the full breadth of the concept “standard of living”. For instance, this indicator disregards important aspects such as access to sanitary facilities. The same argument holds for the human development index as a whole. Human development cannot be measured using only an aggregate of three indices. The United Nations Development Programme (UNDP) itself states that “[...] although the HDI is a constantly evolving measure, it will never perfectly capture human development in its full sense” (UNDP 1993: 104). Nevertheless, the HDI is still a good measure for quality of life and the only valid choice to follow-up on Kosack’s (2003) study.

3.3.2 INTERVENING VARIABLE – DEMOCRACY

Democracy, the intervening variable for both parts of the statistical analysis, is a complex and disputed concept. Thus, it is not easy to capture, especially by a single variable. According to Munck & Verkulien (2002), all indices for democracy have reliability and validity issues. Exclusion of subjective indicators leads to low validity while too many broad indicators capture the consequences of democracy and not its substance, an issue that Przeworski et al. (2000) highlighted. This thesis employs two different substitutes for democracy to impart a more nuanced understanding of the concept. The substitutes utilised are the Freedom House index and the Polity index. For both indices, the values for the examined periods are averaged over a four-year period in order to provide a single data point for each indicator.

Both the Polity index and the FHI have unique advantages and disadvantages. Speaking in conceptual terms, the Polity index represents a rather narrow or minimal measure of democracy. The captured concept fits well into the category of an electoral democracy as it does not incorporate fundamental democratic institutions (such as the rule of law), but focuses on the minimal practices of democracy such as the right to vote, constraints on the executive and others. Contrarily, the FHI focusses more on factors related to democracy, considering widespread civil liberties and political rights. Therefore, the FHI could very well be a proxy for liberal democracy. Ulti-

mately, this thesis employs both measures in the statistical analysis to ensure that the findings on democracy are robust and not the result of a biased democracy measure. For this variable, the measurement period varies according to the data availability. The earliest period starts in 1998 while the latest ends in 2013.

Polity index

Following Kosack (2003), the first measure of democracy is the Polity index from the Polity IV study⁴. The index is a weighted index whose scores range from -10 (most autocratic) to +10 (most democratic). The -10 to +10 scale is converted to a 0–20 scale to secure comparability with Kosack's data as he also converted the scale in this manner. Competitiveness and openness of political participation and executive recruitment, as well as constraints on the chief executive are most influential for the final score (Polity IV Project 2014). Data for this measure is provided by the Polity IV Project and is available since 1800. For *Foreign Aid, Democracy & Poverty reduction*, the measurement period for this indicator varies according to the varying periods of the dependent variable. The earliest period is 1997 – 2001 and the latest 2004 – 2008. For the *Follow-up to Kosack (2003)* the measurement period is 2005 – 2009).

The Freedom House Index

The second measure for the intervening variable, democracy, is the Freedom House Index (FHI) provided by the Freedom House. The FHI consists of two different indices, namely the Political Rights Index and the Civil Liberties Index. These indices are the aggregated scores of many sub-indicators⁵. This thesis employs the unweighted average of the two main indices. The original score ranges from 1 (most democratic) to 7 (least democratic) (Freedom House 2015). In order to cater to the comparability between the Freedom House and the Polity IV index (in which a higher index indicates a higher level of democracy), the scale of the Freedom House ratings is reversed. Consequently, the score 1 indicates that a country is autocratic, while a 7 indicates that a country is democratic. The Freedom House database provides the data for this measurement of democracy. For *Foreign Aid, Democracy & Poverty reduction*, the measurement period for this indicator varies according to the varying periods of the dependent variable. The earliest period is 1997 – 2001 and the latest 2004 – 2008. For the *Follow-up to Kosack (2003)* the measurement period is 2005 – 2009.

⁴ See <http://www.systemicpeace.org/inscr/p4manualv2013.pdf> for the full methodology of the Polity IV index.

⁵ See https://www.freedomhouse.org/report/freedom-world-2015/methodology#.VcTp1_ntmkp for the full methodology of the Freedom House Index.

3.3.3 INDEPENDENT VARIABLE – FOREIGN AID

The independent variable for both parts of the statistical analysis is foreign aid operationalised as net Official Development Assistance (ODA), which in turn is measured as the percentage of the Gross Domestic Product (GDP) averaged over four years. The data for ODA is either collected by the OECD (mostly for recipient countries) or Aid donors report their donations to the OECD themselves (OECD 2008).

However, there are some issues with using ODA as a proxy for foreign aid. For instance, previous studies proved aid to be fungible, which means that aid can be misused (e.g. Feyzioglu, Swaroop & Zhu 1998). For example, aid targeted at poverty reduction might actually be spent on military purposes. Consequently, the actual impact of aid on poverty is difficult to measure.

Nevertheless, there is still no alternative measure to better capture foreign aid. Consequently, numerous scholars have used ODA as a proxy for foreign aid in previous studies (e.g. Svensson 1999; Burnside & Dollar 2000; Hansen & Tarp 2001; Easterly 2003; Chirino & Melián 2006). As there is no data on ODA as a percentage of a country's GDP available on the World Bank database (World Bank 2015c), this indicator is computed manually. World Bank's World Development Indicators (WDI) provide the base data for GDP and ODA (GDP at market prices (current US\$); Net official development assistance received (current US\$)), which is then transformed to represent ODA as a percentage of the GDP. For *Foreign Aid, Democracy & Poverty reduction*, the measurement period for this indicator varies according to the varying periods of the dependent variable. The earliest period is 1997 – 2001 and the latest 2004 – 2008. For the *Follow-up to Kosack (2003)* the measurement period is 2005 – 2009.

3.3.4 CONTROL VARIABLES

INITIAL SCORES OF POVERTY & QUALITY OF LIFE

One control variable for the analysis is the initial level of the respective dependent variable. Kosack (2003) also uses the initial quality of life score, as does the second part of this statistical analysis. Kosack argues that the initial of quality of life is linked to the change in the HDI over the examined period. E.g., an initially high quality of life might lead to a smaller change in quality of life over the examined period. To mimic his approach as close as possible, the initial score of HDI is included. The 2015 version of the Human Development Report (UNDP 2015) issues the desired values. Initial quality of life is measured at the beginning of the examined period, more precisely, in the year 2010.

For the first part of the statistical analysis, this independent variable is operationalized as the initial poverty level. Following Kosack's argument above, an initially low level of poverty might

be connected to a lower poverty reduction rate over the examined time. Thus, the initial MPI score is included. As the measurement periods for the dependent variable for this part of the analysis vary, the point in time for the measurement of the initial poverty reduction score varies as well. The most recent data point is 2008 and the oldest is 1998.

INSTITUTIONAL QUALITY

The International Country Risk Guide (ICRG) Bureaucratic Quality Index is widely used as a proxy for institutional quality. Knack & Keefer (1995) created an adjusted version consisting of five ICRG variables that reflect the security of private property and the enforceability of contracts. The variables are Corruption in Government, Rule of Law, Expropriation Risk, Repudiation of Contracts by Government and Quality of the Bureaucracy. However, data for this measure is not freely available. Thus, this research employed a different measure for institutional quality, namely a combination of four indicators from the Worldwide Governance Indicators (WGI).

The WGI are published annually by the World Bank since 1996. The chosen indicators for the combined measure are *Government Effectiveness*, *Regulatory Quality*, *Rule of Law* and *Control of Corruption*. The scores of the indicators are averaged to compute a single number for institutional quality. Originally, each individual indicator is measured on a scale from -2.5 to +2.5. The latter indicates the highest institutional quality. Institutional quality is quantified as an average score over four years. For *Foreign Aid, Democracy & Poverty reduction*, the measurement period for this indicator varies according to the varying periods of the dependent variable. The earliest period is 1997 – 2001 and the latest 2004 – 2008. For the *Follow-up to Kosack (2003)* the measurement period is 2005 – 2009.

MACROECONOMIC POLICY

While Kosack (2003) employs three indicators for macroeconomic policies, this thesis utilises only one as the sample size is smaller and thus, less control variables are possible. This indicator is openness to trade due to its positive correlation with economic growth in previous research (e.g. Yanikkaya 2003). Moreover, trade openness is conventionally seen as a promoter of economic growth. Kosack (2003) measured this as the relative openness to trade of a country by its tariff rate and the power of its black market as developed by Sachs & Warner (1995). However, this thesis will employ a different measure, as data from Sachs & Warner are not available for the examined period of this thesis. The chosen indicator for openness is the share of exports and imports to GDP (see e.g. Dollar & Kraay 2002; Sadni-Jallab, Gbakou & Sandretto 2008). This indicator, averaged over four years, is able to proxy for trade policy and was first developed by Frankel & Romer (1999). Data for trade openness is provided by the WDI database (Trade as %

of GDP). For *Foreign Aid, Democracy & Poverty reduction*, the measurement period for this indicator varies according to the varying periods of the dependent variable. The earliest period is 1997 – 2001 and the latest 2004 – 2008. For the *Follow-up to Kosack (2003)* the measurement period is 2005 – 2009.

CHANGE IN TERMS OF TRADE

The measure for terms of trade in this study is the net barter terms of trade index, published through the World Bank's WDI database (net barter terms of trade index (2000=100)) (World Bank 2015c). Terms of trade are measured as changes over a period of four years. To this end, the score of the earliest data point is subtracted from the most recent one. For *Foreign Aid, Democracy & Poverty reduction*, the measurement period for this indicator varies according to the varying periods of the dependent variable. The earliest period is 1997 – 2001 and the latest 2004 – 2008. For the *Follow-up to Kosack (2003)* the measurement period is 2005 – 2009.

3.3.5 SAMPLE & TIME FRAME

As this thesis follows a twofold research approach there are different populations and samples for the statistical analyses of each approach.

FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

The population of the first part of the empirical examination consists of all 139 developing countries, as classified by the World Bank (see Appendix A). To cater to external validity as much as possible, the sample of the population should be as big as possible. Only countries for which all values for the various variables are available are included in the sample. Thus, from the initial 139 countries, only 34 can be included in the sample. Alkire, Roche & Vaz (2014: 5), who also worked with this dataset, state that

“the 34 countries come from every geographic region in the developing world. They contain more than 2.5 billion people, which is around 37% of the world's population as per population estimates for 2010. They are Low, Lower Middle, and Upper Middle Income Countries with a GNI per capita in 2012 from \$320 in Malawi to \$10,040 in Gabon.”

This makes it possible to generalize the results derived from the sample and allows for geographical comparison. However, due to missing data for Ethiopia (Trade as % of GDP), the final sample for this part of the analysis consists of 33 countries.

The time frame for this part of the statistical analysis varies greatly. The most recent estimates for the MPI range from 2012 to 2005 across the different countries and the first data point for each individual country ranges from 1998 to 2008. The period varies from two to twelve years, depending on the frequency of data collection. Given the diversity in the length of period,

the analysis is based on the annualised change of the indicator. The independent variables in this part of the analysis cover a period of four years, with the start and end year depending on the most recent available MPI data. The latest data point for the independent variable is always five years prior to the latest MPI score. For instance, if the most recent MPI year is 2012, the measurement period for the independent variable is 2003 – 2007. Furthermore, the measurement period for MPI is 2008 – 2012. The full data set in appendix B.1 displays the examined periods for each country and variable for every nation in the sample individually.

FOLLOW-UP TO KOSACK (2003)

The population for the second part of the empirical analysis consists of the 139 developing countries (see Appendix A). The chosen sample of the population is as close to the one Kosack uses in his 2003 study as possible. His sample consists of 48 developing countries. However, the OECD does not consider Trinidad & Tobago, Uruguay and Chile to be developing countries anymore (OECD 2015). Additionally, HDI data for Korea (DR) is not available for the examined period of this study. Moreover, Syrian data is missing for the independent variable and several control variables. Thus, the sample for this part of the statistical analysis consists of 43 developing countries, covering all regions of the world, excluding Europe. Kosack's sample also includes Zaïre, which changed its name to Democratic Republic of the Congo in 1997 and is part of the sample of this analysis under its current name.

As this part of the thesis attempts to validate the findings of a previous study, the period is more recent than the one Kosack originally used. This thesis employs four-year averages from the most recent period for the independent variables and the change over four years for the dependent variable. Accordingly, the time frame for the dependent variable of the Follow-up to Kosack's study covers the four years from 2010 – 2014 and for the independent variables the time frame covers the four years from 2005 – 2009.

3.4 METHODS

This study employs the same statistical methods as used in Kosack's (2003) study: *descriptive statistics* and *inferential statistics*. These methods are applied to both parts of the thesis. The method *OLS* is used while Kosack additionally used 2-stage least squares (2SLS) to compute an additional measure for aid where he accounts for donor and recipient interests. However, as his results are robust both when using *OLS* and *2SLS* and the newly computed aid variable, it is sufficient for this analysis to employ an *OLS* model without a newly computed aid variable. Additionally, this thesis is not concerned with possible bias in the aid variable as Kosack was able to show that this is not a problem in the context of the study.

DESCRIPTIVE STATISTICS

The first statistical step is a descriptive analysis. This method summarises the data set by providing measures for the mean, median, mode, standard deviation, variance, maximum and minimum values, and kurtosis.

INFERENCEAL STATISTICS

Testing linear regression assumptions

In a first step, several assumptions are tested in order to carry out a multiple regression analysis and to cater for the stability of the statistical model of this study. After checking for normal distribution of the variables, Mukherjee et al. (1998: 125) suggest that researchers check for the following six assumptions: 1) Linearity between dependent and independent variables, 2) homoscedasticity of all residuals, 3) autocorrelation between all residuals, 4) normality (normal distribution) of residuals, 5) influential cases, and 6) outliers. As autocorrelation can only occur in time-series designs, this assumption is excluded from the statistical analysis of this study. Furthermore, it is recommended to test for normal distribution of the variables themselves and for instances of multicollinearity. Once all assumptions are met, it is possible to assume that the statistical model has sufficient internal validity to produce reliable results for this study. However, one cannot test all assumptions before conducting the regression analysis. As a result, testing the assumptions of normal distribution of the residuals and homoscedasticity is part of the regression analysis itself.

Multiple linear regressions - Ordinary Least Squares (OLS)

The statistical model employed is a multiple linear regression analysis. Buttolph Johnson & Reynolds (2008: 477) define this as “a toolbox of methods for describing how, how strong, and under what conditions an independent and [a] dependent variable are associated”. Multiple linear regression analysis makes it possible to predict an outcome from several predictor variables on a dependent variable (Field 2009).

For the model selection, the correlation coefficients for all dependent and independent variables have to be determined. In doing so, one can detect multicollinearity between the variables by calculating Pearson's correlation coefficients R . The range for possible R lays between -1 to $+1$, with -1 indicating a strong negative correlation and 1 a strong positive correlation. Moreover, there is no relationship between two variables if the value of the R coefficient is close to 0 (Park, 2009). However, this bivariate correlation only signals a relation between variables. It makes no predication on the direction of causality and provides no indication on whether this result is significant or not when the control variables are included. Nevertheless, the correlation coefficients are useful to decide on the final model of the analysis and to test for multicollinearity.

There are two ways to introduce the independent and control variables into the regression equation: 1) forced-entry, or 2) stepwise. The former method introduces all predictors at the same time, while the latter stepwise method only includes one predictor at a time. However, the stepwise method is only applicable if the independent variables can be hierarchically organised. To cater for a stable statistical model and to check for redundant variables, the second method is chosen. Each variable is introduced to the model individually, starting with the independent and intervening variables, followed by the control variables in order of the strength of their correlation with the dependent variable (first the control variable with the strongest correlation and subsequently the others in decreasing correlation strength). The result of the stepwise introduction of the independent and control variables into the regression equation is the final statistical model for the analysis.

3.5 FOLLOW-UP TO KOSACK (2003)?

One part of this thesis aims following up on the results of Kosack's (2003) study. To this end, an adjusted research design is utilised. This is due to the nature of this master's thesis and the skills of the author. It follows an overview of the main similarities and differences between this thesis and Kosack's study.

One main and important similarity is the dependent variable, which is the growth of the Human Development Index (HDI) for both studies. Moreover, the same measures for democracy are applied. These are the Polity IV and the Freedom House Index. However, Kosack additionally includes a third measure for democracy, namely the Przeworski et al. (2000) measure. Moreover, both studies employ the same measure for foreign aid (aid as a percentage of the GDP). The first small difference between the studies is the source of the data for the aid variable. Kosack used the World Bank Debt Reporting System, while the aid variable for this analysis is computed using two indicators from the World Development Indicators). Another difference is the statistical methods applied for the analysis. Kosack uses panel data to establish a robust and coherent result, while this thesis employs a simple cross-sectional design. Moreover, Kosack uses a two-step approach with a regular OLS model and a 2SLS model to prevent potential problems with the specification of the aid variable in his OLS analysis. This thesis employs only an OLS model. Another adjustment to the design made by the author is the sample size. Albeit the effort to use exactly the same sample as Kosack did, this thesis is limited by data availability as stated in an earlier section. Thus, the sample size for this part of the thesis is 43 developing countries, compared to 48 developing countries in Kosack's study. Nevertheless, both studies use a time lag to give aid some time to work. Kosack employed three periods of three years each (1974 – 1977; 1978 – 1981; 1982 – 1984). He measured the effect of aid on quality of life growth by using the

aid values from the first period and the quality of life values from the following period. Contrarily, this thesis covers one period of four years for all variables. However, this period contains the years 2010 – 2014 for the quality of life growth and the years 2005 – 2009 for all other variables. Another difference between the two studies is the list of control variables. Kosack employs nine control variables (including two dummy variables) for his study, while this analysis employs only four of them with reference to the smaller sample size. One last difference between both studies is the observation period. While Kosack employs three periods over eleven years, this thesis covers only one period of 5 years. However, both utilise averages over the respective periods. The main similarities and differences between this thesis and the initial study by Kosack are depicted in table 6.

TABLE 6: DIFFERENCES & SIMILARITIES BETWEEN KOSACK (2003) AND FOLLOW-UP TO KOSACK (2003)

Item	Kosack (2003)	Follow-up to Kosack (2003)
Sample size	48 developing countries	43 developing countries
Time frame	3 Periods: 1: 1974 – 1977 2: 1978 – 1981 3: 1982 – 1985	1 Period: 1: 2010 – 2014
Data point measurement	Average of one period	Average of one period
Statistical method	OLS & 2SLS	OLS
Dependent variable	HDI growth	HDI growth
Independent variable (Foreign Aid)	Aid as a percentage of the GDP (Source: WB Debt Reporting System)	Aid as a percentage of the GDP (Source: WDI)
Intervening variable (Democracy)	Polity IV scores Freedom House Index scores Przeworski et al. (2014) scores	Polity IV scores Freedom House Index scores
Control variables	Initial quality of life Arms imports Institutional quality Inflation Budget deficit Openness Terms of trade Sub-Saharan Africa (dummy) East Asia (dummy)	Initial quality of life Institutional quality Openness Terms of trade

In sum, the two studies are not the same with one just using updated data, but still similar. The adjusted design for this thesis is close enough to the original design to provide robust and useful insights, even though one has to keep in mind the limitations of such a reduced arrangement.

3.6 CONCLUSION

This chapter featured the methodological framework of the thesis. The research design and statistical methods of this study were explained and all variables were operationalised (see table 7 for a summary of all variables). Moreover, the regression equations were presented and an account of the differences between the Kosack (2003) study and the follow-up version in this thesis has been introduced. In sum, the chosen research design, the variables and methods should be suitable to provide reliable and robust results.

TABLE 7: LIST OF VARIABLES & INDICATORS

Variable	Indicator	Measurement	Source ⁶
Dependent	Poverty reduction Change in Multidimensional Poverty Index (MPI)	Annualised changes over different periods	OPHI
	Quality of life growth Change in Human Development Index (HDI)	4 years (difference year 2014 to year 2010)	UNDP
Independent	Foreign aid ODA (% of GDP)	Averages over 4 years (lagged)	WDI
Intervening	Democracy Polity IV score	Averages over 4 years (lagged)	Polity IV Project
	Freedom House score	Averages over 4 years (lagged)	Freedom House
Control variables	Indicator	Measurement	Source
Initial level of poverty/ quality of life	Poverty: Initial MPI score Quality of life: Initial HDI score	1st year of examined period	OPHI UNDP
Openness	Trade (% of GDP)	Averages over 4 years (lagged)	WDI
Change in Terms of trade	Net barter terms of trade index (2000=100)	Absolute change over 4 years (lagged)	WDI
Institutional quality	Worldwide Governance Indicators, computed as average of four indicators: 1. Government Effectiveness 2. Regulatory Quality 3. Rule of law 4. Control of corruption	Aggregated average over 4 years (lagged)	WGI

⁶ OPHI is the Oxford Poverty & Human Development Initiative, UNDP is the United Nations Development Programme, WDI is the World Development Indicator database and WGI is the World Governance Indicator database.

CHAPTER 4: STATISTICAL ANALYSIS & RESULTS

This chapter contains the statistical analysis and the consequential analysis of the results. As this thesis follows a two-step research approach this chapter is divided into two main sections. The first part (4.1) consists of the analysis and results of the data for “Foreign Aid, Democracy & Poverty Reduction” while the second part (4.2) deals with the respective analysis for the “Follow-up to Kosack (2003)”. Both sections are further divided into subsections, the first presenting the descriptive statistics (4.1.1, respectively 4.2.1). This is followed by the display of the inferential statistics (4.1.2, 4.2.2) including testing for model parameters (e.g. normality and linearity) and model selection. Then, the results of the regression analysis are presented (4.1.3, 4.2.3). This chapter concludes with a short assessment of the results (4.3).

4.1 FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

The full data set for this part of the statistical analysis is in Appendix B.1.

4.1.1 DESCRIPTIVE STATISTICS

It is important to explore the collected data at the beginning of the statistical analysis to enhance confidence in the results. Thus, the first statistical procedure performed is the descriptive statistical analysis of the data set for this first part of the analysis. Table 8 below displays a summary of the descriptive statistics for the used data set. More precisely, the number of cases, the minimum, maximum, mean and the standard deviation are shown.

TABLE 8: DESCRIPTIVE STATISTICS – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Annualised MPI change	33	-.009	.027	.010	.008
Foreign Aid	33	.340	23.510	8.006	6.633
Polity IV	33	4.000	19.000	13.115	4.653
Freedom House	33	1.700	6.000	4.106	1.280
Initial MPI score	33	.003	.696	.271	.167
Openness	33	24.378	200.494	68.873	40.618
Change in Terms of trade	33	-27.559	91.140	7.879	29.532
Institutional quality	33	-1.523	.270	-.525	.393

The descriptive statistics yield some interesting results. For one, the mean score for *Annualised MPI change* is positive indicating that on average poverty decreased in the examined period. Moreover, the mean ratio for *Foreign Aid* is 8.006 (% of the countries’ GDP), highlighting that foreign aid is not as big a contributor to the GDP in developing countries as sometimes believed. However, the standard deviation is relatively high (6.633), indicating that foreign aid is not distributed with regard to a certain percentage of the GDP, but more individually. Next, as the mean score for *Polity IV* (13.115) is above ten, the countries in the sample seem to be more democratic

than autocratic. This tendency also holds for the other democracy measure *Freedom House*. Furthermore, the standard deviation for *Change in Terms of trade* is a multiple of the mean, which is uncommon.

4.1.2 INFERENCE STATISTICS

Following the descriptive statistics in the previous section, the focus now shifts towards the inferential statistics. First, a check on the relevant linear regression assumptions is done, followed by the model selection.

TESTING LINEAR REGRESSION ASSUMPTIONS

Following Mukherjee et al. (1998), several statistical assumptions are tested before conducting the regression analysis to ensure the reliability of this research's results.

a) Normality of variables

The first assumption to be tested is the one of normal distribution of all variables. According to Mukherjee et al (1998), the normality assumption is met when the sample can be displayed in a symmetrical shape, the bell curve. The most common way to check for normal distribution of all variables is to create histograms of every variable that include normal curves. However, it is not sufficient to rely solely on the histograms. Thus, this thesis first employs the Shapiro-Wilk normality test to assess the normal distribution of all variables statistically.

TABLE 9: SHAPIRO-WILK TEST OF NORMALITY – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
Annualised MPI change	.972	33	.524
Foreign Aid	.922	33	.021
Polity IV	.890	33	.003
Freedom House	.945	33	.095
Initial MPI score	.955	33	.183
Openness	.789	33	.000
Terms of trade	.866	33	.001
Institutional quality	.964	33	.327

The results in table 9 show that only four variables (*Annualised MPI Change*, *Initial MPI score*, *Freedom House* and *Institutional quality*) have a significance value (the *p-value*) of more than 0.05, indicating a normal distribution. Consequently, the other five variables are not normally distributed and need to be transformed. Mukherjee and colleagues (1998) advocate power transformations to transform the non-normally distributed variables. The transformation of *Foreign Aid* uses a power (p) of .6. *Openness* is transformed with $p = 0$ (Log_{10} transformation). As some of the

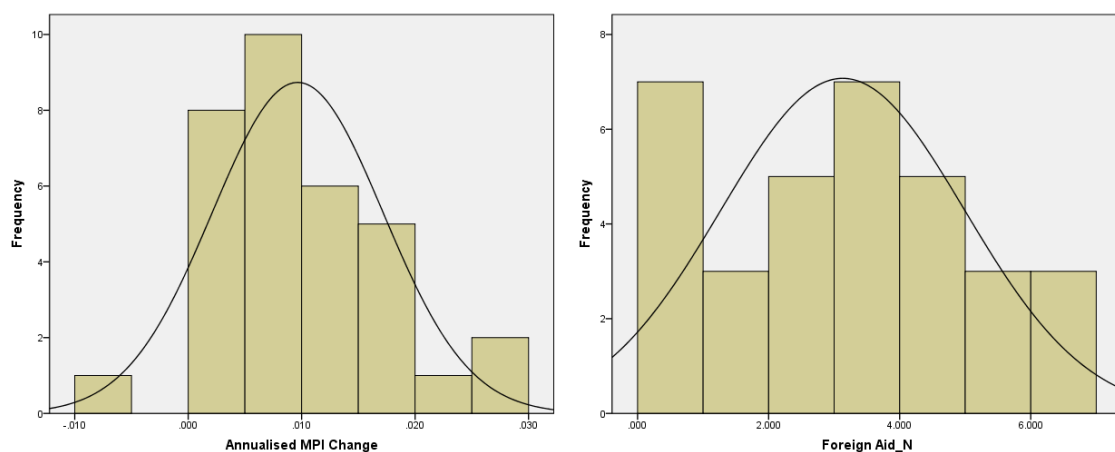
values of *Change in Terms of trade* are negative, a constant (30) is added. A valid transformation is only possible if all values of the variable are positive. Then, this variable is recoded with $p = .3$. It is not possible to transform *Polity IV* to normality using the regular power transformations. Thus, a two-step transformation (Templeton 2011) is used to successfully transform this variable. This method employs the fractional ranks of this variable, while retaining the original series' mean and standard deviation for the application of the inverse distribution function (IDF.normal) in SPSS. Table 10 displays the Shapiro-Wilk tests for the five transformed variables. The “_N” signals that these variables are transformed to compile normality. All variables now have a p-value higher than .05 and are thus statistically normally distributed.

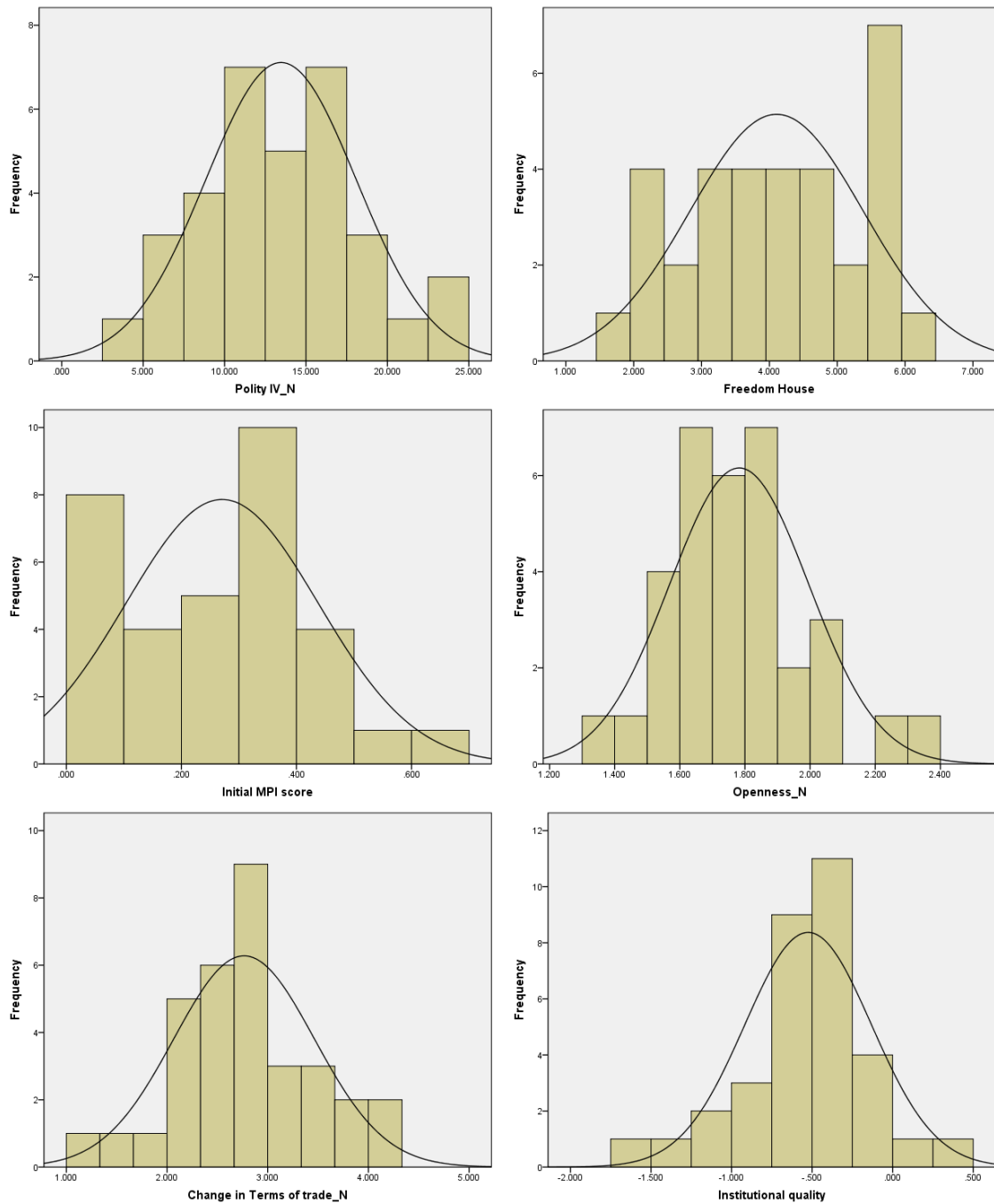
TABLE 10: TRANSFORMED VARIABLES SHAPIRO-WILK TEST OF NORMALITY – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
Foreign Aid_N	.940	33	.067
Polity IV_N	.984	33	.885
Openness_N	.965	33	.357
Change in Terms of trade_N	.978	33	.726

Now, that the normality assumptions has been tested and validated statistically it is possible to examine the histograms of all variables and confirm that the distribution is displayed as a bell curve. In fact, figure 6 highlights a bell-shaped normality curve for all variables of this part of the statistical analysis.

FIGURE 6: HISTOGRAMS WITH NORMALITY CURVE OF ALL VARIABLES FOR FOREIGN AID, DEMOCRACY & POVERTY REDUCTION



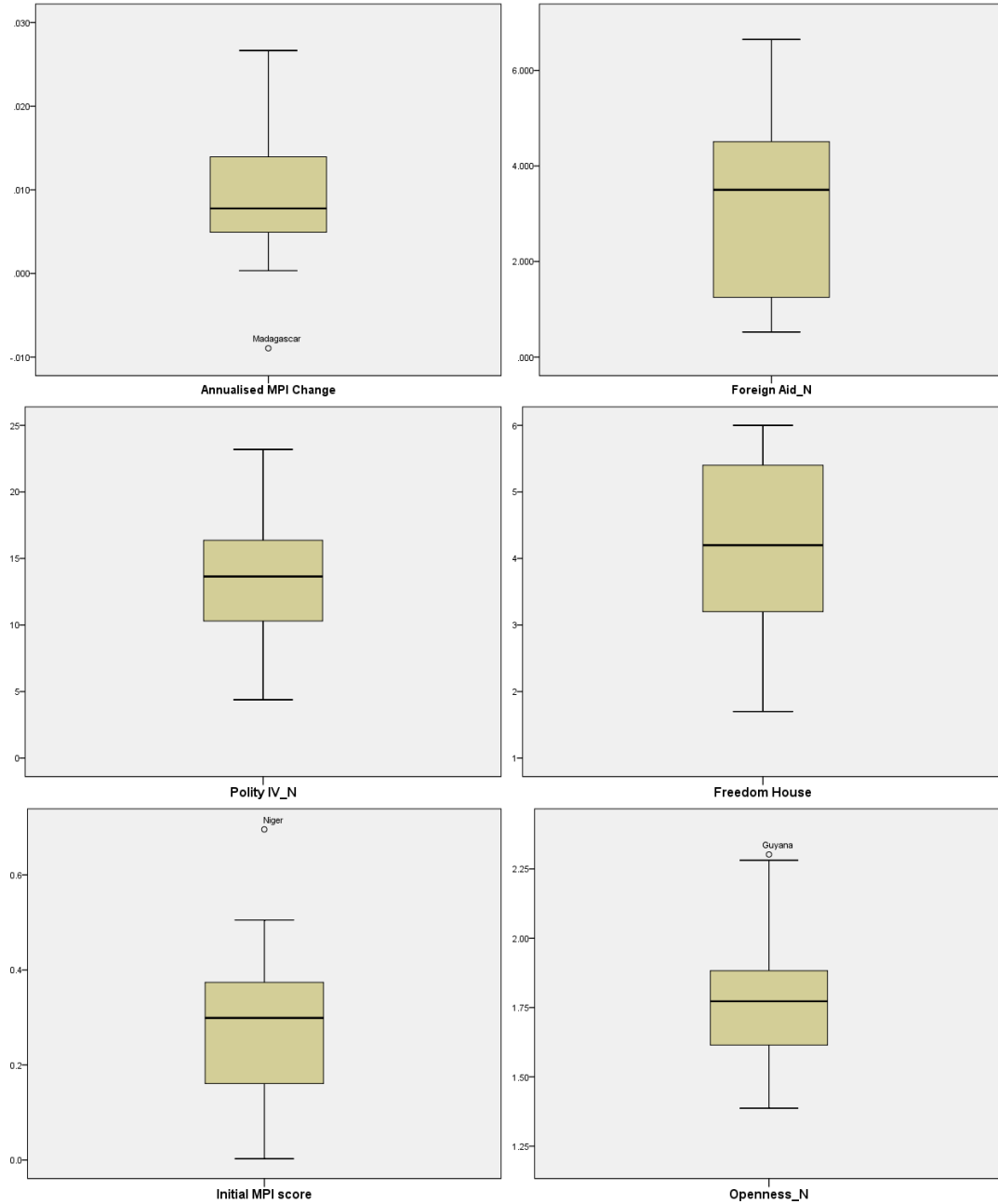


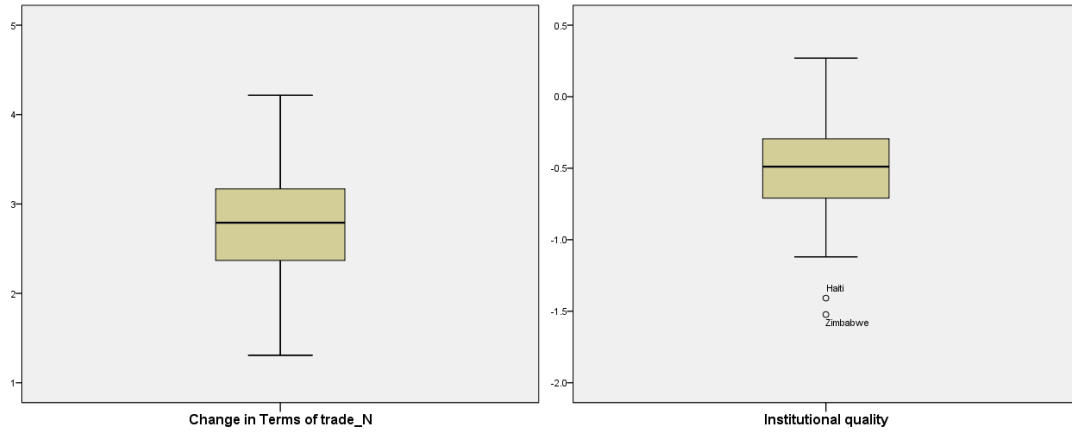
b) Outliers & Influential cases

Now that normality is established for all variables, tests for outliers and influential cases are performed. Outliers are observations that have an abnormal distance to the other values of a random sample, while influential cases have an undue influence on the results of the regression analysis. To detect outliers, this thesis employs boxplots combined with the outliers labelling rule as presented by Hoaglin & Iglewicz (1987). In general, the SPSS boxplots are a more informal outlier test (Dawson 2011), while the subsequent application of the outlier labelling rule provides a more profound basis for detecting outliers. The boxplots in figure 7 below show that outliers

exist for the variables *Annualised MPI Change* (Madagascar), *Initial MPI score* (case Niger), *Openness_N* (case Guyana) and *Institutional quality* (cases Haiti and Zimbabwe).

FIGURE 7: BOXPLOTS FOR INDEPENDENT VARIABLES FOR FOREIGN AID, DEMOCRACY & POVERTY REDUCTION





The outlier labelling rule (Hoaglin & Iglewicz 1987) utilises the 25 and 75 quartiles of the respective variables to detect outliers. There are two formulas to establish outliers below the lower or above the upper bound:

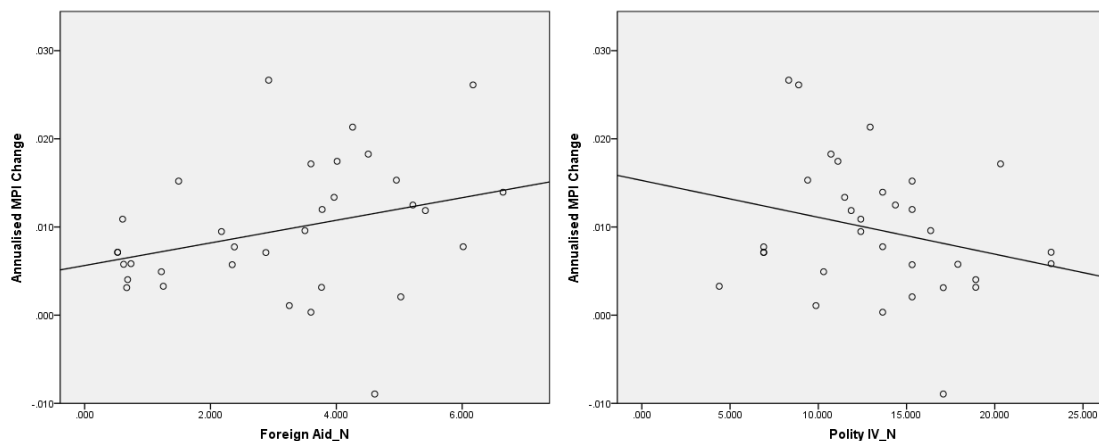
- 1) *Lower Boundary* = $Q_1 - [g * (Q_3 - Q_1)]$
- 2) *Upper Boundary* = $Q_3 + [g * (Q_3 - Q_1)]$

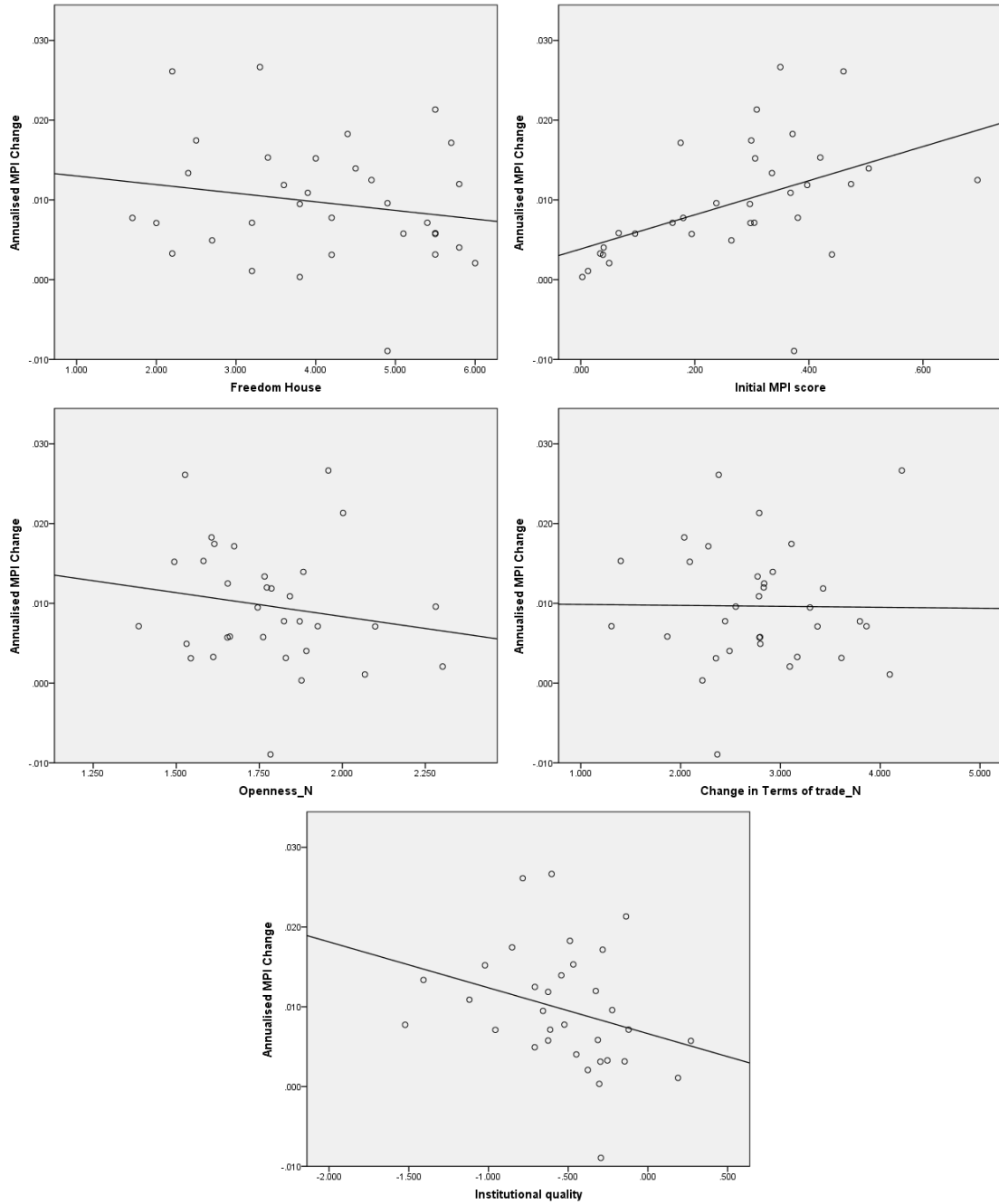
Q_1 is the 25 quartile and Q_3 is the 75 quartile of the variable in question, while g is the multiplier. This multiplier is not chosen randomly, but the result of extensive research. Hoaglin & Iglewicz (1987) suggest to use $g = 2.2$ on small sample sizes with normally distributed data. Once the outlier labelling rule is applied to this research, no outlier persists.

c) Linearity

The third assumption to be tested is linearity, which means that the relationship between the outcome and the predictors is linear. Scatterplots of the variables in combination with a linear fit line are utilised to check this assumption. As indicated in figure 8 below, the linearity between the dependent and all independent variables is reasonable and the assumption of linearity is met.

FIGURE 8: LINEARITY TEST – SCATTERPLOTS OF CORRELATIONS FOR FOREIGN AID, DEMOCRACY & POVERTY REDUCTION





d) Multicollinearity

There is one assumption for multiple linear regression analysis not mentioned by Mukherjee et al. (1998) but still necessary to test for: multicollinearity. An instance of multicollinearity occurs when two or more predictors are highly correlated with each other. This is problematic as the effect of one independent variable on the dependent variable might be imprecise when controlling for a variable, which is highly correlated with the independent variable. This instance might lead to type II errors (Park, 2009). To detect possible cases of multicollinearity, Pearson's R is calculated. In general, a value above +.8 and below -.8 signals an instance of multicollinearity. Table 11 below shows the correlations between all variables in the analysis. The table highlights medium correlations between several predictors (e.g. *Initial MPI score* and *Foreign Aid_N*) and one

instance of multicollinearity with $R = .827$ between both democracy measures. However, these predictors do not enter the same model as they are designed to provide a robustness check. Consequently, this incidence has no further effect on the analysis and the selection of the final model can be performed.

TABLE 11: PEARSON'S CORRELATION – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

Variable	Annualised MPI Change	Foreign Aid_N	Polity IV_N	Freedom House	Initial MPI score	Openness_N	Change in Terms of trade_N	Institutional quality
Annualised MPI Change	1							
Foreign Aid_N	.317	1						
Polity IV_N	-.257	-.173	1					
Freedom House	-.183	-.016	.827	1				
Initial MPI score	.476	.570	-.087	-.026	1			
Openness_N	-.196	.229	-.019	.213	-.253	1		
Change in Terms of trade_N	.120	-.019	-.050	-.047	-.064	.021	1	
Institutional quality	-.300	.009	.400	.596	-.268	.191	-.009	1

MODEL SELECTION

To select the most reliable model for the statistical analysis Pearson's correlation coefficients as displayed in table 11 are utilised. As stated earlier, a value close to 1 or -1 indicates a high correlation while values close to 0 display no correlation between variables. A stepwise introduction of variables caters to a stable model. The first model includes the *Annualised MPI Change* as the dependent variable as well as *Foreign Aid_N* and *Polity IV_N* as independent variables of interest. The subsequent models each add one control variable to the equation, decreasing in their correlation value to the dependent variable. Table 12 below displays all five different models.

TABLE 12: MODEL SELECTION – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION ^A

Variables	Models				
	(1)	(2)	(3)	(4)	(5)
Foreign Aid_N	X	X	X	X	X
Polity IV_N	X	X	X	X	X
Initial MPI score		X	X	X	X
Institutional quality			X	X	X
Openness_N				X	X
Change in Terms of trade_N					X
Adjusted R^2	.085	.198	.184	.168	.148
F	2.489	3.635	2.809	2.292	1.923
p	.100	.024	.045	.074	.115

^ATHE DEPENDENT VARIABLE IS ANNUALISED MPI CHANGE

For the purpose of this analysis, the values for the Adjusted R^2 and the significance indicator p are utilised to determine the significance of a model. The Adjusted R^2 highlights the correlations between the observed Y values and the predicted Y values or as Kirkpatrick & Kidd (2012: 68) write, “[the] multiple R represents the correlation between actual scores on the dependent variable and predicted scores based on the regression equation”. The explanatory power of the model increases the closer the R^2 -value is to 1. If the value would be 1, 100% of the variance could be explained by the independent variables. However, this is very uncommon. The p -value signals whether the overall model is significant. A model can be significant at the 1%, 5% or 10% level (p -values lower than .01, .05 or .1).

Table 12 signals that all models except for (1) and (5) are statistically significant at either the 5% or 10% level. No model is significant at the 1% level. However, while models (2) and (3) are significant at the 5% level, the remaining model (4) is only significant at the 10% level. Model (2) is more significant than model (3) with a p -value of .024 compared to .042. Moreover, one assesses the model fit using the Adjusted R^2 -values. This value is .198 for the model (2) and .184 for model (3). That means that the second model explains 19.8% of the variation of the dependent variable while the other model explains slightly less. Ultimately, this part of the analysis employs both models that are significant at the 5% level to produce valid and robust results.

Before conducting the regression analysis, it is necessary to consult the Variation Inflation Factor (VIF) to establish whether multicollinearity biases the models. To this end, the interaction term between Foreign Aid and the democracy measure is included in the regression models. In general, only VIF values higher than ten are a cause for concern (Field 2009). Table 13 shows the VIF values both models. The models are renamed as follows: Model (2) is now model (1) while model (3) is the new model (2).

TABLE 13: VARIANCE INFLATION FACTORS (VIF) NORMAL VARIABLES – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

Variable	Model (1)		Model (2)	
	VIF	VIF	VIF	VIF
Foreign Aid_N	1.516	14.245	1.655	14.281
Polity IV_N	1.031	2.712	1.275	2.798
Initial MPI score	1.482	1.484	1.718	1.719
Institutional quality			1.391	1.391
Foreign Aid_N x Polity IV_N		13.610		13.956

In the models without the interaction term, all VIF values are below ten. However, if the interaction term is included, the values for *Foreign Aid_N* and the interaction term are above this limit. Thus, the independent variables in this model are standardised by subtracting the mean.

This method removes the multicollinearity produced by the interaction and higher-order terms while not changing the interpretation of the coefficients. Additionally, the interpretation of the coefficients of a standardised model is often easier. Table 14 shows that, after standardising, the values of all variables are below ten. The “S” in the variable name indicates the standardisation.

TABLE 14: VARIANCE INFLATION FACTORS (VIF) STANDARDISED VARIABLES – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION

Variable	Model (1)		Model (2)	
	VIF	VIF	VIF	VIF
Foreign Aid_NS	1.516	1.518	1.655	1.655
Polity IV_NS	1.031	1.571	1.275	1.952
Initial MPI score_S	1.482	1.484	1.718	1.719
Institutional quality_S			1.391	1.426
Foreign Aid_NS x Polity IV_NS		1.549		1.589

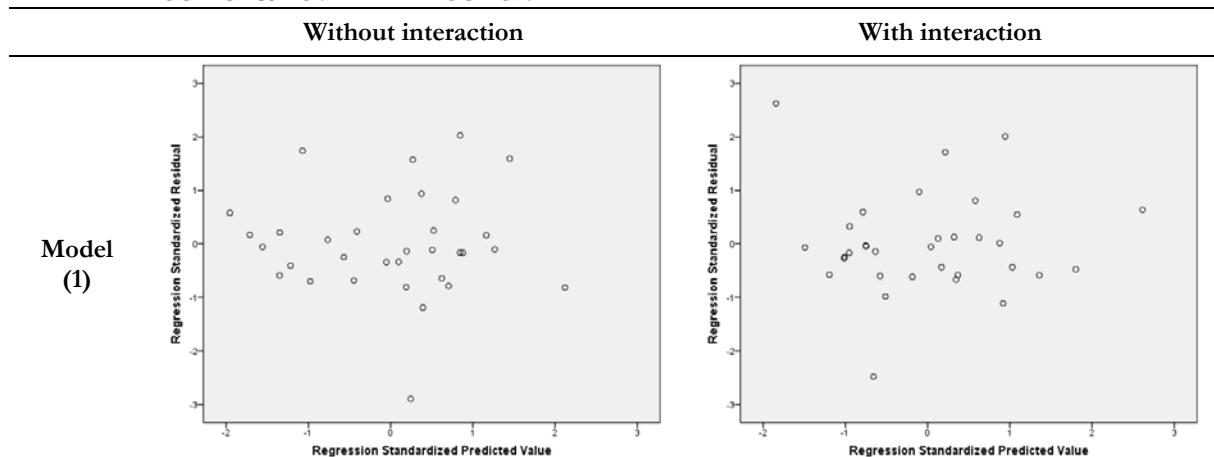
4.1.3 REGRESSION ANALYSIS

To ensure the validity of the models, it is necessary to check if the remaining assumptions of multiple linear regression analysis are met.

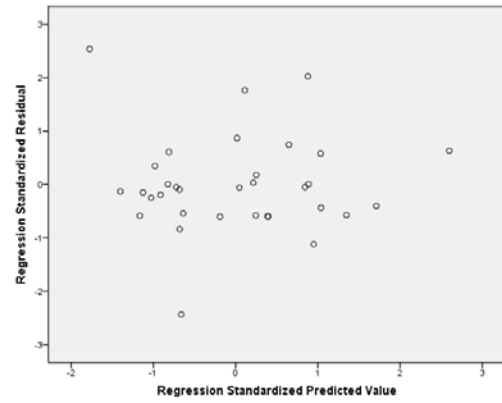
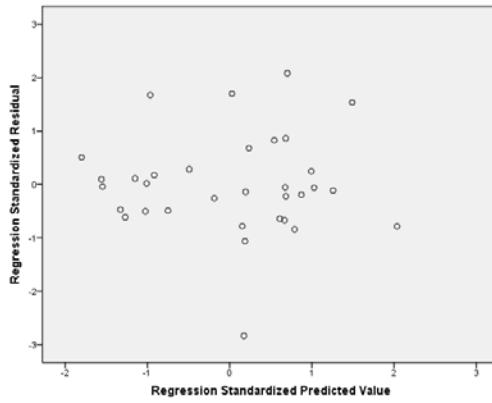
1) Homoscedasticity

An assumption of multiple linear regressions is homoscedasticity and a scatterplot establishes whether it holds. Figure 9 shows the standardized residuals plotted against the standardized predicted values. The size of the residuals does not follow a trend, which demonstrates that the assumption of homoscedasticity holds.

FIGURE 9: HOMOSCEDASTICITY TESTS – SCATTERPLOTS OF STANDARDIZED VALUES FOR FOREIGN AID, DEMOCRACY & POVERTY REDUCTION



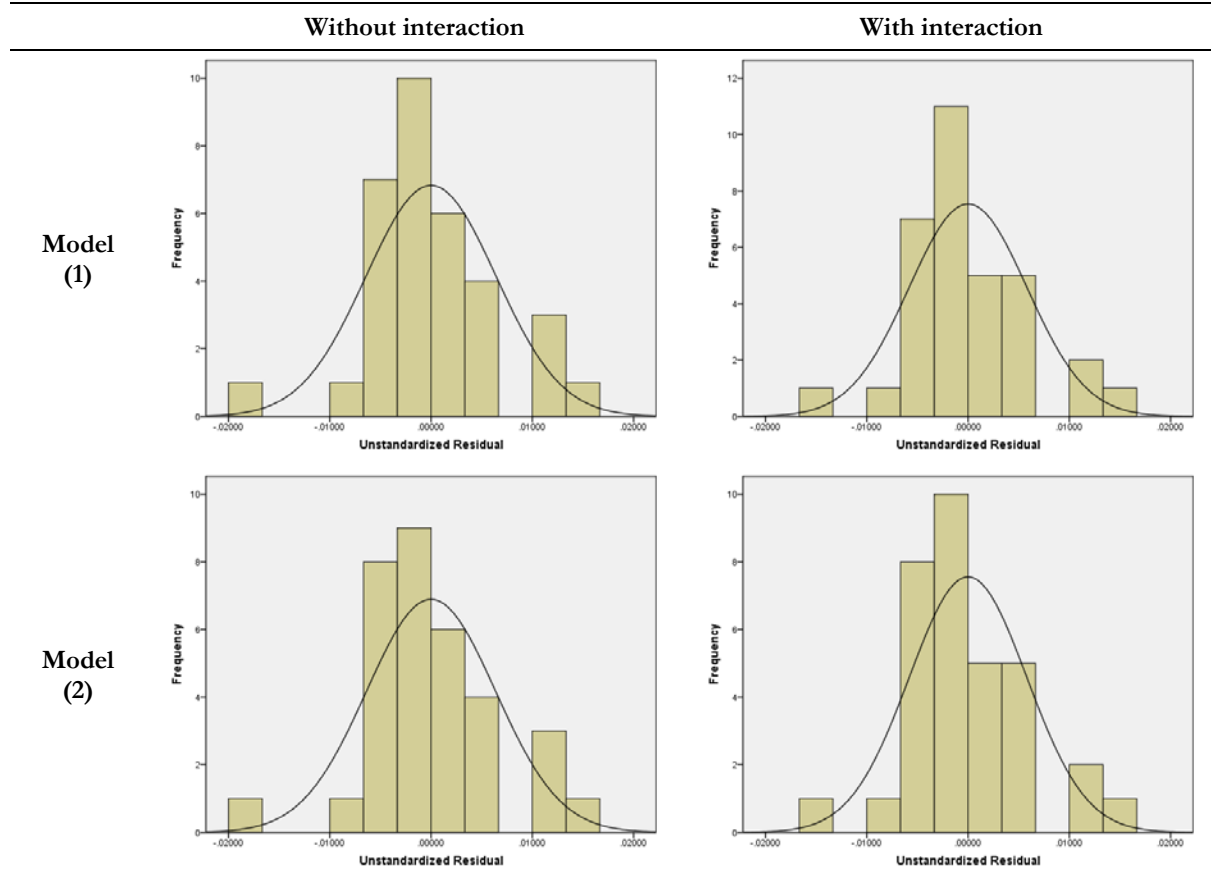
Model
(2)



2) Normal distribution of the residuals

The final assumption is the normal distribution of the residuals. A histogram with a normality curve shows the normal distribution.

FIGURE 10: HISTOGRAMS WITH NORMALITY CURVE OF UNSTANDARDIZED RESIDUALS – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION



The histograms of the unstandardized residuals in figure 10 show that the residuals are normally distributed. Consequently, all assumptions for the regression analysis are met and it is now possible to run the analysis.

First, the models are tested without the interaction term, followed by a rerun including the interaction term. Then, the democracy measures are exchanged to carry out a robustness check. In sum, eight regression models are presented:

Regression (1) examines the relation between the dependent variable *Annualised MPI change* and the independent variables of interest *Foreign Aid_NS* and *Polity IV_NS* by controlling for *Initial MPI score_S*.

Regression (2) adds the interaction term *Foreign Aid_NS x Polity IV_NS* to regression (1).

Regression (3) adds the control variable *Institutional quality_S* to regression (1).

Regression (4) introduces the interaction term to regression (3).

Regressions (5) – (8) are duplicates of models (1) through (4), with the democracy measure changed to *Freedom House_S* and the interaction term to *Foreign Aid_NS x Freedom House_S*.

RESULTS

Table 15 displays the results of the regression analysis. A more detailed discussion of the significant results follows below.

TABLE 15: REGRESSION ANALYSIS (UNSTANDARDIZED B-COEFFICIENTS) – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION ^A

	Polity IV				Freedom House			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign Aid_NS	.00012 (.00079)	.00019 (.00073)	.00029 (.00083)	.00028 (.00077)	.00027 (.00079)	.00038 (.00077)	.00042 (.00082)	.00052 (.00081)
Polity IV_NS	-.00035 (.00026)	-.00078** (.00030)	-.00026 (.00029)	-.00072** (.00034)				
Freedom House_S					-.00101 (.00094)	-.00110 (.00092)	-.00048 (.00122)	-.00059 (.00119)
Initial MPI score_S	.01982** (.00867)	.01897** (.00801)	.01732* (.00942)	.01769* (.00875)	.01948** (.00876)	.01878** (.00855)	.01679* (.00965)	.01623* (.00941)
Institutional quality_S			-.00258 (.00361)	-.00134 (.00339)			-.00292 (.00420)	-.00279 (.00410)
Foreign Aid_NS x Polity IV_NS		-.00038** (.00015)		-.00037** (.00016)				
Foreign Aid_NS x Freedom House_S						-.00090 (.00056)		-.00089 (.00057)
Observations	33	33	33	33	33	33	33	33
F	3.635**	4.719***	2.809**	3.692**	3.370**	3.300**	2.603*	2.682**
Adjusted R²	.198	.317	.184	.296	.182	.223	.167	.208

^AThe dependent variable is Annualised MPI change (Standard errors are in parentheses).

* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

Regressions (1) – (4)

All models are statistically significant at least at the 5% confidence level. Regression (2) is even significant at the 1% level. Only the predictor *Initial MPI score _S* is significant in all regressions. Its positive unstandardized Beta-coefficient signals that the higher the initial level of poverty, the more reduction of poverty is achieved.

In the regressions with the interaction term *Foreign Aid_NS* \times *Polity IV_NS*, the predictor *Polity IV_NS* is now significant at the 5% level. In contrast to theory and previous research, its estimate is negative. This implies that more democratic but poor countries have, on their own, lower poverty reduction rates and aid to these countries may even increase this negative tendency. Furthermore, the interaction term itself is significant (5% level) as well with a negative the Beta-coefficient. This means that a combination of aid and a high level of democracy hinders poverty reduction and this effect intensifies as a country becomes more democratic. Consequently, aid to more democratic countries becomes less effective. This result is unexpected, as the theoretical framework and the empirical evidence suggests high levels of democracy combined with a substantial influx of foreign aid promotes the reduction of poverty.

Regression (5) – (8) – Robustness test

At the first glance, changing the democracy measure does not change the regression outcome. The change from *Polity IV_NS* to *Freedom House_S* has no impact on the signs of the regression estimates, neither in the models without the interaction term nor in the one including the interaction. In line with models (1) to (4), the predictor *Initial MPI score_S* is significant at different confidence levels. However, it is apparent that the initial results are not robust to the change in the democracy measure as all other predictors, including the interaction term and the democracy measure, are now statistically insignificant. Consequently, the direction and size of the effects are not robust.

4.2 FOLLOW-UP TO KOSACK (2003)

The full data set for this part of the statistical analysis is in Appendix B.2. The structure of the statistical analysis for this part of the thesis is very similar to the previous analysis.

4.2.1 DESCRIPTIVE STATISTICS

The descriptive statistics for this part of the statistical analysis are in table 16.

TABLE 16: DESCRIPTIVE STATISTICS – FOLLOW-UP TO KOSACK (2003)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
HDI growth	43	-.009	.048	.016	.009
Foreign Aid	43	-.109	20.265	3.997	4.877
Polity IV	43	4.000	20.000	14.660	4.541
Freedom House	43	1.600	7.000	4.391	1.344
Initial quality of life	43	.326	.811	.614	.121
Openness	43	25.569	187.625	74.674	30.931
Change in Terms of trade	43	-18.056	50.238	8.212	14.170
Institutional quality	43	-1.644	.669	-.479	.487

Again, the descriptive statistics yield several interesting insights. First, based on the mean and standard deviation, the quality of life in the examined countries increased in general. However, the negative minimum score for this variable highlights that in at least one country the quality of life decreased. For all other variables, the general trend is the same as in the previous part of the statistical analysis. One striking detail about this descriptive statistics is the perfect democracy score on both democracy measures for one nation in the sample. The raw data reveals Costa Rica to be this country. Furthermore, the standard deviation for *Change in Terms of trade* is significantly higher than its mean, which is rare.

4.2.2 INFERENCE STATISTICS

The structure of this section is the same as for the other part of the statistical analysis (4.1.2). Moreover, the same tests for assumption-testing are employed.

TESTING LINEAR REGRESSION ASSUMPTIONS

a) Normality of variables

TABLE 17: SHAPIRO-WILK TEST OF NORMALITY – FOLLOW-UP TO KOSACK (2003)

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
HDI growth	.951	43	.063
Foreign Aid	.798	43	.000
Polity IV	.826	43	.000
Freedom House	.962	43	.166
Initial quality of life	.942	43	.031
Openness	.893	43	.001
Change in Terms of trade	.950	43	.057
Institutional quality	.984	43	.797

Table 17 presents the results of the Shapiro-Wilk test on all variables. Four variables (*HDI growth*, *Freedom House*, *Change in Terms of trade* and *Institutional quality*) have p-values higher than 0.05

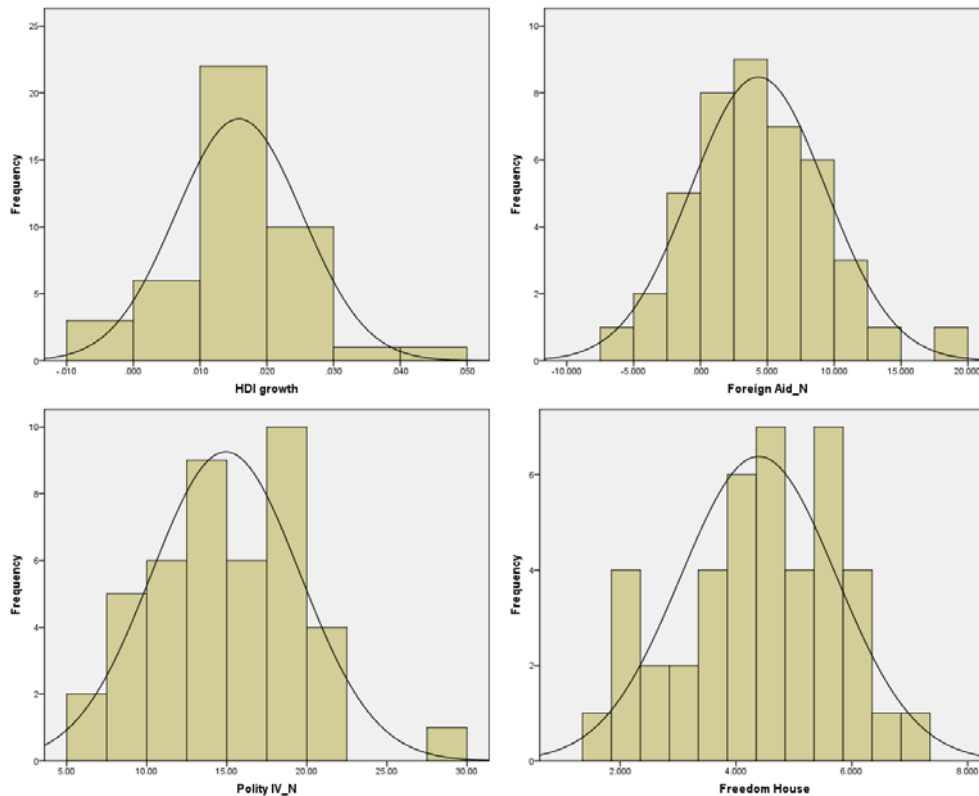
and are thus, statistically normally distributed. The other four need transforming. A Log(10) transformations are computed for the variable *Openness* ($p = 0$), while *Initial quality of life* is reconstructed with $p = 2.5$. For the remaining two variables, *Foreign Aid* and *Polity IV*, both methods failed to produce normally distributed variables. Thus, they are transformed using Templeton's (2011) two-step inverse transformation.

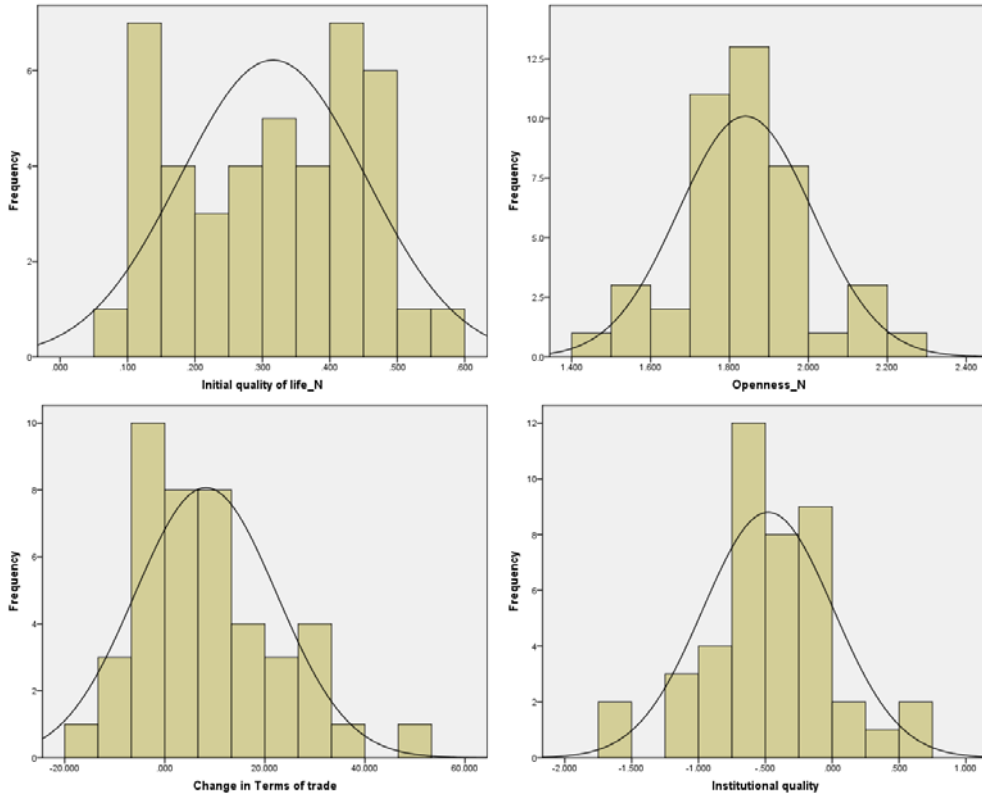
TABLE 18: TRANSFORMED VARIABLES SHAPIRO-WILK TEST OF NORMALITY – FOLLOW-UP TO KOSACK (2003)

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
Foreign Aid_N	.989	43	.939
Polity IV_N	.972	43	.383
Initial quality of life_N	.957	43	.103
Openness_N	.983	43	.777

Table 18 highlights that the p-values for all transformed variables are now above the .05 limit and thus, the normality assumption is statistically validated. Moreover, the normality curves in figure 11 have the typical “Gaussian” bell curve, indicating a normal distribution of all variables.

FIGURE 11: HISTOGRAMS WITH NORMALITY CURVE OF ALL VARIABLES – FOLLOW-UP TO KOSACK (2003)

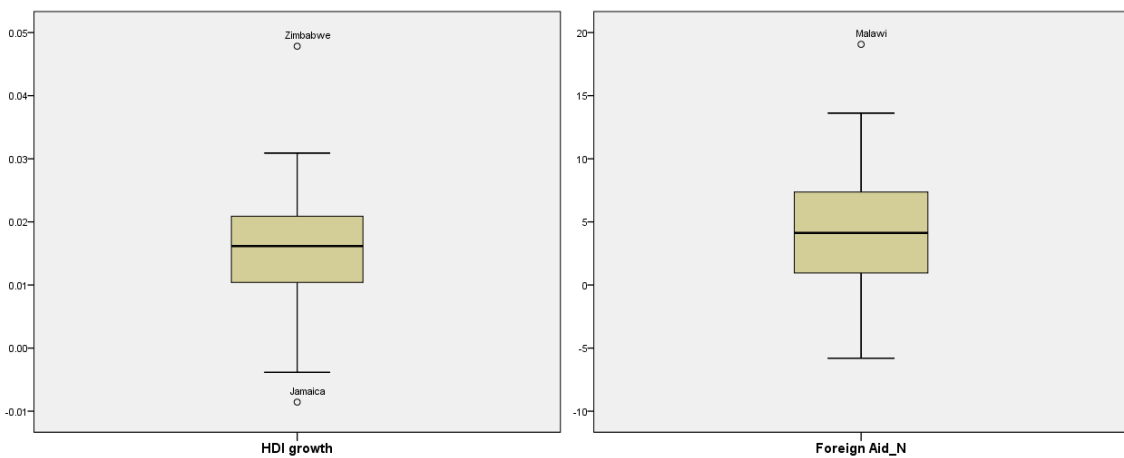


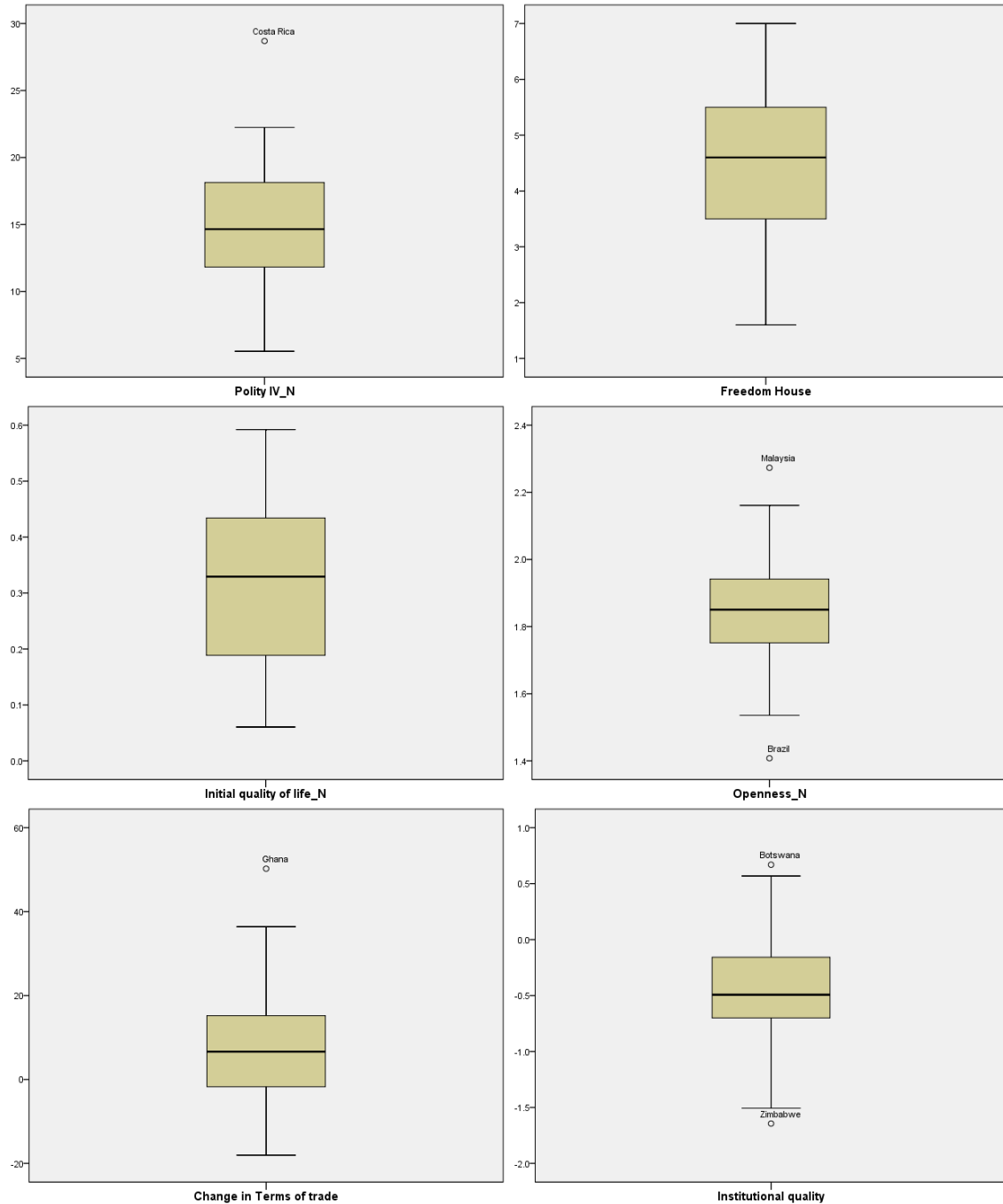


b) Outliers & Influential cases

Same as in the other part of the statistical analysis, boxplots combined with the outliers labeling rule as presented by Hoaglin & Iglewicz (1987) are employed to detect outliers and influential cases in the data for the independent variables. The boxplots in figure 12 below show that possible outliers exist for the variables *HDI growth* (cases Zimbabwe and Jamaica), *Foreign Aid_N* (Malawi), *Polity IV_N* (Costa Rica), *Openness_N* (Malaysia and Brazil), *Change in Terms of trade* (Ghana) and *Institutional quality* (Botswana and Zimbabwe).

FIGURE 12: BOXPLOTS FOR INDEPENDENT VARIABLES – FOLLOW-UP TO KOSACK (2003)





However, once the outlier labelling rule as suggested by Hoaglin & Iglewicz (1987) is applied, only one case (Zimbabwe) for the variable *HDI growth* persists. To determine whether this case is an influential observation Cook's distance is calculated. The usual cut-off point for Cook's distance test is $\frac{4}{n}$ with n being the numbers of observations. For this analysis the cut-off point is $\frac{4}{43} = .093$. Table 19 displays that four countries have values higher than .093 and are thus influential. However, only cases with values higher than 1 are deemed very influential and should be excluded from the analysis. As table 18 shows, there are no cases with a Cook's distance higher 1 and thus, no case has to be excluded from the analysis.

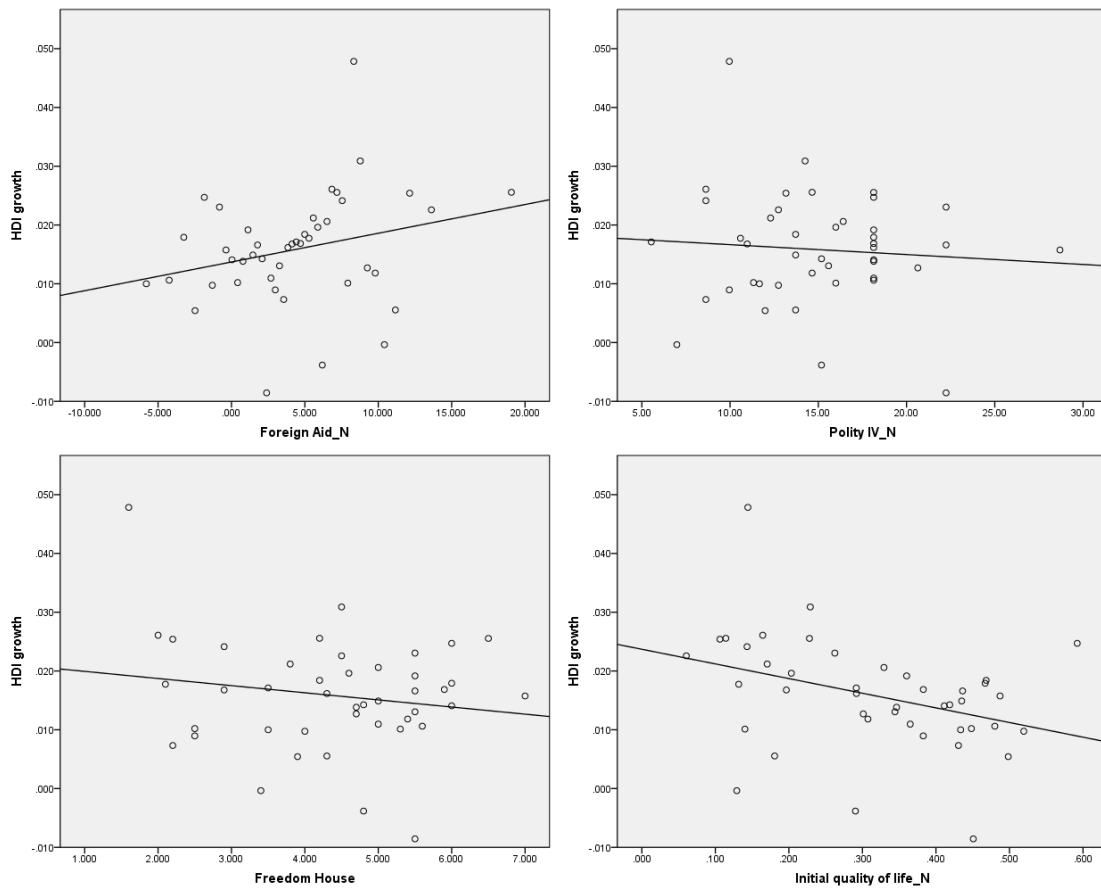
TABLE 19: COOK'S DISTANCE TEST – FOLLOW-UP TO KOSACK (2003)

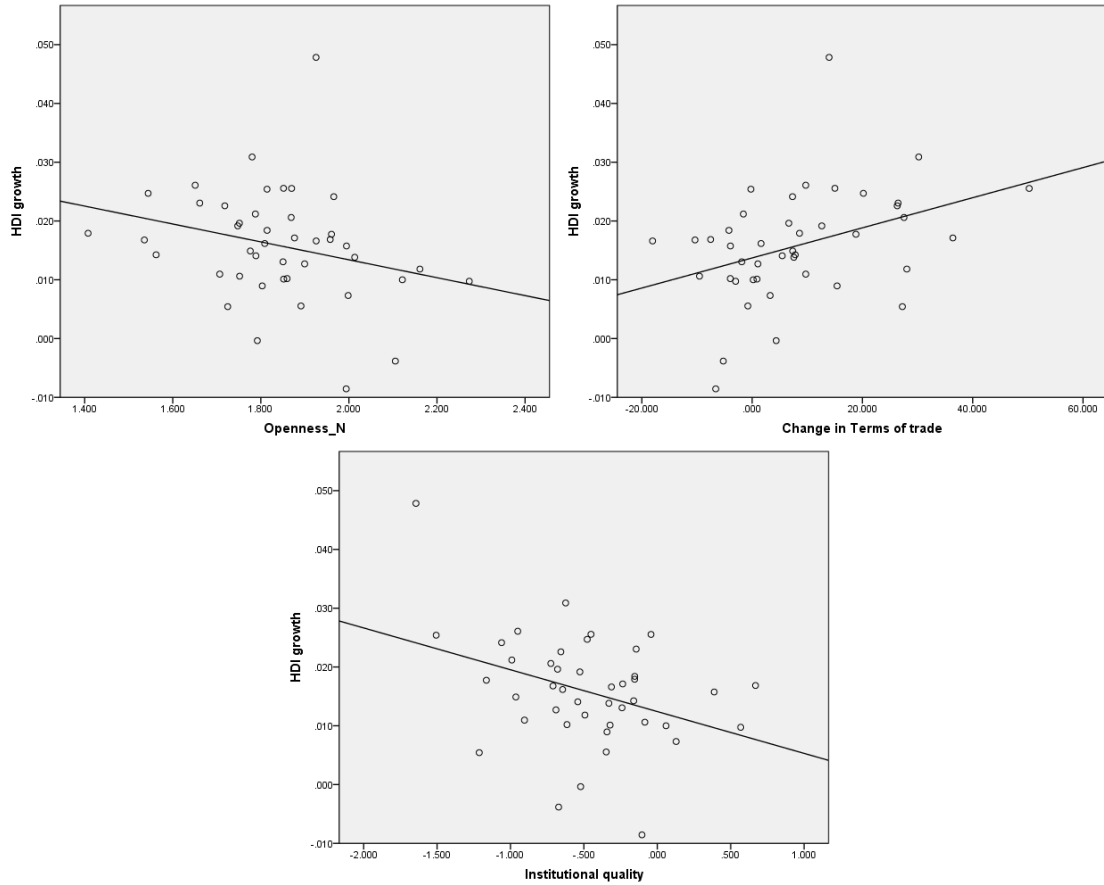
Country	Cook's distance
Zimbabwe	.345
Botswana	.194
Venezuela	.160
Gambia	.118

c) Linearity

The third assumption to be tested is linearity, which means that the relationship between the outcome and the predictors is linear. Scatterplots of the variables in combination with a linear fit line are utilised to check this assumption. As indicated in figure 13 below, the linearity between the dependent and all independent variables is reasonable and thus, the assumption of linearity is met.

FIGURE 13: LINEARITY TEST – SCATTERPLOTS OF CORRELATIONS – FOLLOW-UP TO KOSACK (2003)





d) Multicollinearity

TABLE 20: PEARSON'S CORRELATION – FOLLOW-UP TO KOSACK (2003)

Variable	HDI growth	Foreign Aid_N	Freedom House	Polity IV_N	Initial quality of life_N	Openness_N	Change in Terms of trade	Institutional quality
HDI growth	1							
Foreign Aid_N	.260	1						
Freedom House	-.172	-.267	1					
Polity IV_N	-.082	-.276	.812	1				
Initial quality of life_N	-.362	-.800	.411	.380	1			
Openness_N	-.273	.095	-.089	-.030	.033	1		
Change in Terms of trade	.382	.205	.038	-.185	-.224	-.148	1	
Institutional quality	-.365	-.351	.509	.366	.504	.253	-.191	1

Another assumption of regression analysis is no multicollinearity. To detect possible cases of multicollinearity, Pearson's R is calculated. As stated earlier, a value above +.8 and below -.8 signals an instance of multicollinearity. The correlation coefficients in table 20 display two instances of multicollinearity. The first is between the variables *Foreign Aid_N* and *Initial quality of life_N* with $R = -.800$. The latter variable is thus excluded from the analysis, as *Foreign Aid_N* is an independent variable of interest, while *Initial quality of life_N* is a simple control. The second, with $R =$

.812 between both democracy measures. However, these predictors do not enter the same model as they are designed to provide a robustness check. Consequently, this incidence has no further effect on the analysis and the selection of the final model can be performed.

MODEL SELECTION

As in the other part of the statistical analysis, the variables enter the model stepwise with respect to their correlation (see table 20). The first model includes the *HDI growth* as the dependent variable as well as *Foreign Aid_N* and *Polity IV_N* as independent variables of interest. The subsequent models each add one control variable to the equation, decreasing in their correlation value to the dependent variable as displayed by the correlation coefficients in appendix C.2. Table 21 displays these four models.

TABLE 21: MODEL SELECTION – FOLLOW-UP TO KOSACK (2003) ^A

Variables	Models			
	(1)	(2)	(3)	(4)
Foreign Aid_N	X	X	X	X
Polity IV_N	X	X	X	X
Change in Terms of trade		X	X	X
Institutional quality			X	X
Openness_N				X
Adjusted R^2	.021	.119	.178	.187
F	1.458	2.894	3.270	2.935
p	.245	.047	.021	.025

^ATHE DEPENDENT VARIABLE IS HDI GROWTH

Again, the values for the Adjusted R^2 and p are used to decide on the significance of a model. All models, except for model (1), are statistically significant at the 5% confidence level, as table 20 shows. The Adjusted R^2 -values are only of interest for models (2), (3) and (4). Model (4) explains 18.7% of the variation in the dependent variable and model (3) approximately one percent less (17.8%) while model (2) explains about 11.9%. To cater for stable and robust results, this part of the analysis employs models (3) and (4) for the regression analysis.

Next, the impact of multicollinearity on the chosen models is examined. Thus, VIF values are created. Again, values below ten are insignificant. Table 22 shows the VIF values for the four models with and without the interaction term between aid and democracy. The models are re-named as follows: Model (3) is now model (1) while model (4) is the new model (2).

TABLE 22: VARIANCE INFLATION FACTORS (VIF) NORMAL VARIABLES – FOLLOW-UP TO KOSACK (2003)

Variable	Model (1)		Model (2)	
	VIF	VIF	VIF	VIF
Foreign Aid_N	1.194	19.941	1.246	20.780
Polity IV_N	1.202	1.867	1.219	1.993
Change in Terms of trade	1.073	1.075	1.099	1.107
Institutional quality	1.263	1.267	1.400	1.401
Openness_N			1.153	1.235
Foreign Aid_N x Polity IV_N		18.381		19.681

In the models without the interaction term, all VIF values are below ten. However, if the interaction term is included, the VIF values for *Foreign Aid_N* and the interaction term is significantly higher than ten. Again, the independent variables in this model are standardised by subtracting the mean. Table 23 shows that, after standardising, the values for all variables are below ten. The “S” in the variable name indicates the standardisation.

TABLE 23: VARIANCE INFLATION FACTORS (VIF) STANDARDISED VARIABLES – FOLLOW-UP TO KOSACK (2003)

Variable	Model (1)		Model (2)	
	VIF	VIF	VIF	VIF
Foreign Aid_NS	1.194	1.208	1.246	1.279
Polity IV_NS	1.202	1.334	1.219	1.336
Change in Terms of trade_S	1.073	1.075	1.099	1.107
Institutional quality_S	1.263	1.267	1.400	1.401
Openness_NS			1.153	1.235
Foreign Aid_N x Polity IV_N		1.120		1.199

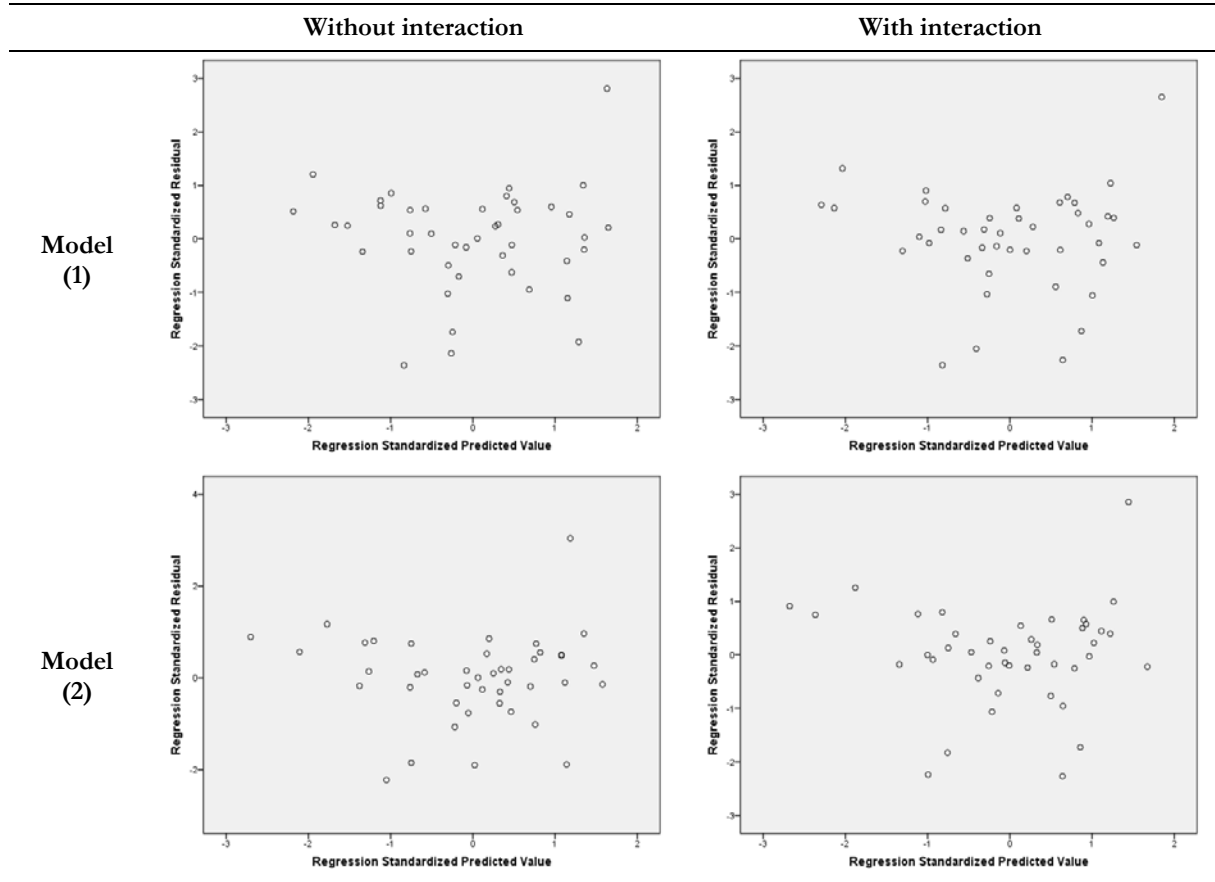
4.2.3 REGRESSION ANALYSIS

Next, the assumptions of homoscedasticity and normal distribution of the residual are checked.

a) Homoscedasticity

Again, a scatterplot indicates whether the homoscedasticity assumption holds. Figure 14 displays that the size of the residuals does not follow a pattern and thus, the assumption of homoscedasticity holds for all models in the regression analysis.

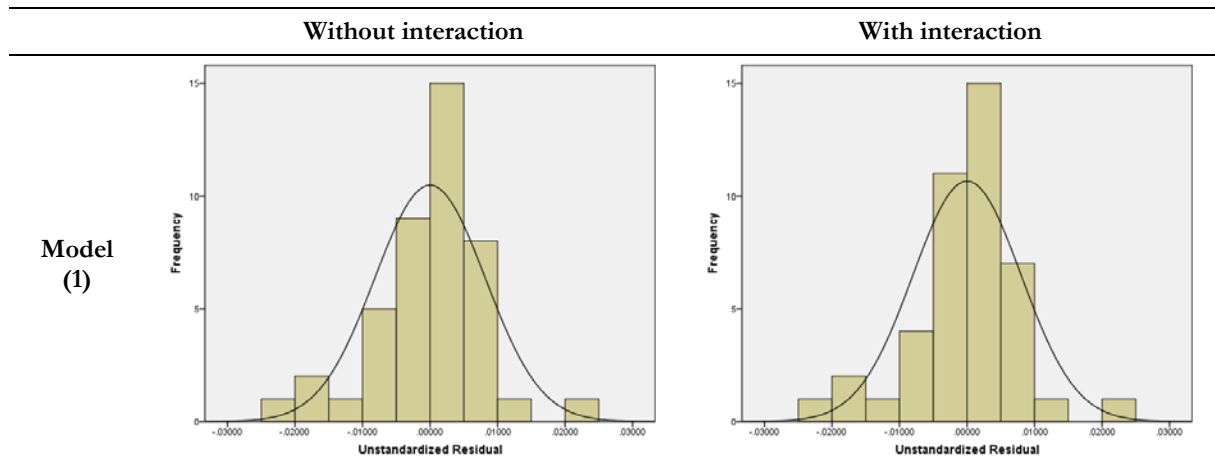
FIGURE 14: HOMOSCEDASTICITY TEST – SCATTERPLOTS OF STANDARDIZED VALUES – FOLLOW-UP TO KOSACK (2003)

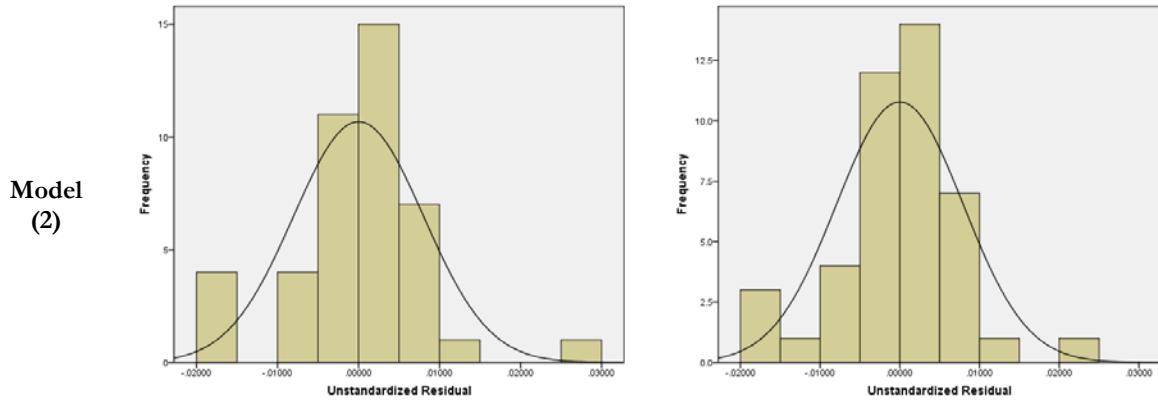


b) Normal distribution of the residuals

The last assumption to be tested is the normal distribution of the residuals. A histogram with a normality curve indicates normal distribution. The histogram of the unstandardized residuals displayed in figure 15 shows that the residuals are normally distributed. Consequently, all assumptions for the regression analysis are met.

FIGURE 15: HISTOGRAM WITH NORMALITY CURVE OF UNSTANDARDIZED RESIDUAL – FOLLOW-UP TO KOSACK (2003)





As in the previous part of the statistical analysis, the models are run without the interaction term at first and rerun including the interaction term. Then, the second democracy measure serves as a robustness check. In sum, eight regression models are presented:

Regression (1) examines the relation between the dependent variable *HDI growth* and the independent variables of interest *Foreign Aid_NS* and *Polity IV_NS* by controlling for *Change in Terms of trade_S* and *Institutional quality*.

Regression (2) adds the interaction term *Foreign Aid_NS* \times *Polity IV_NS* to regression (1).

Regression (3) adds the control variable *Openness_NS* to regression (1).

Regression (4) introduces the interaction term to regression (3).

Regressions (5) – (8) are duplicates of models (1) through (4), with the democracy measure changed to *Freedom House_S* and the interaction term to *Foreign Aid_NS* \times *Freedom House_S*.

RESULTS

Table 24 displays the results of the regression analysis.

Regression (1) – (4)

In general, these four regressions yield no statistically significant results for the variables of interest. However, there are some interesting facts about the models and their significant control variables. For one, all models are significant at the 5% confidence level. Moreover, the predictor *Change in Terms of trade_S* is significant at the 5% level for all models while *Institutional quality_S* is significant at the 10% level only for regressions (1) and (2) which exclude the control variable *Openness_NS*. Unexpectedly, the β -coefficient for *Institutional quality_S* is negative, indicating that high levels of institutional quality are adverse to growth in the HDI. Contrarily, the estimate for

Change in Terms of trade_S is positive, suggesting that high export and low import prices foster growth in the HDI and thus, human development. However, both predictors are only mediocly significant for explaining the models.

TABLE 24: REGRESSION ANALYSIS (UNSTANDARDIZED B-COEFFICIENTS) – FOLLOW-UP TO KOSACK (2003) ^A

	Polity IV				Freedom House			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign Aid_NS	.00023 (.00029)	.00019 (.00029)	.00030 (.00029)	.00026 (.00030)	.00019 (.00029)	.00022 (.00027)	.00026 (.00029)	.00025 (.00027)
Polity IV_NS	.00025 (.00031)	.00013 (.00033)	.00021 (.00031)	.00012 (.00033)				
Freedom House_S					-.0019 (.00118)	-.00096 (.00112)	-.00056 (.00120)	-.00106 (.00114)
Change in Terms of trade_S	.00022** (.00010)	.00022** (.00010)	.00020* (.00010)	.00020** (.00010)	.00021** (.00010)	.00028*** (.00009)	.00020* (.00010)	.00027*** (.00010)
Institutional quality_S	-.00596* (.00307)	-.00576* (.00306)	-.00475 (.00321)	-.00483 (.00322)	-.00500 (.00337)	-.00167 (.00331)	-.00325 (.00358)	-.00116 (.00345)
Openness_NS			-.01003 (.00835)	-.00821 (.00867)			-.01158 (.00853)	-.00493 (.00841)
Foreign Aid_NS x Polity IV_NS		-.00009 (.00008)		-.00007 (.00008)				
Foreign Aid_NS x Freedom House_S						-.00070*** (.00024)		-.00065** (.00026)
Observations	43	43	43	43	43	43	43	43
F	3.270**	2.894**	2.935**	2.550**	3.066**	4.544***	2.876**	3.777***
Adjusted R ²	.178	.184	.187	.181	.164	.297	.183	.284

^AThe dependent variable is HDI growth (Standard errors are in parentheses).

* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

Regression (5) – (8) – Robustness test

Changing the democracy measure from *Polity IV_NS* to *Freedom House_S* changes the regression results. The models with the interaction term are now significant at the 1% level. More importantly, the estimates for the democracy measure change and are now negative, highlighting that the results of the initial regressions are not to robust to this change. Moreover, while maintaining its negative estimate, the interaction term is now significant at the 1% level in regression (6) and at the 5% level in model (8). The negative estimate signals that aid has a more negative effect on human development in countries with higher levels of democracy. Moreover, aid to autocracies may improve human development in these countries. In sum, the results of this robustness test do not support the initial findings.

4.3 CONCLUSION

This chapter contains the dyadic statistical analysis and the presentation of the results. These results are not robust for either part of the analysis, but it is possible to draw several general con-

clusions. First, neither foreign aid nor high levels of democracy independently lead to poverty reduction or growth in human development. To the contrary, the only statistically significant independent variable of interest (the democracy measure Polity IV) suggests that democracy on its own is connected to lower poverty reduction rates (displayed through its negative estimate; see table 14). Second, even high levels of democracy in combination with foreign aid do not foster poverty reduction or human development. Contrarily, the only significant statistical results on this relation suggest that a combination of foreign aid and higher levels of democracy is detrimental to achieving poverty reduction or human development (see tables 14 and 23). Third, the analyses reveal that for each part of the analysis, one control variable is responsible for explaining the variation in the dependent variable. For the first part of the dyadic analysis, this variable is the *Initial level of poverty* (significant at the 5% or 10% confidence level; see table 14) while for the second part it is the *Change in Terms of trade* (significant at the 1%, 5% or 10% level; see table 23). Lastly, throughout both analyses the results are not robust to the change in the democracy measure. This is interesting as previous research suggests that changing the democracy measure yields no change in the regressions results. Even more, the correlation coefficients between the democracy measures (.827 / .812; tables 10 and 19) indicate that these indicators are highly correlated and thus appear to measure the same phenomenon.

CHAPTER 5: CONCLUSION

The last chapter of the thesis contains the answers to the central research question and the corresponding sub-questions (5.1) as well as an account on the limitations of this research (5.2). Then, suggestions for further research (5.3) are given. This chapter concludes with academic and policy implications (5.4).

5.1 CENTRAL RESEARCH QUESTION & SUB-QUESTIONS

To answer the central research question of this thesis, it is first necessary to formulate the answers to the three sub-questions as these provide the foundation of the answer of the central research question.

SQ₁

What is the theory and empirical evidence behind the claim that democracy impacts aid effectiveness?

Chapter two provides the theoretical argumentation and a profound literature review of empirical studies as a basis for the answer of this sub-question. On a theoretical basis, neoclassical growth theory in combination with selectorate theory suggests that aid supports (economic) growth and this growth subsequently fosters human development and poverty reduction. The level of democracy has an impact on this growth in human development and poverty reduction through the provision of public goods. Theoretically, a country with a higher level of democracy should in general have higher poverty reduction rates and human development growth. Moreover, according to theory, aid to countries with higher levels of democracy should be more effective in promoting development than to countries with lower levels of democracy. However, the empirical evidence on this issue is ambiguous. Early studies found no support for the claim of aid fostering development while studies that are more recent support this claim. Additionally, scholars disagree on the effect of democracy on aid effectiveness. However, the most influential studies (e.g. Boone 1996) conclude that countries that are more democratic perform better in terms of aid effectiveness. In sum, the answer to SQ₁ is that 1) selectorate and neoclassical classical growth theory provide the theoretical framework for the impact of democracy on aid effectiveness, while 2) the evidence from empirical studies remains ambiguous.

SQ₂

What evidence does the empirical analysis provide in regards to the effect of the level of democracy on the relationship between foreign aid and poverty reduction?

The answer to SQ₂ has its foundation in the first part of the statistical analysis in chapter four. Utilizing the control variables derived from the literature review in chapter two while employing the research design and the statistical model formulated in chapter three, the first part of the statistical analysis for this thesis revealed significant statistical results that the level of democracy decreases the effect of foreign aid on poverty reduction. All models used in this part of the

thesis are statistically significant, as are some individual predictors. Moreover, the inclusion of the interaction terms to the regression equation yield no change in the regression results. However, these results are not robust. In sum, the results of the statistical analysis do not confirm the hypothesis that a country's level of democracy plays a role in reducing poverty.

SQ₃

What evidence does the empirical analysis provide in regards to the effect of the level of democracy on the relationship between foreign aid and quality of life growth (Follow-up to Kosack's 2003 study)

The analysis in the second part of chapter four provides the answer to SQ₃. The follow-up study reveals no evidence in support of Kosack's (2003) findings and even discloses partial evidence contradicting them. The statistically significant and negative interaction term in the robustness test shows that aid's effect on quality of life growth is negative in countries that are more democratic and positive in more autocratic countries. This (albeit not robust) finding is in conflict with Kosack's results.

Based on the answers to SQ₂ and SQ₃ it is not possible to confirm the hypothesis proposed at the end of chapter two.

H₁

Foreign aid in democratic countries is more effective in promoting development than in autocratic countries.

In both parts of the analysis there was no evidence found that foreign aid is more effective in promoting development in more democratic countries.

Now, after the presentation of the answers to the three sub-questions it is possible to give an answer to the central research question of this thesis.

What effect does democracy have on the foreign aid – development relationship in developing countries?

While substantial theoretical groundwork and empirical evidence suggests that democracy increases the positive effect of foreign aid on development, this thesis found no evidence for this. Both parts of the regression analysis show that democracy has no robust effect on development in developing countries, neither as measured as poverty reduction nor as measured as growth in human development.

5.2 LIMITATIONS

Certainly, there are some limitations mitigating the outcome of this study. The most severe limitation is the rather small sample sizes of 33 (*Foreign Aid, Democracy & Poverty Reduction*) and 43 (*Follow-up to Kosack*) countries out of 139 developing countries. While in the first part of the analysis the small sample size stems from lacking data (especially comparable data for the MPI are rare), the limitation in the second part of the analysis is mostly self-imposed to mirror Kosack's study as closely as possible. In general, the results of both parts of the analysis are therefore not generalizable to the entire population. Another limitation regarding this thesis has its basis in the chosen research design. As a quantitative cross-sectional design examines only one specific period in time rather than various sections over a longer period, it is possible that a significant effect is only apparent in this specific period while there might be no effect in the long run. Thus, the results of the chosen examination period might not apply for a different period. Moreover, in contrast to a panel data analysis, a quantitative cross-sectional design is not able to reveal a truly cause-effect relation as it examines only one specific period in time rather than various sections over a longer period of time. In order to mitigate this limitation, a time lag was included. A further limitation is that the existing body of knowledge in the field of democracy's effect on aid effectiveness is not very extensive and even produced mixed results. Consequently, there is limited support for the claim itself.

5.3 SUGGESTIONS FOR FURTHER RESEARCH

With reference to limitations mentioned above, it would be interesting to apply this study's setting to a broader population and either to confirm or contradict the results of this thesis. Moreover, to explore a possible cause-effect relation between democracy and aid effectiveness, it would be interesting to utilize a time-series research design or panel data. In this setting, a longer examination period would be useful as well to diminish the possibility of temporality bias. Additionally, an increased time lag might lead to different results, as aid would have more time to unfold its effect on development. In general, further research is needed on the confounding factors affecting the aid – democracy – development relation to provide more reliable and robust statistical models. For instance, the models for the first part of the analysis contain only one and two control variables. Other factors could be identified through extensive case studies in various countries, followed by a robustness test on larger scale. Another suggestion for further research is the incorporation of additional democracy measures to provide a broader basis for the argument whether or not and if yes, to what extent and end, democracy affects aid effectiveness.

5.4 ACADEMIC AND POLICY IMPLICATIONS

This thesis has *academic implications*. First, when investigating the effect of democracy on any other phenomenon, a conscious decision regarding the definition of democracy is vital. As this study reveals, statistical results may change with the definition of democracy and accordingly, with the measure of democracy. Second, the results of Kosack's 2003 study could not be reproduced using a modified research design and more recent data, meaning that his findings might not hold true today. These inclusive findings demand further research. Third, two control variables were significant predictors for human development and poverty reduction. The significance of the variables *Change in Terms of trade* and the *Initial level/score of human development or poverty reduction* in explaining the researched phenomenon is supported by theory and empiric evidence and has been further validated in this study. Fourth, this thesis was one of the first academic papers to utilize the Multidimensional Poverty Index. Lastly, building a theoretical framework based on neoclassical growth theory and selectorate theory helps to promote a more nuanced understanding of aid's effectiveness. In sum, despite the non-robust and mostly insignificant results, this study is an important contribution to the field of aid effectiveness and the successful conditions of foreign aid.

The most notable *policy implication* of this study is that it questions the effectiveness of the current and increasingly popular policy of international aid donors to impose conditions of democratization, such as enhanced political rights and civil liberties, on the aid receiving countries in order to promote democracy and human rights (Banik 2010). However, this thesis found no robust effect of democracy improving aid effectiveness. Thus, policy makers must continue to search for the best conditions for effective and efficient distribution of foreign aid.

Bibliography

- Alesina, Alberto & Dollar, David 2000. Who Gives Foreign Aid to Whom and Why? *Journal of Economic Growth* 5(1), 33–63.
- Alkire, Sabina 2002. *Valuing freedoms: Sen's capability approach and poverty reduction*. Oxford, New York: Oxford University Press.
- Alkire, Sabina, et al. 2015. *Multidimensional Poverty Index, Winter 2014/2015: Brief Methodological Note and Results*. University of Oxford. URL: http://www.ophi.org.uk/wp-content/uploads/Tables_1_2_National-Results_MPI-2015.xlsx?cb41ae [accessed on 2015-06-11].
- Alkire, Sabina & Foster, James 2011. Understandings and misunderstandings of multidimensional poverty measurement. *The Journal of Economic Inequality* 9(2), 289–314.
- Alkire, Sabina, Roche, Jose M. & Vaz, Ana 2014. *Multidimensional poverty dynamics: Methodology and results for 34 countries*. URL: <http://www.ophi.org.uk/wp-content/uploads/OPHI-RP-41a.pdf?cb41ae> [accessed on 2015-06-20].
- Alkire, Sabina & Santos, Maria E. 2014. Measuring Acute Poverty in the Developing World: Robustness and Scope of the Multidimensional Poverty Index. *World Development* 59(0), 251–274.
- Alkire, Sabina & Santos, Maria E. 2010. *Acute Multidimensional Poverty: A New Index for Developing Countries*. URL: http://hdr.undp.org/sites/default/files/hdrp_2010_11.pdf [accessed on 2015-06-20].
- Alvi, Eskander, Mukherjee, Debasri & Shukralla, Elias K. 2008. Aid, Policies, and Growth in Developing Countries: A New Look at the Empirics. *Southern Economic Journal* 74(3), 693–706.
- Anand, Sudhir & Ravallion, Martin 1993. Human Development in Poor Countries: On the Role of Private Incomes and Public Services. *The Journal of Economic Perspectives* 7(1), 133–150.
- Arndt, Channing, Jones, Sam & Tarp, Finn 2015. Assessing Foreign Aid's Long-Run Contribution to Growth and Development. *Aid Policy and the Macroeconomic Management of Aid* 69, 6–18.
- Arndt, Channing, Jones, Sam & Tarp, Finn 2010. Aid, Growth, and Development: Have We Come Full Circle? *Journal of Globalization and Development* 1(2), 1–29.

- Avelino, George, Brown, David S. & Hunter, Wendy 2005. The Effects of Capital Mobility, Trade Openness, and Democracy on Social Spending in Latin America, 1980-1999. *American Journal of Political Science* 49(3), 625–641.
- Babbie, Earl R. 2013. *The practice of social research*. 13th ed. Belmont, CA: Wadsworth Cengage Learning.
- Bahmani-Oskooee, Mohsen 2009. Poverty reduction and aid: cross-country evidence. *International Journal of Sociology and Social Policy* 29(5/6), 264–273.
- Banik, Dan 2010. *Poverty and Elusive Development*. Oslo: Universitetsforlaget.
- Bjella, M. 2012. *Democracy and Foreign Aid* (Master thesis). URL: <https://www.duo.uio.no/bitstream/handle/10852/13441/HOVEDDOUMENT3.pdf> [accessed on 2015-06-20]
- Boone, Peter 1996. Politics and the effectiveness of foreign aid. *European Economic Review* 40(2), 289–329.
- Boone, Peter 1995. *Politics and the Effectiveness of Foreign Aid*. Cambridge.
- Bueno de Mesquita, Bruce, et al. 2003. *The Logic of Political Survival*. Cambridge, Mass.: MIT Press.
- Bueno de Mesquita, Bruce, et al. 2002. Political Institutions, Policy Choice and the Survival of Leaders. *British Journal of Political Science* 32(04), 559–590.
- Bueno de Mesquita, Bruce & Smith, Alastair 2009. A Political Economy of Aid. *International Organization* 63(02), 309–340.
- Bueno de Mesquita, Bruce & Smith, Alastair 2007. Foreign Aid and Policy Concessions. *Journal of Conflict Resolution* 51(2), 251–284.
- Burnside, Craig & Dollar, David 2000. Aid, Policies, and Growth. *The American Economic Review* 90(4), 847–868.
- Buttolph Johnson, Janet & Reynolds, Henry T. 2008. *Political science research methods*. Washington, D.C.: Congressional Quarterly.
- Chenery, Hollis B. & Srinivasan, T. N. (Ed.) 1988. *Handbook of Development Economics*. New York: Elsevier.

- Chirino, José B. & Melian, Juan M. 2006. Analysis of the effectiveness of official Development Assistance. *International Research Journal of Finance and Economics* 3, 1450–2887.
- Chong, Alberto & Calderón, César 2000. Institutional Quality and Income Distribution. *Economic Development and Cultural Change* 48(4), 761–786.
- Clemens, Michael A., et al. 2011. Counting Chickens when they Hatch: Timing and the Effects of Aid on Growth. *The Economic Journal* 122(561), 590–617.
- Collier, Paul & Dehn, Jan 2001. *Aid, Shocks, and Growth*. Washington, D.C. URL: <https://openknowledge.worldbank.org/bitstream/handle/10986/19508/multi0page.pdf?sequence=1> [accessed on 2015-05-15].
- Dahl, Robert A. 1971. *Polyarchy: Participation and Opposition*. New Haven: Yale University Press.
- Dalgaard, Carl-Johan, Hansen, Henrik & Tarp, Finn 2004. On the Empirics of Foreign Aid and Growth. *The Economic Journal* 114(496), 191–216.
- Dawson, Robert 2011. How significant is a boxplot outlier. *Journal of Statistics Education* 19(2), 1–12.
- Deutsch, Joseph & Silber, Jacques 2005. Measuring multidimensional poverty: An empirical comparison of various approaches. *Review of Income and Wealth* 51(1), 145–174.
- Diamond, Larry 1996. Is the Third Wave Over? *Journal of Democracy* 7(3), 20–37.
- Dollar, David & Kraay, Aart 2002. Growth is Good for the Poor. *Journal of Economic Growth* 7(3), 195–225.
- Doucouliafos, Hristos & Paldam, Martin 2010. Conditional aid effectiveness: A meta-study. *Journal of International Development* 22(4), 391–410.
- Doucouliafos, Hristos & Paldam, Martin 2009. The Aid Effectiveness Literature: The Sad results of 40 Years of Research. *Journal of Economic Surveys* 23(3), 433–461.
- Dutta, Nabamita, Leeson, Peter T. & Williamson, Claudia R. 2013. The Amplification Effect: Foreign Aid's Impact on Political Institutions. *Kyklos* 66(2), 208–228.
- Easterly, William 2006. *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good*. New York: Penguin Press.

- Easterly, William 2003. Can Foreign Aid Buy Growth? *The Journal of Economic Perspectives* 17(3), 23–48.
- Easterly, William, Levine, Ross & Roodman, David 2004. Aid, Policies, and Growth: Comment. *The American Economic Review* 94(3), 774–780.
- Encyclopædia Britannica 2016. *Terms of trade*. URL: <http://www.britannica.com/topic/terms-of-trade> [accessed on 2016-03-22].
- Feeny, Simon & McGillivray, Mark 2010. Aid and Growth in Small Island Developing States. *Journal of Development Studies* 46(5), 897–917.
- Feyzioglu, Tarhan, Swaroop, Vinaya & Zhu, Min 1998. A Panel Data Analysis of the Fungibility of Foreign Aid. *World Bank Econ Review* 12(1), 29–58.
- Field, Andy P. 2009. *Discovering statistics using SPSS: (and sex and drugs and rock 'n' roll)*. 3rd ed. Los Angeles, London: SAGE Publications.
- Frankel, Jeffrey A. & Romer, David H. 1999. Does Trade Cause Growth? *American Economic Review* 89(3), 379–399.
- Freedom House 2015. *Methodology: Freedom in the World 2014 Methodology*. URL: <https://freedomhouse.org/report/freedom-world-2014/methodology#.VX4Xkfntmko> [accessed on 2015-06-15].
- Gomanee, Karuna, Girma, Sourafel & Morrissey, Oliver 2005. Aid, public spending and human welfare: evidence from quantile regressions. *Journal of International Development* 17(3), 299–309.
- Gschwend, Thomas & Schimmelfennig, Frank 2007. *Research design in political science: How to practice what they preach*. New York: Palgrave Macmillan.
- Guillaumont, Patrick & Chauvet, Lisa 2001. Aid and Performance: A Reassessment. *Journal of Development Studies* 37(6), 66–92.
- Hoaglin, David C. & Iglewicz, Boris 1987. Fine-Tuning Some Resistant Rules for Outlier Labeling. *Journal of the American Statistical Association* 82(400), 1147–1149.
- Hossain, Basharat 2014. The Effect of Foreign Aid on the Economic Growth of Bangladesh. *Journal of Economics* 2(2), 93–105.

- Juselius, Katarina, Møller, Niels F. & Tarp, Finn 2014. The Long-Run Impact of Foreign Aid in 36 African Countries: Insights from Multivariate Time Series Analysis. *Oxford Bulletin of Economics and Statistics* 76(2), 153–184.
- Kaufman, Robert R. & Segura-Ubiergo, Alex 2001. Globalization, Domestic Politics, and Social Spending in Latin America: A Time-Series Cross-Section Analysis, 1973–97. *World Politics* 53(4), 553–587.
- Kellstedt, Paul & Whitten, Guy 2013. *The Fundamentals of Political Science Research*: Cambridge University Press.
- Kirkpatrick, L. & Kidd, Q. 2012. *A Simple Guide to SPSS for Political Science*: Cengage Learning.
- Knack, Stephen & Keefer, Philip 1995. Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics & Politics* 7(3), 207–227.
- Knutsen, Carl H. 2012. Democracy and economic growth: A survey of arguments and results. *International Area Studies Review* 15(4), 393–415.
- Kosack, Stephen 2003. Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life. *World Development* 31(1), 1–22.
- Kovacevic, Milorad & Calderon, M. C. 2014. UNDP's Multidimensional Poverty Index: 2014 Specifications. *UNDP Human Development Report Office Occasional Paper*.
- Lake, David A. & Baum, Matthew A. 2001. The Invisible Hand of Democracy: Political Control and the Provision of Public Services. *Comparative Political Studies* 34(6), 587–621.
- Lohani, Satish 2004. Effect of Foreign Aid on Development: Does More Money Bring More Development? *The Park Place Economist* XII.
- McGillivray, Mark 2003. Modelling Foreign Aid Allocation: Issues, Approaches and Results. *Journal of Economic Development* 28(1), 171–188.
- Mekasha, Tseday J. & Tarp, Finn 2013. Aid and Growth: What Meta-Analysis Reveals. *The Journal of Development Studies* 49(4), 564–583.
- Minoiu, Camelia & Reddy, Sanjay G. 2010. Development aid and economic growth: A positive long-run relation: Special Section: Foreign Aid. *The Quarterly Review of Economics and Finance* 50(1), 27–39.

- Minoiu, Camelia & Reddy, Sanjay 2007. Aid Does Matter, After All: Revisiting the Relationship Between Aid and Growth. *Challenge* 50(2), 39–58.
- Moyo, Dambisa 2009. *Dead Aid: Why Aid Is Not Working and How There Is a Better Way for Africa*. New York: Farrar, Straus and Giroux.
- Mukherjee, Chandan, White, Howard & Wuyts, Marc 1998. *Econometrics and data analysis for developing countries*. New York: Routledge.
- Munck, Gerardo L. & Verkuilen, Jay 2002. Conceptualizing and Measuring Democracy Evaluating Alternative Indices. *Comparative Political Studies* 35(1), 5–34.
- Noorbakhsh, Farhad 1998. The human development index: some technical issues and alternative indices. *Journal of International Development* 10(5), 589–605.
- Nooruddin, Irfan & Simmons, Joel W. 2006. The Politics of Hard Choices: IMF Programs and Government Spending. *International Organization* 60(04), 1001–1033.
- North, Douglass C. 1990. *Institutions, institutional change and economic performance*. Cambridge university press.
- OECD 2016. *OECD Statistics*. URL: <http://stats.oecd.org/> Theme development; Total flows by donor [accessed on 2016-03-15].
- OECD 2015. *History of DAC Lists of aid recipient countries*. URL: <http://www.oecd.org/dac/stats/historyofdaclistsofaidrecipientcountries.htm> [accessed on 2015-06-12].
- OECD 2008. *Is it ODA?* URL: <http://www.oecd.org/dac/stats/documentupload/IsitODA.pdf> [accessed on 2015-06-15].
- OECD 2003. *OECD Glossary of Statistical Terms - Official development assistance (ODA) Definition*. URL: <http://stats.oecd.org/glossary/detail.asp?ID=6043> [accessed on 2015-06-10].
- OECD 1999. *DAC Scoping Study of Donor Poverty Reduction Policies and Practices*. London: Overseas Development Institute.
- Park, Hun M. 2009. Linear regression models for panel data using SAS, Stata, LIMDEP, and SPSS. *The University Information Technology Services (UITS) Center for Statistical and Mathematical Computing, Indiana University*.

- Polity IV Project 2014. *Political Regime Characteristics and Transitions, 1800-2013*. URL: <http://www.systemicpeace.org/polity/polity4.htm> [accessed on 2015-06-15].
- Przeworski, Adam, et al. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. Cambridge: Cambridge University Press.
- Przeworski, Adam & Limongi, Fernando 1993. Political Regimes and Economic Growth. *The Journal of Economic Perspectives* 7(3), 51–69.
- Radelet, Steven 2006. *A Primer on Foreign Aid*. URL: http://www.cgdev.org/files/8846_file_WP92.pdf [accessed on 2015-05-15].
- Radelet, Steven 2003. *Challenging foreign aid: A policymaker's guide to the Millennium Challenge Account*. Washington, DC: Center for Global Development.
- Rajan, Raghuram G. & Subramanian, Arvind 2008. Aid and Growth: What Does the Cross-Country Evidence Really Show? *Review of Economics and Statistics* 90(4), 643–665.
- Ranis, Gustav, Stewart, Frances & Ramirez, Alejandro 2000. Economic Growth and Human Development. *World Development* 28(2), 197–219.
- Ravallion, Martin 2001. Growth, Inequality and Poverty: Looking Beyond Averages. *World Development* 29(11), 1803–1815.
- Roodman, D. 2007. The Anarchy of Numbers: Aid, Development, and Cross-Country Empirics. *The World Bank Economic Review* 21(2), 255–277.
- Sadni Jallab, Mustapha, Gbakou, Monnet Benoît Patrick & Sandretto, René 2008. *Foreign Direct Investment, Macroeconomic Instability And Economic Growth in MENA Countries*. (GATE Working Papers 0817). URL: <http://ideas.repec.org/p/gat/wpaper/0817.html>.
- Schumpeter, Joseph A. 1947. *Capitalism, Socialism and Democracy*. New York: Harper.
- Sen, Amartya 1999. *Development as Freedom*. Oxford University Press.
- Sen, Amartya 1988. The concept of development, in Chenery, Hollis B. & Srinivasan, T. N. (Ed.): *Handbook of Development Economics*. New York: Elsevier. (1), 9–26.
- Smith, Alastair 2008. The Perils of Unearned Income. *The Journal of Politics* 70(3), 780–793.
- Solow, Robert M. 1956. A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics* 70(1), 65–94.

- Svensson, J. 1999. Aid, Growth and Democracy. *Economics & Politics* 11(3), 275–297.
- Swan, Trevor 1956. Economic Growth and Capital Accumulation. *Economic Record* 32(2), 334–361.
- Templeton, Gary 2011. A Two-Step Approach for Transforming Continuous Variables to Normal: Implications and Recommendations for IS Research. *Communications of the Association for Information Systems* 28(1).
- Townsend, Peter 1979. *Poverty in the United Kingdom: A Survey of Household Resources and Standards of Living*. University of California Press.
- UNDP 2015. *Human Development Report 2015: Work for Human Development*. New York: United Nations Development Programme. URL: http://hdr.undp.org/sites/default/files/2015_human_development_report_1.pdf [accessed on 2016-01-08].
- UNDP 1990. *Human Development Report 1990*. New York: United Nations Development Programme. URL: http://hdr.undp.org/sites/default/files/reports/219/hdr_1990_en_complete_nostats.pdf [accessed on 2016-03-22].
- UNDP 1993. *Human Development Report 1993*. New York: Oxford Univ. Press.
- UNESCWA 2016. *Macroeconomic policy*. URL: <https://www.unescwa.org/macroeconomic-policy> [accessed on 2016-03-22].
- United Nations 1995. *Agreements of the World Summit for Social Development, Copenhagen 1995*. URL: <http://www.un.org/esa/socdev/wssd/text-version/agreements/poach2.htm> [accessed on 2015-06-11].
- VanderStoep, Scott W. & Johnston, Deirdre D. 2009. *Research methods for everyday life: Blending qualitative and quantitative approaches*. 1st ed. San Francisco, CA: Jossey-Bass. (Research methods for the social sciences).
- Walford, Geoffrey, Tucker, Eric & Viswanathan, Madhu (Ed.) 2010. *The SAGE handbook of measurement*. Los Angeles: SAGE.
- Walker, Robert, Tomlinson, Mark & Williams, Glenn 2010. 18 The Problem with Poverty: Definition, Measurement and Interpretation, in Walford, Geoffrey, Tucker, Eric & Viswanathan, Madhu (Ed.): *The SAGE handbook of measurement*. Los Angeles: SAGE, 353–377.

- Woldekidan, Hana 2015. The role of foreign aid in reducing poverty: Time series evidence from Ethiopia. *Journal of Economics and International Finance* 7(3), 59–71.
- Wolff, Hendrik, Chong, Howard & Auffhammer, Maximilian 2011. Classification, Detection and Consequences of Data Error: Evidence from the Human Development Index. *The Economic Journal* 121(553), 843–870.
- World Bank 2015a. *Country and Lending Groups* | Data. URL: <http://data.worldbank.org/about/country-and-lending-groups> [accessed on 2015-06-12].
- World Bank 2015b. *Poverty & Equity*. URL: <http://povertydata.worldbank.org/poverty/home/> [accessed on 2015-04-28].
- World Bank 2015c. *World Development Indicators* | Data. URL: <http://data.worldbank.org/data-catalog/world-development-indicators> [accessed on 2015-06-12].
- Yanikkaya, Halit 2003. Trade openness and economic growth: a cross-country empirical investigation. *Journal of Development Economics* 72(1), 57–89.

APPENDICES

APPENDIX A: LIST OF DEVELOPING COUNTRIES

Source: World Bank (2015a)

Countries included in either of the samples are bold. Countries with an ^a are included in sample 1 and countries with a ^b are included in sample 2.

East Asia & Pacific (24 countries)		
American Samoa	Malaysia^b	Samoa
Cambodia^a	Marshall Islands	Solomon Islands
China	Micronesia	Thailand^b
Fiji	Mongolia	Timor-Leste
Indonesia^{a, b}	Myanmar	Tuvalu
Kiribati	Palau	Tonga
Korea, DR	Papua New Guinea	Vanuatu
Lao	Philippines^b	Vietnam
Europe & Central Asia (21 countries)		
Albania	Hungary	Romania
Armenia^a	Kazakhstan	Serbia
Azerbaijan	Kosovo	Tajikistan
Belarus	Kyrgyz Republic	Turkey
Bosnia and Herzegovina	Macedonia	Turkmenistan
Bulgaria	Moldova	Ukraine
Georgia	Montenegro	Uzbekistan
Latin America & the Caribbean (26 countries)		
Argentina^b	Ecuador^b	Nicaragua^b
Belize	El Salvador^b	Panama
Bolivia^{a, b}	Grenada	Paraguay^b
Brazil^b	Guatemala^b	Peru^{a, b}
Colombia^{a, b}	Guyana^{a, b}	St. Lucia
Costa Rica^b	Haiti^a	St. Vincent & Grenadines
Cuba	Honduras^b	Suriname
Dominica	Jamaica^b	Venezuela^b
Dominican Republic^{a, b}	Mexico^b	

Middle East & North Africa (13 countries)		
Algeria^b	Jordan^a	Tunisia^b
Djibouti	Lebanon	West Bank and Gaza
Egypt^{a,b}	Libya	Yemen
Iran	Morocco^b	
Iraq	Syria	

South Asia (8 countries)		
Afghanistan	India^{a,b}	Pakistan^{a,b}
Bangladesh^a	Maldives	Sri Lanka^b
Bhutan	Nepal^a	

Sub-Saharan Africa (47 countries)		
Angola	Gambia^b	Rwanda^a
Benin^a	Ghana^{a,b}	São Tomé and Príncipe
Botswana^b	Guinea	Senegal^{a,b}
Burkina Faso	Guinea-Bissau	Seychelles
Burundi	Kenya^{a,b}	Sierra Leone
Cameroon^{a,b}	Lesotho^a	Somalia
Cabo Verde	Liberia	South Africa
Central African Republic	Madagascar^{a,b}	South Sudan
Chad	Malawi^{a,b}	Sudan
Comoros	Mali	Swaziland
Congo, DR^b	Mauritania	Tanzania^a
Congo, Rep	Mauritius	Togo^b
Côte d'Ivoire^b	Mozambique^a	Uganda^a
Eritrea	Namibia^a	Zambia^{a,b}
Ethiopia	Niger^{a,b}	Zimbabwe^{a,b}
Gabon^a	Nigeria^{a,b}	

Total number of developing countries: 139

Sample 1: 33 countries

Sample 2: 43 countries

APPENDIX B: FULL DATASET

B.1 – FOREIGN AID, DEMOCRACY & POVERTY REDUCTION⁷

Country	Measurement period	Annualised MPI Change	Foreign Aid	Polity IV	Freedom House	Initial MPI score	Openness
Armenia	DV: 2005 – 2010 IVs: 2001 – 2005	.000	8.440	15.000	3.800	.003	75.365
Bangladesh	DV: 2007 – 2011 IVs: 2002 – 2006	.015	1.950	16.000	4.000	.306	31.198
Benin	DV: 2001 – 2006 IVs: 1997 – 2001	.012	9.150	16.000	5.800	.474	59.249
Bolivia	DV: 2003 – 2008 IVs: 1999 – 2003	.017	8.440	18.800	5.700	.175	47.262
Cambodia	DV: 2005 – 2010 IVs: 2001 – 2005	.017	10.130	12.000	2.500	.299	125.596
Cameroon	DV: 2004 – 2011 IVs: 2002 – 2006	.007	5.830	6.000	2.000	.298	41.183
Colombia	DV: 2005 – 2010 IVs: 2001 – 2005	.003	.510	17.000	4.200	.039	34.980
Dominican Republic	DV: 2002 – 2007 IVs: 1998 – 2002	.004	.530	18.000	5.800	.040	77.944
Egypt	DV: 2005 – 2008 IVs: 1999 – 2003	.003	1.450	4.000	2.200	.034	40.871
Gabon	DV: 2000 – 2012 IVs: 2003 – 2007	.007	.340	6.000	3.200	.161	84.345
Ghana	DV: 2003 – 2008 IVs: 1999 – 2003	.021	11.190	14.400	5.500	.309	100.515
Guyana	DV: 2005 – 2009 IVs: 2000 – 2004	.002	14.740	16.000	6.000	.050	200.494
Haiti	DV: 2005 – 2012 IVs: 2003 – 2007	.013	9.930	12.200	2.400	.335	58.342
India	DV: 1998 – 2006 IVs: 1997 – 2001	.007	.340	19.000	5.400	.304	24.378
Indonesia	DV: 2007 – 2012 IVs: 2003 – 2007	.006	.450	17.600	5.100	.095	57.770
Jordan	DV: 2007 – 2009 IVs: 2000 – 2004	.001	7.140	8.000	3.200	.013	116.959
Kenya	DV: 2003 – 2009 IVs: 2000 – 2004	.009	3.650	14.000	3.800	.296	55.608
Lesotho	DV: 2004 – 2009 IVs: 2000 – 2004	.010	8.070	16.800	4.900	.238	191.090
Madagascar	DV: 2004 – 2009 IVs: 2000 – 2004	-.009	12.770	17.000	4.900	.374	60.783
Malawi	DV: 2004 – 2010 IVs: 2001 – 2005	.008	19.900	15.000	4.200	.381	66.751

⁷ DV = Dependent variable (Annualised MPI change); IV's = Independent variables

Country	Measurement period	Annualised MPI Change	Foreign Aid	Polity IV	Freedom House	Initial MPI score	Openness
Mozambique	DV: 2003 – 2011 IVs: 2002 – 2006	.014	23.510	15.000	4.500	.505	76.340
Namibia	DV: 2000 – 2007 IVs: 1998 – 2002	.006	4.140	16.000	5.500	.194	90.777
Nepal	DV: 2006 – 2011 IVs: 2002 – 2006	.027	5.980	6.400	3.300	.350	45.090
Niger	DV: 2006 – 2012 IVs: 2003 – 2007	.012	15.690	15.800	4.700	.696	45.185
Nigeria	DV: 2003 – 2008 IVs: 1999 – 2003	.011	.430	14.000	3.900	.368	69.528
Pakistan	DV: 2007 – 2013 IVs: 2004 – 2008	.005	1.390	8.400	2.700	.264	33.964
Peru	DV: 2008 – 2012 IVs: 2003 – 2007	.006	.600	19.000	5.500	.066	45.855
Rwanda	DV: 2005 – 2010 IVs: 2001 – 2005	.026	20.770	6.600	2.200	.461	33.611
Senegal	DV: 2005 – 2011 IVs: 2002 – 2006	.003	9.110	18.000	5.500	.440	67.589
Tanzania	DV: 2008 – 2010 IVs: 2001 – 2005	.018	12.300	9.000	4.400	.371	40.377
Uganda	DV: 2006 – 2011 IVs: 2002 – 2006	.015	14.400	7.200	3.400	.420	38.190
Zambia	DV: 2001 – 2007 IVs: 1998 – 2002	.012	16.700	12.600	3.600	.397	61.198
Zimbabwe	DV: 2006 – 2011 IVs: 2002 – 2006	.008	4.240	6.000	1.700	.180	74.433

Country	Change in Terms of trade	Institutional quality	Foreign Aid_N	Polity IV_N	Openness_N	Change in Terms of trade_N
Armenia	2.164	-.305	3.596	13.646	1.877	2.833
Bangladesh	-27.559	-1.022	1.493	15.315	1.494	1.307
Benin	-9.061	-.327	3.774	15.315	1.773	2.491
Bolivia	.578	-.284	3.596	20.325	1.675	2.790
Cambodia	-14.458	-.852	4.012	11.111	2.099	2.277
Cameroon	30.733	-.957	2.880	6.903	1.615	3.428
Colombia	16.739	-.298	.668	17.082	1.544	3.169
Dominican Republic	.506	-.449	.683	18.921	1.892	2.788
Egypt	.404	-.254	1.250	4.385	1.611	2.785
Gabon	79.929	-.613	.523	6.903	1.926	4.096
Ghana	23.301	-.137	4.259	12.938	2.002	3.296
Guyana	-7.274	-.377	5.025	15.315	2.302	2.552
Haiti	-12.301	-1.408	3.964	11.492	1.766	2.368

Country	Change in Terms of trade	Institutional quality	Foreign Aid_N	Polity IV_N	Openness_N	Change in Terms of trade_N
India	-15.759	-.121	.523	23.193	1.387	2.219
Indonesia	13.934	-.626	.619	17.907	1.762	3.111
Jordan	-12.641	.189	3.253	9.865	2.068	2.354
Kenya	-10.285	-.658	2.175	12.406	1.745	2.446
Lesotho	-11.942	-.224	3.500	16.365	2.281	2.382
Madagascar	-19.292	-.295	4.610	17.082	1.784	2.037
Malawi	-18.291	-.524	6.016	13.646	1.824	2.092
Mozambique	27.473	-.543	6.649	13.646	1.883	3.372
Namibia	5.738	.270	2.345	15.315	1.958	2.924
Nepal	-16.661	-.604	2.924	8.323	1.654	2.175
Niger	91.140	-.709	5.216	14.367	1.655	4.217
Nigeria	42.268	-1.120	.603	12.406	1.842	3.611
Pakistan	-26.930	-.710	1.218	10.302	1.531	1.400
Peru	55.349	-.314	.736	23.193	1.661	3.796
Rwanda	60.415	-.785	6.173	8.888	1.526	3.863
Senegal	-.085	-.146	3.765	18.921	1.830	2.772
Tanzania	.814	-.489	4.508	10.716	1.606	2.797
Uganda	2.319	-.468	4.955	9.397	1.582	2.837
Zambia	-21.989	-.626	5.415	11.863	1.787	1.867
Zimbabwe	.895	-1.523	2.379	6.903	1.872	2.799

Country	Foreign Aid_N x Polity IV_N	Foreign Aid_NS	Polity IV_NS	Freedom House_S	Initial MPI score_S
Armenia	49.071	.465	.181	-.306	-.268
Bangladesh	22.863	-1.638	1.850	-.106	.035
Benin	57.805	.644	1.850	1.694	.203
Bolivia	73.088	.465	6.860	1.594	-.096
Cambodia	44.578	.882	-2.354	-1.606	.028
Cameroon	19.881	-.250	-6.562	-2.106	.027
Colombia	11.404	-2.463	3.616	.094	-.232
Dominican Republic	12.927	-2.447	5.455	1.694	-.231
Egypt	5.480	-1.881	-9.080	-1.906	-.237
Gabon	3.613	-2.607	-6.562	-.906	-.110
Ghana	55.103	1.128	-.527	1.394	.038
Guyana	76.951	1.894	1.850	1.894	-.221

Country	Foreign Aid_N x Polity IV_N	Foreign Aid_NS	Polity IV_NS	Freedom House_S	Initial MPI score_S
Haiti	45.560	.834	-1.973	-1.706	.064
India	12.141	-2.607	9.728	1.294	.033
Indonesia	11.091	-2.511	4.442	.994	-.176
Jordan	32.086	.122	-3.600	-.906	-.258
Kenya	26.977	-.956	-1.060	-.306	.026
Lesotho	57.286	.370	2.900	.794	-.033
Madagascar	78.748	1.480	3.616	.794	.103
Malawi	82.098	2.886	.181	.094	.110
Mozambique	90.734	3.518	.181	.394	.234
Namibia	35.918	-.785	1.850	1.394	-.076
Nepal	24.339	-.206	-5.142	-.806	.079
Niger	74.945	2.086	.902	.594	.425
Nigeria	7.477	-2.528	-1.060	-.206	.097
Pakistan	12.553	-1.912	-3.163	-1.406	-.007
Peru	17.071	-2.394	9.728	1.394	-.204
Rwanda	54.864	3.042	-4.577	-1.906	.190
Senegal	71.227	.634	5.455	1.394	.170
Tanzania	48.302	1.377	-2.750	.294	.101
Uganda	46.561	1.824	-4.068	-.706	.149
Zambia	64.244	2.285	-1.602	-.506	.126
Zimbabwe	16.423	-.751	-6.562	-2.406	-.091

Country	Institutional quality_S	Foreign Aid_NS x Polity IV_NS	Foreign Aid_NS x Freedom House_S
Armenia	.220	.084	-.142
Bangladesh	-.497	-3.029	.174
Benin	.198	1.191	1.091
Bolivia	.241	3.193	.742
Cambodia	-.327	-2.075	-1.416
Cameroon	-.432	1.643	.527
Colombia	.227	-8.906	-.231
Dominican Republic	.076	-13.350	-4.145
Egypt	.271	17.078	3.585
Gabon	-.088	17.108	2.362

Country	Institutional quality_S	Foreign Aid_NS x Polity IV_NS	Foreign Aid_NS x Freedom House_S
Ghana	.388	-.595	1.573
Guyana	.148	3.503	3.587
Haiti	-.883	-1.645	-1.423
India	.404	-25.361	-3.373
Indonesia	-.101	-11.154	-2.496
Jordan	.714	-.439	-.111
Kenya	-.133	1.013	.293
Lesotho	.301	1.073	.294
Madagascar	.230	5.351	1.175
Malawi	.001	.522	.271
Mozambique	-.018	.637	1.386
Namibia	.795	-1.452	-1.094
Nepal	-.079	1.060	.166
Niger	-.184	1.881	1.239
Nigeria	-.595	2.679	.521
Pakistan	-.185	6.048	2.688
Peru	.211	-23.293	-3.338
Rwanda	-.260	-13.923	-5.798
Senegal	.379	3.459	.884
Tanzania	.036	-3.787	.405
Uganda	.057	-7.421	-1.288
Zambia	-.101	-3.661	-1.156
Zimbabwe	-.998	4.931	1.808

B.2 – FOLLOW-UP TO KOSACK (2003)**Measurement periods:**

Dependent variable (HDI growth): 2010 – 2014

Independent variables: 2005 – 2009

Country	HDI growth	Foreign Aid	Polity IV	Freedom House	Initial quality of life	Openness
Algeria	.010	.251	12.000	2.500	.725	72.391
Argentina	.025	.037	18.000	6.000	.811	35.001
Bolivia	.021	5.146	17.800	5.000	.641	73.947
Botswana	.017	2.289	18.000	5.900	.681	90.669
Brazil	.018	.022	18.000	6.000	.737	25.569
Cameroon	.026	5.325	6.000	2.000	.486	44.765
Colombia	.014	.448	17.000	4.800	.706	36.494
Congo (DR)	.025	12.298	14.800	2.200	.408	65.177
Costa Rica	.016	.216	20.000	7.000	.750	98.742
Côte d'Ivoire	.018	3.048	10.000	2.100	.444	91.297
Dominican Republic	.014	.247	18.000	6.000	.701	61.494
Ecuador	.015	.415	15.600	5.000	.717	59.712
Egypt	.009	.892	7.000	2.500	.681	63.557
El Salvador	.013	.987	17.200	5.500	.653	70.856
Gambia	.000	11.435	5.000	3.400	.441	61.946
Ghana	.026	6.438	18.000	6.500	.554	74.112
Guatemala	.016	1.248	18.000	4.300	.611	64.399
Guyana	.012	10.936	16.000	5.400	.624	144.916
Honduras	-.004	4.724	17.000	4.800	.610	127.469
India	.023	.168	19.000	5.500	.586	45.845
Indonesia	.019	.378	18.000	5.500	.665	55.910
Jamaica	-.009	.550	19.000	5.500	.727	98.590
Kenya	.020	4.094	17.400	4.600	.529	56.410
Madagascar	.006	11.721	15.600	4.300	.504	77.820
Malawi	.026	20.265	16.000	4.200	.420	71.051
Malaysia	.010	.081	14.200	4.000	.769	187.625
Mexico	.011	.019	18.000	5.600	.746	56.464
Morocco	.017	1.430	4.000	3.500	.611	75.237
Nicaragua	.013	10.438	18.600	4.700	.619	79.329

Country	HDI growth	Foreign Aid	Polity IV	Freedom House	Initial quality of life	Openness
Niger	.023	12.595	14.200	4.500	.326	52.253
Nigeria	.021	3.268	14.000	3.800	.493	61.319
Pakistan	.017	1.422	10.400	2.900	.522	34.318
Paraguay	.011	.708	18.000	5.000	.668	50.891
Peru	.017	.435	19.000	5.500	.718	84.262
Philippines	.014	.326	18.000	4.700	.654	103.067
Senegal	.010	8.176	17.400	5.300	.456	71.100
Sri Lanka	.018	2.581	15.600	4.200	.738	65.198
Thailand	.010	-.109	12.200	3.500	.716	132.226
Togo	.024	7.715	6.000	2.900	.459	92.389
Tunisia	.007	1.039	6.000	2.200	.714	99.606
Venezuela	.005	.028	13.600	3.900	.757	53.068
Zambia	.031	9.448	15.800	4.500	.555	60.281
Zimbabwe	.048	8.703	7.000	1.600	.461	84.208

Country	Change in Terms of trade	Institutional quality	Foreign Aid_N	Polity IV_N	Initial quality of life_N	Openness_N
Algeria	-3.961	-.615	.419	11.328	.448	1.860
Argentina	20.172	-.477	-1.850	18.137	.592	1.544
Bolivia	27.542	-.725	6.508	16.412	.329	1.869
Botswana	-7.522	.669	4.698	18.137	.383	1.957
Brazil	8.595	-.154	-3.246	18.137	.467	1.408
Cameroon	9.721	-.950	6.839	8.628	.164	1.651
Colombia	7.814	-.161	2.089	15.179	.419	1.562
Congo (DR)	-.225	-1.506	12.139	13.166	.106	1.814
Costa Rica	-3.933	.388	-.374	28.693	.487	1.995
Côte d'Ivoire	18.826	-1.164	5.279	10.590	.132	1.960
Dominican Republic	5.460	-.541	.035	18.137	.411	1.789
Ecuador	7.350	-.963	1.458	13.715	.435	1.776
Egypt	15.400	-.343	2.982	9.957	.383	1.803
El Salvador	-1.881	-.240	3.271	15.581	.344	1.850
Gambia	4.361	-.522	10.417	6.986	.129	1.792
Ghana	50.238	-.043	7.183	18.137	.228	1.870
Guatemala	1.618	-.645	3.843	18.137	.292	1.809
Guyana	28.053	-.493	9.794	14.649	.307	2.161

Country	Change in Terms of trade	Institutional quality	Foreign Aid_N	Polity IV_N	Initial quality of life_N	Openness_N
Honduras	-5.233	-.672	6.189	15.179	.290	2.105
India	26.465	-.144	-.817	22.241	.262	1.661
Indonesia	12.632	-.527	1.126	18.137	.360	1.747
Jamaica	-6.600	-.104	2.393	22.241	.451	1.994
Kenya	6.643	-.679	5.878	15.991	.203	1.751
Madagascar	-.777	-.348	11.167	13.715	.181	1.891
Malawi	15.002	-.452	19.068	14.649	.114	1.852
Malaysia	-2.999	.568	-1.304	12.740	.519	2.273
Mexico	-9.545	-.085	-4.245	18.137	.480	1.752
Morocco	36.398	-.236	4.412	5.536	.292	1.876
Nicaragua	1.040	-.690	9.254	20.638	.301	1.899
Niger	26.309	-.657	13.619	12.740	.061	1.718
Nigeria	-1.587	-.991	5.576	12.296	.171	1.788
Pakistan	-10.356	-.710	4.127	10.971	.197	1.536
Paraguay	9.725	-.905	2.690	18.137	.365	1.707
Peru	-18.056	-.312	1.778	22.241	.436	1.926
Philippines	7.564	-.330	.781	18.137	.346	2.013
Senegal	.879	-.322	7.925	15.991	.140	1.852
Sri Lanka	-4.207	-.154	4.987	13.715	.468	1.814
Thailand	.199	.059	-5.802	11.666	.434	2.121
Togo	7.323	-1.061	7.543	8.628	.143	1.966
Tunisia	3.267	.128	3.558	8.628	.431	1.998
Venezuela	27.246	-1.213	-2.482	11.987	.498	1.725
Zambia	30.210	-.624	8.772	14.251	.229	1.780
Zimbabwe	13.958	-1.644	8.332	9.957	.144	1.925

Country	Cook's distance	Foreign Aid_N x Polity IV_N	Foreign Aid_NS	Polity IV_NS	Freedom House_S	Change in Terms of trade_S
Algeria	.000	4.742	-3.907	-3.608	-1.891	-12.173
Argentina	.038	-33.556	-6.176	3.201	1.609	11.959
Bolivia	.000	106.807	2.182	1.476	.609	19.330
Botswana	.194	85.206	.372	3.201	1.509	-15.735
Brazil	.002	-58.864	-7.571	3.201	1.609	.382
Cameroon	.018	59.001	2.513	-6.308	-2.391	1.509
Colombia	.000	31.714	-2.236	.243	.409	-.398

Country	Cook's distance	Foreign Aid_N x Polity IV_N	Foreign Aid_NS	Polity IV_NS	Freedom House_S	Change in Terms of trade_S
Congo (DR)	.003	159.825	7.813	-1.770	-2.191	-8.437
Costa Rica	.039	-10.738	-4.700	13.757	2.609	-12.145
Côte d'Ivoire	.001	55.901	.953	-4.346	-2.291	10.613
Dominican Republic	.000	.640	-4.290	3.201	1.609	-2.752
Ecuador	.000	19.998	-2.868	-1.221	.609	-.862
Egypt	.022	29.696	-1.343	-4.979	-1.891	7.187
El Salvador	.001	50.972	-1.054	.645	1.109	-10.093
Gambia	.118	72.769	6.091	-7.951	-.991	-3.852
Ghana	.000	130.272	2.857	3.201	2.109	42.025
Guatemala	.004	143.473	5.469	-.287	1.009	19.840
Guyana	.062	93.938	1.863	.243	.409	-13.446
Honduras	.037	-18.176	-5.143	7.305	1.109	18.253
India	.000	20.431	-3.199	3.201	1.109	4.420
Indonesia	.089	53.215	-1.933	7.305	1.109	-14.812
Jamaica	.000	94.001	1.553	1.055	.209	-1.569
Kenya	.061	153.155	6.841	-1.221	-.091	-8.989
Madagascar	.030	279.321	14.742	-.287	-.191	6.790
Malawi	.060	-16.612	-5.630	-2.196	-.391	-11.212
Malaysia	.002	-76.996	-8.571	3.201	1.209	-17.757
Mexico	.000	24.423	.086	-9.400	-.891	28.185
Morocco	.003	190.981	4.928	5.702	.309	-7.172
Nicaragua	.003	173.500	9.293	-2.196	.109	18.097
Niger	.007	68.557	1.250	-2.640	-.591	-9.799
Nigeria	.000	45.278	-.199	-3.965	-1.491	-18.568
Pakistan	.008	48.788	-1.636	3.201	.609	1.512
Paraguay	.009	39.552	-2.547	7.305	1.109	-26.268
Peru	.000	14.165	-3.545	3.201	.309	-.649
Philippines	.008	126.725	3.599	1.055	.909	-7.334
Senegal	.021	68.393	.661	-1.221	-.191	-12.420
Sri Lanka	.000	-67.685	-10.128	-3.271	-.891	-8.013
Thailand	.006	65.083	3.218	-6.308	-1.491	-.889
Togo	.000	30.695	-.768	-6.308	-2.191	-4.946
Tunisia	.160	-29.748	-6.807	-2.949	-.491	19.033
Venezuela	.017	125.004	4.446	-.685	.109	21.998

Country	Cook's distance	Foreign Aid_N x Polity IV_N	Foreign Aid_NS	Polity IV_NS	Freedom House_S	Change in Terms of trade_S
Zambia	.345	82.958	4.006	-4.979	-2.791	5.746
Zimbabwe	.000	4.742	-3.907	-3.608	-1.891	-12.173

Country	Institutional quality_S	Openness_NS	Foreign Aid_NS x Polity IV_NS	Foreign Aid_NS x Freedom House_S
Algeria	.000	4.742	-3.907	-3.608
Argentina	.038	-33.556	-6.176	3.201
Bolivia	.000	106.807	2.182	1.476
Botswana	.194	85.206	.372	3.201
Brazil	.002	-58.864	-7.571	3.201
Cameroon	.018	59.001	2.513	-6.308
Colombia	.000	31.714	-2.236	.243
Congo (DR)	.003	159.825	7.813	-1.770
Costa Rica	.039	-10.738	-4.700	13.757
Côte d'Ivoire	.001	55.901	.953	-4.346
Dominican Republic	.000	.640	-4.290	3.201
Ecuador	.000	19.998	-2.868	-1.221
Egypt	.022	29.696	-1.343	-4.979
El Salvador	.001	50.972	-1.054	.645
Gambia	.118	72.769	6.091	-7.951
Ghana	.000	130.272	2.857	3.201
Guatemala	.004	143.473	5.469	-2.287
Guyana	.062	93.938	1.863	.243
Honduras	.037	-18.176	-5.143	7.305
India	.000	20.431	-3.199	3.201
Indonesia	.089	53.215	-1.933	7.305
Jamaica	.000	94.001	1.553	1.055
Kenya	.061	153.155	6.841	-1.221
Madagascar	.030	279.321	14.742	-2.287
Malawi	.060	-16.612	-5.630	-2.196
Malaysia	.002	-76.996	-8.571	3.201
Mexico	.000	24.423	.086	-9.400
Morocco	.003	190.981	4.928	5.702
Nicaragua	.003	173.500	9.293	-2.196
Niger	.007	68.557	1.250	-2.640

Country	Institutional quality_S	Openness_NS	Foreign Aid_NS x Polity IV_NS	Foreign Aid_NS x Freedom House_S
Nigeria	.000	45.278	-.199	-3.965
Pakistan	.008	48.788	-1.636	3.201
Paraguay	.009	39.552	-2.547	7.305
Peru	.000	14.165	-3.545	3.201
Philippines	.008	126.725	3.599	1.055
Senegal	.021	68.393	.661	-1.221
Sri Lanka	.000	-67.685	-10.128	-3.271
Thailand	.006	65.083	3.218	-6.308
Togo	.000	30.695	-.768	-6.308
Tunisia	.160	-29.748	-6.807	-2.949
Venezuela	.017	125.004	4.446	-.685
Zambia	.345	82.958	4.006	-4.979
Zimbabwe	.000	4.742	-3.907	-3.608
