# Economic Globalization, Institutions and Development

## Essays on Aid, Foreign Direct Investment and Trade



**Hassen Abda Wako**

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DISSERTATION

to obtain the degree of Doctor at Maastricht University,
on the authority of the Rector Magnificus Prof. Dr. Rianne M. Letschert,
in accordance with the decision of the Board of Deans,
to be defended in public on Wednesday 28 March 2018, at 10:00 hours

BY

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# ACKNOWLEDGEMENTS AND MY PHD JOURNEY

## A. ACKNOWLEDGEMENTS

> " *In normal life we hardly realize how much more we receive than we give, and life cannot be rich without such gratitude. It is so easy to overestimate the importance of our own achievements compared with what we owe to the help of others.* "

*Dietrich Bonhoeffer, 1953. Letters and Papers from Prison.*

I am grateful to my supervisor Professor Thèophile Azomahou and co-supervisor Professor Mbaye Diene for their research guidance. Dear Professor Azomahou, what I have learnt from you goes beyond the subject area of my research. Among others, you pulled me out when I was drowning in the literature without writing a page, I learnt how (not) to criticize and the need to be more assertive in my arguments. Above all, you have given me the perfect balance between freedom and pressure: you let me swim freely but also gave me the necessary pressure, both in the perfect doses I needed.

I would also like to thank members of my reading/assessment committee – Prof. Bart Verspagen, Prof. Pierre Mohnen, Prof. Abdoulaye Seck and Dr. Thomas Ziesemer – for their comments and questions have improved the content of this book as well as my outlook on research.

Next, I would like to thank Hibret B. Maemir for his well-rounded support. Dear Hibret, your help started as early as when the exciting news of winning the PhD fellowship was shortly followed by the worries of finding a place and planning my first travel to Europe. You guided me on the phone in the journey from Schiphol to Maastricht, picked me up at the station, gave me some cooking lessons ... (I have to skip a lot for the sake of space). Through these years (some short, some long), you have mentored me with both academic and practical matters. You guided me to some important works in the literature when I was so confused on which way to go.

I am also thankful to Ajay Thutupalli who helped me in finding my first room in Maastricht and guided me through the bureaucracy of housing agencies and family-related IND issues. How come I have not yet mentioned that very kind person in the institute – Iman Rajabzadeh! Iman, your friendship, encouragement over the years, and your artistic decorating and furnishing skills are among the unforgettable things. I would love to include a sentence or a phrase in my gratitude to everyone, but un-

Datawyse) for helping me with the modifications to the cover page image and for his other editorial tips.

I have no words to express my gratitude to my wife (and my life) Zemzem Hussa Sani and my children (Naif Hassen Abda, Milki Hassen Abda and Toltu Hassen Abda) whom this PhD journey has deprived of the time and care they deserve. Regardless of how much I learnt, this journey by itself is a good experience for me and my family, and a significant share of the decision to pursue a PhD is credited to Zemzem as she was the one who pushed me to apply for this fellowship (and others). Evidences abound that everyone of them has made sacrifices. Behind and through her words to comfort me, I can see/feel Zemzem's own longing to see the end to my studentship. It is of course natural that, at times, she can't help it but explode. Naif has once explicitly claimed that he is the one who 'suffered' the most. His explanation was that he had been the one who used to go out with me the most. (Back in Jimma, he had a favorite question: "Do you have something to do today?" which I have to answer every Saturday morning – his diplomatic way of saying "take me out of this house for half a day.") And, the time-series evidence supports his claim. Milki found it hard to understand why I go to school in August. With a lot of wonder, she once told me that "Maar, het is vakantie!" (But, it is vacation!). Her interrogation didn't end when I replied that I don't have a vacation; she continued: "If you don't have a vacation, don't your teachers have one?" ... and it goes on ... At the age of six months, Toltu already started to put both her arms high in the air demanding a pickup and walk around whenever I enter the house in the evenings. Hawi, an integral member of the family, was left behind partly because she was joining a university at the time the other members joined me in Maastricht. As a strong and reliable as she has always been, she is taking care of everything on behalf of the family – she is our family's ambassador over there. Hawi! Everyone misses you!

Finally, my words fall short of expressing the gratitude my parents deserve. I owe a lot of who I am to my parents, and especially to my (grand)mother *Ruufee Fayyisoo Garee* who has played an exceptional role in shaping me as a person; she taught me to care and love, to be honest and hardworking, to be calm and confident, and above all, to be myself. My (grand)father *Abdaa Waaqoo Billisoo* is my childhood encyclopedia and a man of wisdom (to the society at large). Unluckily, I read only a few pages of this encyclopedia. I wish I sat by his side and learn more from him. He is a strong man who never liked a loser; and regardless of how he approached it, he has always wanted me to win! My loving and caring mother *Seetuu Maammaa Haajii* has walked me through the ups and downs of life. To this day, I am never old enough; for her, I will always be a child! I think I take after her in how I approach life in particular – planning less, doing more, and satisficing. My father *Gazaalii Ismaa'il Darmoo* has always paid a special attention to my education. Not only he wanted his first son to be the best person in life and education alike, but he also exempted me from doing anything to support him (or myself) as long as I studied hard. Looking back, I realize that I might have abused this privilege ☺ at times. I might not totally agree with all

his (econometric☺) techniques, but all he did was for me and he did all his best to make me an achiever. I'm proud to have you all in my life, whatever I achieved is yours too, and I know you are proud of me as well☺!

B. MY PHD JOURNEY

I began this PhD journey with a research topic that is much broader than that contained in this dissertation. My witness is the title of my PhD proposal defended on 26$^{th}$ of June 2014 – *North-South Strategic Interactions and Economic Development: Emergence of the East and Heterogeneity in the South* – which was meant to encompass issues of international trade, regional economic integration, foreign aid and foreign direct investment. Some specific modifications have been made throughout this journey: regional economic integration has been dropped, migration and remittances have been taken up and then dropped, institutions have been picked up and kept, and so on.

From the start, and particulary within the field of international trade, I have been fascinated by theories of unequal exchange, dependency theories and world system theories. This is due to my infrequent encounter with these theories despite the fact that their central ideas look more palatable than that of mainstream (development) economics, which views development as something barely more than accumulation and rising (per capita) income, and a few related outcomes. That is, in a way, I am confessing my inclination towards 'unappealing and imperfect attempts to study/address complicated issues of the real world' as opposed to 'clear and attractive analysis of a highly abstract or nonexistent world'. However, upon reading some works in the area (both by proponents and opponents of these non-conventional theories), I was convinced that such a dream takes a longer journey than a PhD and that it was time to give the big ambition 'a pause' in favor of focusing on gathering the parts (or picking the ingredients). Hence, while this fascination is to live with me – till dream comes true – this dissertation defines the beginning of my journey in that direction.

Despite these modifications, the overall goal has remained intact; I believe that I have managed to adhere to the advice from Confucius: "When it is obvious that the goals cannot be reached, don't adjust the goals, adjust the action steps." Among the economic issues which link the 'North' and the 'South', this study has focused on the empirics of 'development' aid, foreign direct investment (FDI) and international trade. The focus on the empirics is a reflection of my preference for starting with facts and progressing toward synthesizing as opposed to starting with theory and testing it against data to check if 'everything is okay' (or if 'something is wrong') with the real world.

My self-appraisal tells me that the 'ambitious' goal I set some years ago is an achievable goal and that I have travelled a reasonable distance in that direction. However, full accomplishment of that goal of theorizing the North-South strategic economic interaction still lies ahead of me. I end this digression with two quotes: "A goal is not always meant to be achieved, it often serves simply as something to aim at" (Bruce

Lee), and "Don't wait until you have reached your goal to be proud of yourself. Be proud of every step you take toward reaching that goal" (unknown).

Dedicated to:

◇ MY PARENTS: *Ruufee, Seetuu, Abdaa & Gazaalii*;

◇ MY FAMILY: *Zemzem, Hawi, Naif, Milki & Toltu*; and

◇ MY TEACHERS: *to the passionate, dedicated and caring ones among them.*

# CONTENTS

## LIST OF FIGURES

## LIST OF TABLES

## INTRODUCTION

*„ No country has developed successfully by turning its back on international trade and long-term capital flows. ... But it is equally true that no country has developed simply by opening itself up to foreign trade and investment. The trick in the successful cases has been to combine the opportunities offered by world markets with a domestic investment and institution-building strategy ... "*

Dani Rodrik, *2008*

As these words from Rodrik (2008, p. 219) highlight, economic globalization – entailing the integration (of a country) into the world economy via trade and finance – comes with opportunities that some may be able to capture/ exploit while others may not. That ability depends on domestic institutions, among others. This quote centers on three overarching concepts – globalization, development and institutions – that are also central to this dissertation. The dissertation connects these concepts under two themes: (1) the relationship between economic globalization (trade and finance) and the quality of domestic institutions, and (2) the association between global finance (specifically, aid and foreign direct investment (FDI)) and institutions on the one hand and development indicators such as economic growth and industrialization on the other.

Despite disagreements on whether free market or governments should do the trick, the importance of trade and finance has always been at the center of the debate in development economics (Ocampo, 2014). On the other hand, the development literature has marginalized the role of institutions for long, and it is only as recently as 1990s that institutions are given full consideration (Lin & Nugent, 1995; Chang, 2011). Even then, institutions have been considered environmental variables that condition one's ability to benefit from undertaking certain (domestic) policy measures or from exposure to external events such as globalization. This is also apparent from the quote at the beginning. The influence of economic integration on institutions has largely been neglected, despite the recognition of the potential endogeneity of institutions in growth regressions.

This dissertation examines the two-way relationship between economic globalization and institutional quality. That is, in addition to assessing the role of institutions in defining how successfully a country integrates into the world (and achieves certain developmental aspirations), it looks into how the integration into the world economy influences institutional quality. To this end, it draws on three self-contained articles, each article forming a chapter. Prior to introducing the contents of these chapters (which follows later in this chapter), it would be worthwhile to devote a section to discussing the key concepts and their measurements.

## 1.1 CONCEPTS AND MEASUREMENTS

This subsection provides definitions of three key concepts – globalization, institutions and development – focusing on how they are operationalized in this dissertation and delimiting the aspects of each covered in this thesis (from aspects not covered).

The first concept is economic globalization. Defining a concept is never easy, but at least relative to development and institutions, defining (or at least characterizing) the term globalization seems to be less contentious. It could be characterized as a term capturing the cross border flow of goods, services, information, labor, capital and the interaction of different social, cultural and political norms. However, scholars from different disciplinary backgrounds may refer to different aspects of it. Dreher (2006) distinguishes between three dimensions of globalization: economic, social and political. This dissertation is concerned with the economic dimension of globalization – hence the modifier *economic* in its title. Moreover, the dissertation covers only part of economic globalization – namely, the actual flow of goods and services (trade) and financial resources (aid and FDI) – abstaining from issues such as migration, remittances and the removal of restrictions on trade and capital flows. As it will become clear soon, these chosen aspects are considered one at a time, instead of aggregating them into an index. That is, the dissertation presents separate research results on aid, FDI and trade.

Each of these aspects of economic globalization is related to the quality of domestic institutions. Defining institution or characterizing good institutions is one of the areas of discomfort in the development literature. To show the difficulty involved in defining institution, Nunn & Trefler (2014, p. 265) have suggested that it shares a definition given earlier to pornography: "I know it when I see it". Such a definition cannot serve the purpose of this study, however. Despite the difficulties, different scholars have defined it differently, and I believe that these earlier attempts preset a better option than surrendering to the "I know it when I see it" alternative. A familiar definition is that given by North (1990, p. 3), where institutions are defined as the formal (created) and informal (evolving) "rules of the game in a society or ... the humanly devised constraints that structure political, economic and social interaction." Glaeser et al. (2004) highlight *constraints* as the crucial word in North's definition and add an important (second) element to it – *durability* or *depth* of the constraints.

This line of defining institutions is, in fact, only one among the many definitions in the literature. Greif (2006) discusses the differences between and the limitations of definitions used in institutions-as-rules approach, in classical game theory, and by evolutionary institutionalists. For Greif (2006), these definitions are not necessarily exclusive as some aspects of institutions may reflect the rules of the game, others the equilibrium outcomes of the game, and still others mutations to the rules. A full understanding of institutions and their dynamics would benefit from an all-encompassing approach. However, the interest of this study lies in the association between macro-level institutional quality on the one hand and aspects of development and economic globalization on the other, not in understanding the behavioral micro-foundations of the self-enforcing and dynamic nature of institutions. As such, it suffices to adopt the common rules-of-the-game definition for the purpose of this study.

However, there is a long way to go even after adopting one line of defining institutions. One difficulty lies in deciding what type of institutions are likely to matter. For example, is it the rules that govern games amongst private agents or those rules governing the relation between the government and the private agents that matter (more)? In the literature, the former type is referred to as *economic institutions* and the latter as *political institutions*. In fact the two categories are not only interdependent – possibly one causing the other as Acemoglu et al. (2005) posit – but it is also the case that the borderline between the two is blurred (Voigt, 2013). The indicators used in this study have both political and economic components, although some chapters focus on indicators that seem more of one than the other (for example, the chapter on trade focuses on contract enforcement, which is arguably more economic than political). Besides, it is not in the goal of this study to judge the relative importance of different types or aspects of institutions. Hence, this potential difficulty is not of concern for this study.

More concerning in the context of this dissertation is the practical difficulty in operationalizing and measuring the quality of institutions. In fact, "No matter what approach one relies upon, if one wants to show that institutions matter – or that they do not – one needs a reliable way to identify and measure them" (Voigt, 2013, p. 2). Among the efforts to gauge the quality of institutions, three have documented publicly available time-series data for a large set of countries, and as a result have been used widely. These are the Freedom in the World (of Freedom House), the Worldwide Governance Indicators and Doing Business datasets (of the World Bank Group) and the Economic Freedom of the World (of Fraser Institute). The Freedom House database has a wider and longer coverage than the other two (available since 1972), includes both political and economic aspects of institutions, and explicitly aims to capture the conditions on the ground. Hence, it is the preferred one, especially in the pooled mean group estimations of Chapters 2 and 3. However, as the civil liberty and political rights measures are crude in the sense that each is an aggregation over a multitude of components, indicators from the other two sources (which are apparently more specific) are also used. Chapter 4, which is particularly concerned with

the quality of contracting institutions, uses the contract enforcement variable from the Fraser Institute dataset and the rule of law variable from the Worldwide Governance Indicators.

These measures rely on perceptions of business people, experts, and/or residents in some way, thereby rendering the measures subjective. Time-series macro data on objective measures that reflect both de jure and de facto quality of institutions are so far unavailable. (See Voigt (2013) for some micro level efforts to construct such objective measures). However, as the interest of the study lies mainly in the instrumental role of institutions (to use Sen's terminology), what economic agents perceive is what determines their behavior, be it investing, lending or other decisions. While discussing the importance of perceptions in the context of Africa in general and South Africa in particular, Van Vuuren (2002, p. 71) quotes the then finance minister of South Africa, Trevor Manuel, as have saying: "In our country (South Africa), perceptions often rule reality. In fact they may dominate discourse to the extent that they become reality." This, by no means, undermines efforts to construct objective indicators. It, however, lends support to the importance and usability of subjective measures.

This dissertation relates the two concepts defined so far – economic globalization and institutions – not only to each other but also to another concept of interest: development. The first thing that comes to many people (at least to many economists) when they hear about development is economic growth – which is the rise in Gross Domestic Product (GDP) or GDP per capita. Sometimes, the word *rise* in this definition of economic growth is replaced by *sustained rise* so as to differentiate growth from year-to-year fluctuations. Needless to say, every scholar knows that economic development is a much broader concept than economic growth. However, it is also true that the effectiveness of policies or resource flows (such as aid and FDI) has mostly been debated on the basis of their effects on growth. It is not uncommon to enter "economic development" in Google and follow the links in search results only to find out that it is about economic growth.

In addition to growth, early development economists have also emphasized the place of structural transformation – the relocation of activities and resources from one sector to another (mainly from agricultural to the industrial sector) – in defining economic development. The importance of economic growth and structural change notwithstanding, the recognition that income is not everything has led to the use of some other development indicators (such as education and health related facilities or attainments, and inequality) as well as the construction of indicators like the Human Development Index (HDI). Amartya Sen, whose capability approach lay the foundation for the construction of HDI, goes further to define development as "a process of removing unfreedoms and of extending the substantive freedoms of different types that people have reason to value" (Sen, 1999, p. 86).

These differences of view as to what constitutes development reflect the difficulty in defining and subsequently measuring it. Nonetheless, it is imperative to go beyond growth and look at the influences of economic globalization on other indicators of

development. An important and understudied aspect of development that is likely to be influenced by economic globalization is income inequality. However, this has not been pursued in this study due to lack of adequate data on income distribution (which is a serious issue particularly in Sub-Saharan Africa, henceforth SSA). The effect on structural transformation has been pursued in the chapter on FDI as this form of resource flow is particularly hoped to assist industrialization efforts. In line with the view that freedom is a constituent of development, the effects of aid and FDI on civil liberties and political rights, rule of law, voice and accountability, and corruption could also be interpreted as their respective developmental effects. The use of institutional quality indicators as regressors in aid, growth, structural change and export equations, on the other hand, corresponds to their instrumental roles. The terminologies *constitutive/constituent* and *instrumental* used to capture the twofold role of institutions are due to Sen (1999).

## 1.2 OVERVIEW OF THE DISSERTATION

Having acknowledged the difficulties involved in defining the key concepts central to this dissertation and having explained the sub-components or indicators employed, I now turn to highlighting the contents of each chapter. Figure 1.1 provides a schematic diagram of the links studied in this dissertation. The two vertical dotted lines divide the variables into the three main areas: globalization, institutions and development. As mentioned earlier, institution has both instrumental and constitutive roles and thus indicators of institutional quality are also part of development indicators.

The next chapter, Chapter 2, looks at the nexus between aid, institutional quality and economic growth (the green links in the diagram). The rightward arrows of links A and B represent the influence of aid on growth and the quality of institutions, respectively, whereas the leftward arrows (of A and B) depict the role of economic growth and institutions in attracting aid. Link C stands for the (potentially bidirectional) relationship between growth and institutional quality. The direction and strength of these links are examined in the context of SSA. Using dynamic panel data techniques, the chapter contributes to the aid-effectiveness literature in two major ways. The first relates to the intermediary role of institutions between aid receipts and economic growth. Previous studies have largely focused on arrow A: how economic growth (or income level) influences how much aid a recipient gets and/or the effect of aid on economic growth (or income). With a few exceptions, link B (especially, the rightward arrow) and the leftward arrow of link C are neglected. If at all involved, institutional quality is taken as a factor conditioning the amount of aid a recipient gets or the effectiveness of aid on growth; its responsiveness to the other two variables and thus its intermediary role between them has been marginalized. By allowing all the links (A, B and C) to be double-headed and testing them against data, this study examines both the direct and indirect significance of each variable in explaining the other two. The second contribution of Chapter 2 relates to the significance of recognizing recipi-

ent and donor heterogeneity. Studies that allow for such heterogeneities are rare, and generally lack methodological rigor.

Economic Globalization, Institutions & Development

**Institutional Quality:**
- ✓ Civil Liberty & Political Rights
- ✓ Voice & Accountability
- ✓ Rule of Law
- ✓ Contract Enforcement
- ✓ Corruption ...

H

F

B

A

D

E

C

G

Aid

FDI

Trade

Economic Growth

(De)industrialization
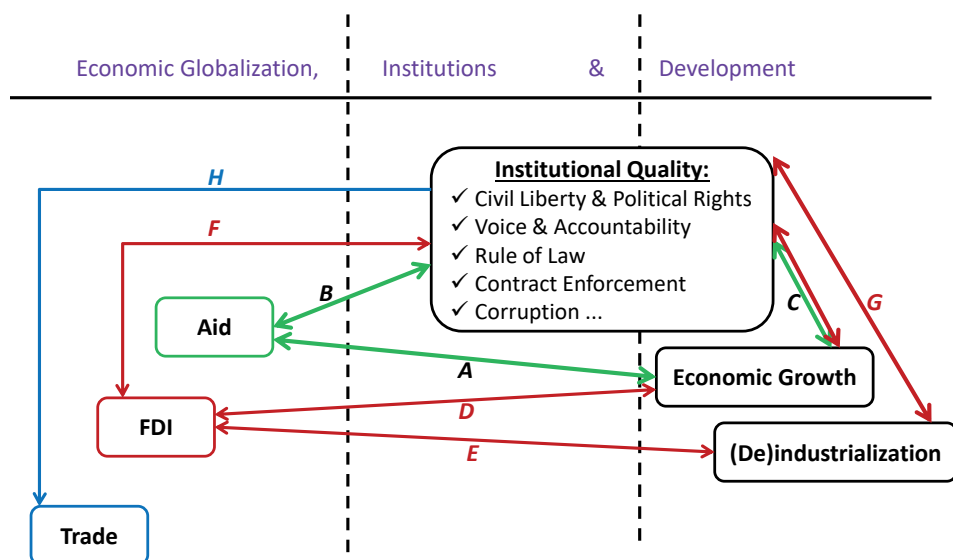
Figure 1.1: A Schematic Diagram of the Links Examined in the Dissertation: Chapter 2 (Green), Chapter 3 (Brown) and Chapter 4 (Blue)

After displaying some descriptive statistics, the chapter tests for the order of integration of, and the existence of cointegration between, the three variables – growth of GDP per capita (*grGDPPC*), net aid transfers from OECD-DAC donors (*NAT*), and institutional quality (*Institution*). As the econometric analysis in Chapter 2 will show, more aid receipts are associated with slower economic growth and deteriorating institutional quality. These long run relationships are of bi-directional nature: aid from DAC donors goes to recipients with poor growth and institutional performance (consistent with need-based allocation principe but in contradiction to results-based argument), but also affects both variables negatively. The effect of aid on institutional quality is more robust than its effect on growth. Growth and institutional quality are positively related to each other (double-headed arrow *C*), and thus the effect of aid on one reinforces the effect on the other. Poor performance (in terms of both growth and institutions), in turn, attracts more aid, thereby completing a vicious cycle of aid and poverty. That is, efforts to end poverty-trap with the help of aid end up replacing the 'poverty-trap' with an 'aid-poverty' trap: poor performance fetching more aid, more aid feeding into poor performance, and so on.

Next, the institutional and growth effects of aid from traditional sources is disaggregated by donor. A separate equation is estimated for each donor, controlling for total aid volume. As this exercise reveals, it would have been better if greater share of aid

had come from donors like Ireland and the Netherlands, and less from donors like France and Canada (Table 2.4 gives the full result). The results for these donors are more or less consistent with expectations formed based on donor characterizations in the aid-quality literature. The cases of donors which under- or over-performed their expectations suggest that giving aid to fewer recipients or sectors (*specialization*) and directing aid to areas of recipients' priority (*alignment*) are good predictors of success.

Recipient-heterogeneity exists but is largely limited to the short run parameters. The notable long run deviation is that aid and institutional quality each appear to be exogenous in about seven out of the 43 recipients. Growth is, of course, endogenous for all countries.

Subsequently, Chapter two undertakes a similar analysis for aid from China, albeit on the basis of fewer observations. The analysis reveals that the growth effect of Chinese aid is positive and significant while the institutional quality effect is negative and significant, rendering the total effect ambiguous. Moreover, the feedback effect from economic performance to aid breaks down. In reference to Figure 1.1, it means that arrows *A* and *B* are no more double-headed; arrow *C* remains bi-directional.

Chapter 3 assesses the growth and institutional quality effects of another form of international finance – FDI. Unlike aid which is (at least partly) given based on donor interests, FDI is – in principle – a private business, and as such is expected to go to hosts with better expected profitability. Therefore, a priori, FDI is likely to be more successful. It also has the potential to benefit domestic businesses through spillover of skills and good business practices, among others. Moreover, in accordance with the flying-geese paradigm which suggests that manufacturing keeps moving to destinations with low (labor) cost, one would naturally expect FDI to assist in the industrialization efforts of the host countries. However, FDI could also be market-seeking or resource-chasing, and may have the opposite effect on industrialization. Hence, the chapter also looks into the (de)industrialization or structural change effect of FDI in the region. This chapter also takes recipient heterogeneity into account, but the main contribution is the fact that it goes beyond the growth effect to examine the institutional and structural change implications of FDI inflows.

As the results of Chapter 3 will reveal, FDI has a robust positive effect on economic growth, outperforming aid. Besides, its negative effects on civil liberties and political rights are not robust. However, it does contribute to deterioration in other institutional quality indicators, namely, corruption, rule of law, and voice and accountability. Although FDI flows to countries with better growth performance and positively contributes to it, it has unintended institutional effects – similar to aid. Moreover, FDI to the region generally appears to be of the 'resource-seeking' type and has significantly contributed to the shrinking of the manufacturing sub-sector relative to the non-manufacturing industrial sub-sector.

The findings of the two chapters (Chapters 2 and 3) suggest that international development financing (more precisely, growth financing) comes with serious side effects. The results for aid are particularly discouraging, with the exception of aid from

certain donors. With respect to FDI, striking the right balance between the positive growth effect and the negative institutional (and structural) effect looks a natural way forward.

However, such 'crude' recommendations follow from taking for granted that the main or binding constraint of development in the region is finance. Without denying the importance of financial resource, there are reasons to believe that the problem lies not in the ability to mobilize it but in its proper management. As the estimates of the Global Financial Integrity (GFI) reveal, the amount of illicit financial flows from the continent is so enormous that the continent (on aggregate) may not need any 'development' aid from the developed world. Besides, this also means that countries would be able to selectively choose the right type of FDI without succumbing to the demands of multinationals. For instance, SSA as a region lost about 5.5% of its GDP between 2003 and 2012 through illicit financial flows, mainly through trade misinvoicing (Kar & Spanjers, 2014). This figure rises to 6.1% when calculated over the period 2004-2013 (Kar & Spanjers, 2015). In each period, the outflows from SSA represent the highest share of GDP in comparison to all regions. How does this compare to the amount of aid and FDI the region received or attracted over the same period? Well, the figure for the period 2003-2012 (Kar & Spanjers, 2014) represents about 152% of Official Development Assistance (ODA), 186% of FDI, or 84% of ODA and FDI combined. In *Africa is not poor, we are stealing its wealth*,[1] Nick Dearden (24 May 2017) estimates that illicit financial flows from Africa are as high 300% of the aid it receives. Thus, if development aid were genuine, developed countries would do more good by assisting efforts to mitigate illicit financial outflows from the region.

Chapter 4 presents yet another benefit of good institutions. One of the familiar indicators of economic development is structural change, and it is shown in Chapter 3 that institutions play a positive role in this regard. Chapter 4 particularly looks at a specific channel through which institutions may influence economic structure: via influencing a country's comparative advantage. This chapter uses data from all countries of the world, but also zooms into regional sub-categories such as SSA and OECD countries. Its novelty is in (i) disentangling the effect of institutions on comparative advantage into intensive and extensive margins, and (ii) examining the regional differences in the role of institutions at explaining various dimensions of trade – namely, trade *from* and trade *within* a region as well as trade *across* regions at different level of development.

As hypothesized, countries with better institutional quality export (disproportionately) more in institution-intensive sectors. Nonetheless, institution as a source of comparative advantage does not outperform factor endowments (especially human capital). In the full dataset, greater share of the effect of institutions on export materializes through the intensive margin while the effect on the extensive margin is statistically more robust. Developed countries benefit from institutional improvements via

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1 http://www.aljazeera.com/indepth/opinion/2017/05/africa-poor-stealing-wealth-170524063731884.html

both margins of trade. In developing countries, on the other hand, institutional improvements influence the probability of exporting and the number of export varieties or destinations (i.e., the extensive margin), but not the intensive margin. Moreover, in SSA in particular, the effect comes mainly from the within region dimension – not from its trade with the rest of the world.

The importance of good institutions cannot be overemphasized as they have the potential to limit illicit financial outflows and thereby render the need for aid obsolete. This is in addition to their role in shaping the pattern (and volume) of international trade, boosting economic growth and attracting FDI. Moreover, these are based on a narrow definition of 'development'. Embracing a broader perspective of development – according to which good institutions are ends in themselves (and not just the means to an end) – will only magnify the findings of this study regarding both the benefits of institutions and the undesirable consequences of aid and FDI. As Sen (1999, p. 16) notes in his call for more attention to the importance of institutions (freedoms, in his words),

> ... most fundamentally – political liberty and civil freedoms are directly important on their own, and do not have to be justified indirectly in terms of their effects on the economy. Even when people without political liberty or civil rights do not lack adequate economic security (and happen to enjoy favorable economic circumstances), they are deprived of important freedoms in leading their lives and denied the opportunity to take part in crucial decisions regarding public affairs. These deprivations restrict social and political lives, and must be seen as repressive even without their leading to other afflictions (such as economic disasters).

To sum up, the evidence in this dissertation does not support aid optimism. It confirms that FDI contributes to growth, but comes with side effects. Institutional quality enhances economic growth, fetches more FDI, reduces the need for aid, helps industrialization and boosts export and particularly the export of contract-intensive (complex) manufacturing goods. The growth and structural (as well as income-distributional) effects of such boost in trade are among areas for further research.

Chapters 2-4 present and discuss the evidences for the points highlighted so far. Chapter 5 concludes the dissertation and suggests avenues for further research.

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# 2

## AID, INSTITUTIONS AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA: HETEROGENEOUS DONORS AND HETEROGENEOUS RESPONSES*

**ABSTRACT**

*This study contributes to the aid-effectiveness debate using panel data from 43 Sub-Saharan African countries over the period 1980-2013. Its novelty lies in assessing the intermediary role of institutions and the importance of recipient- and donor-heterogeneity. The long-run growth effect of (aggregate) aid from 'traditional' donors is robustly non-positive, and the indirect effect is negative. Disaggregation reveals donor-heterogeneity. Chinese aid outperforms aggregate aid from traditional donors with respect to growth; however, it has a negative institutional effect. Recipient-heterogeneity is largely a short-run phenomenon, with only a few countries showing some deviations from shared long-run parameter sets. Comparing donor behavior suggests that the future of aid would benefit more from focusing on quality – particularly, specialization and donor alignment.*

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> " *... if the government was so corrupt and incompetent that it could not get enough money from the sale of its natural resources to manage its transition to a market economy, why should one think that a few billion dollars more from the West would be well spent, or even make much of a difference?* "

Stiglitz, *2006: p. 157. Making Globalization Work*

> " *Foreign aid did not supply something the poor wanted (roads), while it did supply a lot of something the poor probably had little use for (me and my fellow bureaucrats). ... The difficulty of foreign aid agencies is that a bureaucrat is controlling the thermostat to the distant blanket of some poor person, who has little ability to communicate whether she is too hot or too cold.* "

Easterly, *2006: p. 145,148. The White Man's Burden*

## 2.1 INTRODUCTION

ALTHOUGH Stiglitz (2006) posed this question in reference to a specific context of Russia in the 1990s, the same can be forwarded to the broader developing world where aid inflow is matched by significant and simultaneous financial outflow – as is the case in Sub-Saharan Africa (SSA). The first statement in the quote from Easterly (2006) comes from the context of SSA, more specifically from Tanzania, which had to "produce more than 2,400 reports a year for its aid donors, who sent ... one thousand missions of donor officials per year" (Easterly, 2006, p. 145). His second statement points to what could possibly lie at the heart of the matter.

Throughout the evolution of development thinking since the mid twentieth century, foreign development assistance (aid) has been prescribed (or justified) as a solution for problems of developing countries [hereafter, LDCs]. The inability of LDCs to accumulate enough physical or human capital and/or infrastructure, and their inability to establish conducive institutions and governance have been the major reasons why LDCs need more aid. Whether these motives have practically guided aid-giving is dubious. On the effectiveness side, despite lack of consensus, a number of works have revealed widespread failure of aid (in Sub-Saharan Africa (SSA) in particular). Kanbur (2000), Easterly (2003, 2005), Ranis (2010), Rajan & Subramanian (2008), and Nowak-Lehmann et al. (2012) are among those who have documented the failure of aid. However, there are also works in favor of more aid (to Africa) either based on statistically significant aid coefficients in cross-country regressions (Arndt et al., 2010, 2011) or mentioning success stories (Crosswell, 1998; Tarp, 2006) and blaming other factors (such as policy and institutions) for any failure of aid (Burnside & Dollar, 2000;

Collier, 2006; World Bank, 1998). Others have argued that aid has negatively affected LDCs via real appreciation of domestic currency resulting in loss of competitiveness, encouraging corruption, and harming institutional development (Fielding, 2007; Killick & Foster, 2007; Moss et al., 2006; Moyo, 2009). While all sides present some sort of empirical support, none has given a concluding answer to the issue.

The aim of this study is to fill some gaps in the aid-effectiveness literature. The first gap is concerning the intermediary role of institutions, and the second one has to do with addressing the issue of heterogeneity. This study addresses two types of heterogeneity: recognizing donor-heterogeneity (that aid from each donor is potentially unique) and recipient-heterogeneity (that each aid recipient could be characterized by a unique interrelationship between aid and economic growth).

With regard to the first type of heterogeneity, it has long been recognized that *not all aid is alike* and hence been recommended that a disaggregated approach to the question of aid-effectiveness be taken. For instance, Clemens et al. (2004) focus on revealing the positive growth effect of 'short-impact' aid as opposed to 'long-impact' or humanitarian aid, and Harms & Lutz (2004) "emphasise the desirability of taking a more disaggregate view – both with respect to the various aspects of policies/institutions and with respect to the different components of aid" (p. 23). It appears that their recommendations are somewhat neglected in the subsequent literature. Besides, the emergence of new donors and new aid-giving modalities adds to the urgency to address this issue of heterogeneity. Hence, this study examines aid-effectiveness at a disaggregated level. The study does not claim to be the first to take up the issue of disaggregation in aid effectiveness. For instance, Wako (2011) distinguishes between the growth effect of aid from bilateral and multilateral sources, and Okada & Samreth (2012) investigates the effects on corruption of aid from multilateral and four bilateral donors. The current study, among other contributions, takes the disaggregation down to the level of each donor and covers a larger number of donors. Moreover, it compares the growth and institutional effects of Chinese aid to the effects of aid from 'traditional' donors.

Recognizing the second type of heterogeneity entails allowing each recipient to respond to more aid in a way that is different from any other recipient's. In this respect, the aid-growth debate has evolved through the use of Ordinary Least Squares, Instrumental Variables, static (FE/RE) and dynamic (GMM) panel data techniques, all of which assume that aid (any other regressor for that matter) has the same effect on growth across groups (of recipient countries). The current state of macroeconometrics permits the handling of parameters heterogeneity in panel data analysis. Specifically, this study allows for parameter heterogeneity using the (Pooled) Mean Group – PMG – estimation technique. This technique not only allows for parameter heterogeneity but also addresses criticisms such as the issues of stationarity and cross-sectional dependence which have been forwarded against the application of GMM. To the best of my knowledge, only three papers (Asteriou, 2009; Tan, 2009; Ndambendia & Njoupouognigni, 2010) have applied such estimation technique to the aid-growth relationship.

However, and this brings us to the last research gap, these studies have not examined the transition mechanism between aid and growth. This is what both Bourguignon & Sundberg (2007) and Arndt et al. (2011) called *Opening the Black Box*. The former study is a theoretical exposition of the 'causality chain' from aid to outcomes, and the latter one is an empirical assessment of aid effectiveness. Some important variables (such as policy making and governance/institutions) in Bourguignon & Sundberg's framework are not included in the empirical investigation by Arndt et al. On the other hand, these studies which tried to open up the black box have not been concerned with the issues of parameter heterogeneity, stationarity or cross-sectional dependence.

To sum up, this study addresses the issues of donor-heterogeneity (both within traditional donors and between traditional donors and China), recipient-heterogeneity, and institutional intermediation in the aid-growth relationship. It recognizes the possibility of recipient- and donor-heterogeneity in the setting of non-stationary and cross-sectionally dependent panel data, and analyzes the growth effect of aid passing through institutional quality.

## 2.2 LITERATURE REVIEW

### 2.2.1 *Aid Allocation*

It has long been argued that the actual allocation of aid does not correspond to the need of LDCs. Recipient needs, donor political and commercial interests, shared benefits of development in LDCs and recipient performance have all been shown to matter in practice (Radelet, 2006; Tarp, 2006; Cooray & Shahiduzzaman, 2004). In fact, the debate on whether donor interests matter in aid allocation seems less contentious than that on aid effectiveness. Alesina & Dollar (2000), Neumayer (2003), Cooray & Shahiduzzaman (2004), Radelet (2006), and Berthélemy (2006) – to mention a few – agree that donor-interests matter more than recipient needs, at least among bilateral donors. Although to a lesser degree, donor-interests play some role in multilateral aid allocations as well (Berthélemy, 2006; Harrigan et al., 2006; Fleck & Kilby, 2006).

However, some scholars have argued that donors have changed their behavior by moving away from geopolitical motives and towards better transparency and coordination – in favor of recipient needs (Claessens et al., 2009) – while others disagree (Howell & Lind, 2009; Bandyopadhyay & Vermann, 2013; Mascarenhas & Sandler, 2006; Easterly & Williamson, 2011). In general, changes in donor policies/practices seem to be limited. However, any such changes could be more visible for some donors than others. Donors are heterogeneous, as are recipients! For instance, Mattesini & Isopi (2008) identify three groups of donors with respect to conditioning aid on corruption.

Besides the heterogeneity among the traditional donors, there is also a rise in the contribution of 'New Donors' such as China and India. There is a heated-debate on

whether the new donors are better/worse than the old ones. However, one way or the other, most scholars admit that the two are different in some respect. Besides, different or not, the rising significance of the new donors affects the whole donor-recipient relationship. In words of Woods (2008, p. 1206), "By quietly offering alternatives to aid-receiving countries, emerging donors are introducing competitive pressures into the existing system. They are weakening the bargaining position of western donors in respect of aid-receiving countries, exposing standards and processes that are out of date and ineffectual."

In sum, there are some (behavioral) differences within the traditional donors' category itself, and between the traditional and new donors. And these differences, however small they may be, could translate into large difference in aid effectiveness.

### 2.2.2 *Aid Effectiveness*

Aid may provide resources which could complement domestic savings and other financial inflows, and may be utilized to build infrastructure or physical capital or to accumulate human capital. In addition, it may enhance a country's capacity to import goods and technology as well as promote its technological progress domestically (Radelet et al., 2004). If provided with conditionalities, it may also help to establish good institutions or policies. On the other hand, the freely available resource may reduce government incentives to collect taxes or its efforts to attract foreign investment, undermine government accountability to its citizens and as a fungible rent it may breed and facilitate corruption. Corruption, in turn, has the implications of discouraging entrepreneurs and investment, misallocation of talents, enhancing brain drain, choosing projects based on their potential for embezzlement, discouraging FDI, and raising cost of borrowing (see Moyo, 2009, for a detailed discussion). The inflow of aid – through appreciating domestic currency – encourages imports and discourages exports (Rajan & Subramanian, 2011; Radelet et al., 2004; Munemo et al., 2007). Hence, theoretically, the effect of foreign aid is ambiguous.

Empirically, aid-effectiveness is one of the most-debated issues in economic research. Without much differences in the data used, and with some differences in techniques of analysis, various authors have come up with contrasting findings. These findings could be grouped into four: the *effective-aid*, the *conditionally-effective-aid*, the *ineffective-aid*, and the *harmful-aid* camps. The remainder of this subsection entertains these views.

Earlier investigations of aid-effectiveness relate aid to savings/investment, and then either relate savings/investment to economic growth or take for granted that this latter link is positive. With the overwhelming evidence (given the scarce data) that aid reduces savings, aid-proponents began to argue that the negative effect on domestic savings is not sufficient to abandon aid. In a meta-study, Doucouliagos & Paldam (2006) find out that most aid-savings studies confirm the existence of a crowding out. However, there is no clear evidence that aid reduces total savings; nor is there a sup-

port for the claim that the net effect of aid on total savings is positive (Hansen & Tarp, 2000; Doucouliagos & Paldam, 2006). Similarly, despite the conflicting findings of positive, no, or negative relationship, the meta-significance tests of Doucouliagos & Paldam (2006) come to the conclusion that there is no statistically significant relationship between aid and investment.

The next generation of the aid-effectiveness literature has been concerned less by the intermediary variables between aid and growth, and thus included aid directly into growth regressions. In this generation, the number of groups in the conflict has gone up by one – the *aid has been conditionally effective* group has joined the already existing three. It was in this generation that the issues of endogeneity and non-linearity in aid-growth relationship, as well as the importance of policy/institutional variables for aid effectiveness were addressed explicitly. This generation could further be split into the unconditional and conditional aid effectiveness groups. The former includes studies such as Crosswell (1998), Commission for Africa (2005), Karras (2006), Minoiu & Reddy (2010) which hold the position that aid, unconditionally, enhances economic growth. However, as defending the positive growth-effect of aid became untenable in the face of strong methodological criticisms, other factors have started to be held accountable for the failure/success of aid. These factors include institutional quality (World Bank, 1998; Radelet, 2006), macroeconomic policy stance (World Bank, 1998; Burnside & Dollar, 2000; Denkabe, 2004), and quality of governance (Collier, 2006).

The paper by Burnside & Dollar (2000) is particularly influential in that a number of works in the area since its publication have been concerned with testing and retesting the *Burnside-Dollar Hypothesis*. Subsequently, Easterly (2003) has showed that using more data and/or alternative definitions of some variables is all it takes for the hypothesis to perish. Murphy & Tresp (2006) have also refuted the hypothesis using exactly the same data set used by Burnside & Dollar (2000) but with a modified econometric technique. A study by Jensen & Paldam (2006) also rejects the hypothesis. Alvi et al. (2008) have confirmed that the hypothesis holds, but only over limited ranges of policy and aid – for policy index above -0.5 and aid/GDP ratio below 4%. Many SSA countries are unlikely to fall in the effective-aid zone. For instance, over the period 1980-2013, 34 out of 43 SSA countries are characterized by aid/GDP ratio of more than 4%.

The hypothesis is not thrown out of the debate yet, but it seems that the spot of heated academic fighting in the aid-effectiveness literature is shifting. Studies like Arndt et al. (2010, 2011) are bringing the unconditional aid-effectiveness debate back to life. The concern here is more about intermediating variables than interacting/complementing ones. The intermediating variables are, however, different from saving and investment which had been central to the first generation studies. The intermediary variables in recent generation are the conditioning variables in the forerunning generation, such as good policy and/or governance. As such it is a *re-opening* rather than an *opening* of the black box as presented in Bourguignon & Sundberg (2007) and Arndt et al. (2011). Indeed, the former is a theoretical paper, and what is done in the lat-

ter is the addition of human capital (education and health) to the already familiar variable, investment. As Arndt et al. (2011) confined themselves to inputs into the aggregate production function, variables such as policy, institutions and governance are not part of their analysis. Nevertheless, leaving aside the controversy surrounding the existence of an aggregate production function, it is now widely recognized that this approach provides an inadequate description of the functioning of the economy (Gwartney et al., 2004; Fingleton & Fischer, 2010).

Another dimension of the debate concerns the comparison of aid-effectiveness across periods and donors. One claim of changing aid-effectiveness along the time-dimension comes from Bearce & Tirone (2010, p. 837) who hold that "aid has promoted economic growth, but only after 1990 when the strategic benefits associated with aid provision declined for most Western donors." However, the issue of declining strategic interest as a determinant of aid allocation is not consensual. Another possible source of change in aid-effectiveness is the introduction of new aid types like aid for trade. Research in this area is still young, but some are already arguing that "... an analysis of export performance with respect to foreign aid that is exclusively targeted for trade sector improvement (Aid-for-Trade or AfT) produces favorable results" (Ghimire, 2013, p. 60). Bearce et al. (2013) also reach a similar conclusion.[1]

The composition of donors has also changed over time, with donors such as China and India becoming more influential. While casual observation points toward the claim that aid from these new donors is more effective than aid from traditional donors, statistical evidence is yet to be fought over.

Moreover, difference in aid-effectiveness may emanate from donor heterogeneity. It has long been held that donor heterogeneity is an important factor. However, a few studies have addressed this issue using statistical analysis. And this has taken the form of comparing bilateral donors to multilateral donors (Wako, 2011) or a couple of major donors (for instance, US, UK, Japan and France in the study by Okada & Samreth (2012)).[2] The issue of donor heterogeneity is gaining better attention more recently. However, the emphasis is mainly on the supply side (see, for instance, Dreher et al., 2011; Yanguas, 2014; Jones, 2015). That is, a few have investigated if such a heterogeneity can be mapped onto differences in effectiveness. An exception is Brazys (2013) who not only relates donor-heterogeneity to differences in effectiveness but also considers a large set of donors (19 OECD members). However, he focuses on a particular type of aid (aid for trade) and considers only four recipients, none of which is from Sub-Saharan Africa. In sum, as discussed earlier, DAC-donors are heterogeneous in many respects and that warrants investigating into differences in the effectiveness of their aids.

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1 Comparing the effectiveness of AfT to that of the 'traditional' aid seems a promising area of investigation in the aid effectiveness camp. However, this study abstains from such comparison.

2 The latter study relates aid from these major donors to corruption, and not to economic growth. Besides the difference in the variable of interest between Okada & Samreth (2012) and the current study, these four major donors are not so different from each other as each is from other donors like Denmark.

### 2.2.3    *Aid–Institutions–Growth*

Common to the different sides in the aid effectiveness debate above, aid is related to growth directly, and at best the relationship is conditioned on the quality of existing policy or institutional environment. With the exception of early studies which examined aid-saving/investment-growth and few recent studies, the intermediating role of other factors has been neglected.

On the one hand, not only the role of institutions in development has been recognized long ago but also there exist schools of thought by the name Institutional Economics – 'Old' and 'New'. In the context of Africa, Gyimah-Brempong (2002) provides estimates for the effect of corruption on GDP growth and per capita income. On the other hand, the implications of (more) aid for institutional quality in general and corruption in particular has also been recognized in the development literature. For instance, some scholars argue that more aid undermines the accountability of a recipient government to the mass, makes available an easily divertible/fungible rent to officials and thus breeds and/or fosters rent-seeking behavior, and discourages the efforts to mobilize and/or utilize domestic resources efficiently (Moyo, 2009; Easterly, 2006; Werlin, 2005). On the other extreme of the spectrum are those who argue for more aid based on the premise of fighting corruption and improving institutions of a recipient country through providing financial means. Nonetheless, empirical investigations quantifying the impact of aid on governance/institutional quality is scarce.

Busse & Gröning (2009) and Okada & Samreth (2012) are among the few who have tried to quantify the relationship between aid and corruption/governance. The former study finds that aid hurts governance while the latter concludes that aid reduces corruption particularly where corruption is less serious to start with.[3] According to Svensson (2000, p. 456), "expectations of aid in the future may suffice to increase rent dissipation and reduce the expected level of public goods provision". Not only have these studies been uninterested in estimating the full transmission channel of interest in the current study (aid-institutions-growth), but they have also assumed homogeneous aid-parameter across recipients and no cross-sectional dependence. In fact, Okada & Samreth (2012) have utilized the quantile regression technique to capture the possibility of different parameters (relationships) across the corruption distribution; however, there is still a restriction on parameters for countries in the same corruption quantile.

To sum up, the debate on aid effectiveness is inconclusive. However, one thing seems clear: Aid is not working as much as intended. Even aid proponents/donors are not able to deny this. It is also not realistic to claim that all aid has been a waste, or at least a waste to the same degree for all donors. So, regardless of how pessimistic or optimistic one is about the future of aid, it is more pragmatical (from policy point

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3  Although Okada & Samreth (2012) have found that aid reduces corruption in general, with the recognition of donor heterogeneity, only multilateral aid and bilateral aid from Japan upheld their conclusion.

of view) to assess differences among donors as a step towards investigating best practices.

## 2.3 METHODOLOGY

Following the recognition of the endogeneity of aid in growth regressions, instrumental variables techniques have taken over the Least Squares estimators. In panel data context, many have resorted to the use of GMM estimators as these estimators are exempt from the justification needed for an external instrumental variable. Instruments are internally generated from lagged levels and/or differences of the endogenous variables.

While the GMM techniques appear attractive for short panels, they are criticized on certain grounds. The first problem with using GMM is that parameters are taken as homogeneous, and homogeneous parameters signify only average relationships derived from a number of countries taken together. This practice hides the possibility of having a mixture of results for different countries. The common practice used to allow for such a possibility has been to include regional dummies. This, however, assumes that countries within a region are characterized by the same slope coefficient, or even that the only difference is the difference in the intercept between regions.

In addition to imposing parameter homogeneity restriction, there are at least two more issues which question the reliability of results from GMM (Blackburne & Frank, 2007) in macroeconomic applications in particular. The first issue is stationarity. It has been shown that a regression involving non-stationary series can yield a spurious result. And as the time dimension of data increases, the concern of non-stationarity and spurious results becomes more pressing. Shortening of the time dimension through the usual practice of averaging over four/five- or ten-year periods does not solve the issue. Moreover, there exist techniques for estimating the long-run relationship between variables without throwing away any short-run information. The second issue is the danger posed by ignoring the possibility of cross-sectional dependence.

An alternative approach which allows for parameter heterogeneity is estimation of a separate Vector Auto Regressive (VAR) model for each recipient. Using this approach, Juselius et al. (2014) have assessed the long run impact of aid on economic growth and other macroeconomic variables in the context of SSA. While they find a "broad support for a positive long run impact" of aid, their results also reveal recipient-heterogeneity with respect to aid effectiveness. The limitation of such approach is the length of the data available. The time dimension of available data (running from 30 to 50 years) is too short to draw reliable inferences from purely time series analysis. Furthermore, some determinants of economic growth such as institutional quality change only slowly over time and others are time-invariant, adding to the difficulty in identifying relationships between variables.

Incorporating cross-sectional dimension into such time series analysis would overcome these limitations. The exercise for exploiting cross-country variation begins with

estimating separate time-series equations and then testing if different countries share the same parameters (at least in the long-run). This seems a good compromise between time series and the common cross-sectional and short-panel data techniques in that each country is given a chance to have a unique aid-growth relationship but also a search is made to see if the different countries share a common relationship between the variables.

To this end, the Error Correction Modelling strategy is chosen for testing the direction and strength of causality among the variables of interest – growth, aid and institutions. In this approach, exogeneity is not taken for granted for any variable, but is rather inferred from statistical tests. For the purpose of model specification here, the relationship is generally given by:

$$y_{it} = \alpha_{0i} + \sum_{l=1}^{p} \alpha_{1li} y_{it-l} + \sum_{l=0}^{p} \alpha_{2li} x_{it-l} + \sum_{l=0}^{p} \alpha_{3li} z_{it-l} + \varepsilon_{it}, \tag{2.1}$$

where $y$, $x$ and $z$ are the variables of interest, namely, *economic growth*, *aid* and *institutional quality* (in any order); $\alpha$'s are parameters to be estimated; $\varepsilon$ is the stochastic term; and the subscripts $i$ and $t$ stand for country and time, respectively.[4]

Equation 2.1 is an Auto Regressive Distributed Lag – *ARDL(p,p,p)* – model representation of the relationship, which can be reparameterized into an Error Correction Model (ECM). As a first step towards solving for the ECM representation, setting the lag length $p = 1$ (for simplicity) and subtracting the lagged value of the dependent variable from both sides, yields:

$$\Delta y_{it} = \alpha_{0i} - (1 - \alpha_{11i})y_{it-1} + \alpha_{20i}\Delta x_{it} + (\alpha_{20i} + \alpha_{21i})x_{it-1} + \alpha_{30i}\Delta z_{it} + (\alpha_{30i} + \alpha_{31i})z_{it-1}$$
$$+\varepsilon_{it}.$$

Next, splitting $\alpha_{oi}$ into two, using $\alpha_{oi} = \gamma_i + \gamma_{oi}$, where the former is the time-averaged intercept for country $i$ and the latter is its deviation from the average at any point in time, and slight rearranging gives:

$$\Delta y_{it} = \gamma_{0i} + \gamma_i - (1 - \alpha_{11i})y_{it-1} + (\alpha_{20i} + \alpha_{21i})x_{it-1} + (\alpha_{30i} + \alpha_{31i})z_{it-1} + \alpha_{20i}\Delta x_{it}$$
$$+\alpha_{30i}\Delta z_{it} + \varepsilon_{it}.$$

Factoring out $-(1-\alpha_{11i})$ for terms on the right hand side which do not involve change, one gets:

$$\Delta y_{it} = \gamma_{0i} - (1 - \alpha_{11i})\left[y_{it-1} - \frac{\gamma_i}{(1 - \alpha_{11i})} - \frac{(\alpha_{20i} + \alpha_{21i})}{(1 - \alpha_{11i})}x_{it-1} + \frac{(\alpha_{30i} + \alpha_{31i})}{(1 - \alpha_{11i})}z_{it-1}\right] +$$
$$\alpha_{20i}\Delta x_{it} + \alpha_{30i}\Delta z_{it} + \varepsilon_{it}.$$

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4 The lag length $p$ is determined in a later section using information criteria.

Substituting $\alpha_i = -(1 - \alpha_{11i})$, $\beta_{1i} = \dfrac{\gamma_i}{(1 - \alpha_{11i})}$, $\beta_{2i} = \dfrac{(\alpha_{20i} + \alpha_{21i})}{(1 - \alpha_{11i})}$ and $\beta_{3i} = \dfrac{(\alpha_{30i} + \alpha_{31i})}{(1 - \alpha_{11i})}$ yields the following ECM equation:

$$\Delta y_{it} = \gamma_{0i} + \alpha_i \left( y_{it-1} - \beta_{1i} - \beta_{2i} x_{it-1} - \beta_{3i} z_{it-1} \right) + \alpha_{20i} \Delta x_{it-l} + \alpha_{30i} \Delta z_{it-l} + \varepsilon_{it}.$$

Finally, augmenting it with more lagged differences of the three variables ($x, y, z$) gives Equation 2.2 below.[5]

$$\Delta y_{it} = \gamma_{0i} + \alpha_i \left( y_{it-1} - \beta_{1i} - \beta_{2i} x_{it-1} - \beta_{3i} z_{it-1} \right) + \sum_{l=1}^{p-1} \alpha_{1li} \Delta y_{it-l}$$

$$+ \sum_{l=0}^{p-1} \alpha_{2li} \Delta x_{it-l} + \sum_{l=0}^{p-1} \alpha_{3li} \Delta z_{it-l} + \varepsilon_{it}.$$

(2.2)

Equation 2.2 captures both short-run (terms involving $\Delta$) and long-run relationships (expression within parentheses). Changing a variable (say, $x$) affects $y$ both at impact ($\Delta x \rightarrow \Delta y$) and in the long-run through disturbing the equilibrium relationship within parentheses. The short run effects are captured by $\alpha_{2li}$'s and $\alpha_{3li}$'s while the long run ones are captured by the $\beta_i$'s which – as the above derivations show – are accumulated $\alpha$'s. Any disturbance to the equilibrium is corrected at the speed of -100$\alpha_i$% per year.

The (pooled) mean group estimator is then applied to Equation 2.2. The technique has three variants: the mean group (MG) estimator which separately estimates both short-run and long-run parameters for each cross-sectional unit and then averages them, the pooled mean group (PMG) estimator which restricts the long-run parameters ($\beta$s) to be the same across units, and the dynamic fixed effect (DFE) option with the usual assumption of homogeneous slope parameters. Using Hausman test, results from each of the restrictive options – PMG and DFE – are compared to results from the unrestricted case (MG). For robustness check, Chudik & Pesaran (2015)'s Dynamic Common Correlated Effects (DCCE) estimator is also implemented. This is theoretically better than the MG estimator as it accounts for cross-sectional dependence. It is also preferred to the earlier versions proposed by Eberhardt (2012) – Common Correlated Effects Mean Group (CCEMG) and Augmented Mean Group (AMG) estimators – as it allows for dynamics/persistence (i.e., the inclusion of lagged value(s) of the dependent variable in the model). The Stata package for DCCE is due to Ditzen (2016).

## 2.4 DATA

This section defines the variables of interest, their measurements and data sources. It also presents some descriptive statistics. To begin with aid, the preferred measure

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5 Note that this can also be derived formally without the need to add the lagged differences in an ad-hoc manner.

used in this study is Net Aid Transfers (NAT). It refers to the amount of resources actually transferred from donors to recipients. Comparing it to the commonly used measures of gross and net Official Development Assistance (ODA) would clarify it better. Net ODA is total grant or concessional loan (i.e., Gross ODA) minus principal repayments by the recipient. Unlike net ODA which deducts principal repayments only, NAT deducts both principal and interest repayments from Gross ODA. In addition, cancellation of old non-ODA loans is part of Net ODA, but is not counted in NAT. Hence, NAT is a better measure of the actual development assistance efforts than both Gross and Net ODA (Roodman, 2006), which are more commonly used nonetheless. In this study, NAT is measured as a percentage share of the recipient's GDP. NAT data are from Roodman (2005) and the GDP data are from the World Bank online database. The values of NAT/GDP range from -0.5% (Gabon 2003) to 186.9% (Liberia 1996), with an average of 15.9%.

The second variable is institutional quality. For the purpose of this study, it is measured as the average of the Civil Liberties and Political Rights indices from Freedom House. Even though some have interpreted these indices as measures of democracy (see Knack (2004), Jaunky (2013) and Kersting & Kilby (2014) for instance), the indices actually include a wider range of indicators which reflect the overall institutional quality/performance of a country. They include factors like democracy, rule of law and property rights which are taken as institutional *inputs* in the literature, as well as corruption, policy making, accountability, transparency and bureaucratic quality which represent institutional *outputs* (Jones & Tarp, 2016). The measure ranges from 1 (the worst) to 7 (the best). The advantage of using these institutional quality measures over other measures – such as the Worldwide Governance Indicators (WGI) of the World Bank Group and the Economic Freedom of the World (EFW) of Fraser Institute – is the time dimension of the data. Whereas the Freedom House indicators are available since 1972, the WGIs are available only starting from 1996. The EFW dataset is available on annual basis since 2000; data from 1970-2000 are generally available in five-year intervals – with many missing observations for countries in SSA.

Finally, economic growth is the annual percentage change in real GDP per capita – i.e., grGDPPC = 100*[(RGDPPC$_t$ - RGDPPC$_{t-1}$)/RGDPPC$_{t-1}$]. Real GDP per capita is measured in constant 2005 US dollars. The source is the World Development Indicators (WDI) of the World Bank. Its values range from -50.2% (Liberia 1990) to 142.1% (Equatorial Guinea 1997) with an average of 1.25%. For depiction of how the three variables evolved over time, see Figure A2.1.

Based on data availability, 43 SSA countries comprise the sample for analysis (see Table A2.1 for the list of countries). The study has chosen to focus on SSA for many have characterized it as a region where aid has been most ineffective (Easterly, 2003) or least effective (Burnside & Dollar, 2000; World Bank, 1998), and others have predicted it to be the future playfield of aid (Collier, 2006; Riddell, 1999). Besides, a lot would be 'buried in the averages' if a more heterogeneous sample of countries are included

in the analysis. As is found out below, there is enough heterogeneity within the SSA region itself.

Prior to the econometric analyses, pair-wise group comparisons have been undertaken. Firstly, the (average) growth performance of countries that received above-average aid is compared to the performance of those with below-average aid. As shown in Table A2.2, the average growth rate for the below-average group is higher than that for the above-average group. Similarly, the average institutional quality score for the below-average group is higher than that for the above-average group. Hence, countries with below-average-aid are characterized by better growth and institutional quality compared to the above-average group.

Another comparison is between below-average and above-average institutional quality groups, with respect to both growth and aid receipts. With respect to the former, the average growth rate for the above-average group is higher than that for the below-average group. Regarding the latter, countries with below-average-institutional quality have, on average, received more aid than the other group. The last set of comparisons in Table A2.2 is between below-average and above-average growth groups. Accordingly, the above-average growth group is characterized by better institutional quality than the below-average group. In addition, the faster growing group seems to have received less aid than the other group. Visual depictions of these comparisons are provided in Figures A2.2-A2.4.

## 2.5 RESULTS

### 2.5.1 *Stationarity and Cointegration Tests*

Estimation of the ECM requires pre-testing for the order of integration of the variables, and the existence of cointegrating relationship among them. Thus the first step is testing for stationarity. For this purpose, two tests are employed: the Im-Pesaran-Shin (IPS) unit root test and the Hadri stationarity test. The test results are reported in Table 2.1.

Table 2.1: Unit-Root/Stationarity Tests: *p-values*

| Variable | IPS Unit Root Test | | Hadri Stationarity Test | |
|---|---|---|---|---|
| | *Level* | *Difference* | *Level* | *Difference* |
| *ln*RGDPPC | 0.9814 | 0.0000 | 0.0000 | 0.0000 |
| grGDPPC | 0.0000 | 0.0000 | 0.0000 | 1.0000 |
| NAT/GDP | 0.0002 | 0.0000 | 0.0000 | 0.9890 |
| Institution | 0.0605 | 0.0000 | 0.0000 | 0.8914 |
| $H_0$: | All panels contain unit-roots | | All panels are stationary | |

For NAT/GDP and Institution tested at level, both the null of I(1) under IPS and of I(0) under Hadri are rejected. Tested at first difference, however, IPS rejects the null of unit roots while Hadri could not reject stationarity. Therefore, for these variables, stationarity is achieved after first-difference. For lnRGDPPC in level, both tests point towards non-stationarity. After differencing it once, even though not all panels have unit roots (IPS), not all panels are stationary (Hadri). The first difference of grGDPPC is stationary for all panels (as IPS rejects non-stationarity and Hadri cannot reject stationarity). Hence, NAT, Institution and grGDPPC are I(1) variables whereas lnGDPPC is I(2).

Table 2.2: Tests of Cointegration

| Variables | Pedroni's Test* | | | Westerlund's Test** | | |
|---|---|---|---|---|---|---|
| Involved | Stat. | Panel | Group | Stat. | Value | Rob. p-value |
| lnRGDPPC, | $v$ | -2.69 | . | Gt | -1.357 | 0.990 |
| NAT/GDP | $\rho$ | 1.434 | 3.302 | Ga | -4.145 | 0.998 |
| & | $t$ | .6125 | 1.974 | Pt | -10.277 | 0.430 |
| Institution | adf | .8103 | 1.763 | Pa | -3.435 | 0.734 |
| grGDPPC, | $v$ | 5.676 | . | Gt | -3.631 | 0.000 |
| NAT/GDP | $\rho$ | -16.42 | -14.93 | Ga | -18.285 | 0.000 |
| & | $t$ | -20.67 | -25.28 | Pt | -21.270 | 0.002 |
| Institution | adf | -19.43 | -22.47 | Pa | -13.550 | 0.002 |

* "All test statistics are distributed N(0,1) under a null of no cointegration, and diverge to negative infinity [under the alternative] (save for panel v)' (Neal, 2014).

** Robust P-values are obtained from bootstrapping 500 times, and bootstrapping is invoked because of cross-sectional dependence (Persyn & Westerlund, 2008).

Subsequently, two sets of panel cointegration tests are applied to the I(1) variables: Pedroni's (residual-based) and Westerlund's (error-correction-based) tests. Both tests reject the null of no-cointegration at the 1% level of significance (Table 2.2). With the use of lnRGDPPC instead of grGDPPC, neither rejects the null of no-cointegration. Hence, for the sample of countries under investigation, using the level of per capita income instead of its growth and estimating equations like those in Tan (2009), Asteriou (2009) and Ndambendia & Njoupouognigni (2010) would render the results spurious.

### 2.5.2 *Aggregate Net Aid Transfers (NAT) from DAC-Donors*

After establishing the existence of a cointegrating relationship, an ARDL(1,1,1) is estimated, normalizing on each variable in turn. The results are summarized in Table 2.3.

Table 2.3: Economic Growth, Aid and Institutions: ARDL(1,1,1) Model

| Dependent Variable | ΔgrGDPPC | ΔNAT | ΔInstitution |
|---|---|---|---|
| *Long Run:* | | | |
| Institution | 0.540*** | -1.647*** | |
| NAT | -0.012 | | -0.023*** |
| grGDPPC | | -0.334*** | 0.068*** |
| *Short Run:* | | | |
| Adjustment Speed | -0.825*** | -0.243*** | -0.175*** |
| ΔInstitution | 2.132** | -0.992 | |
| ΔNAT | -0.194*** | | -0.031 |
| ΔgrGDPPC | | -0.094*** | 0.009*** |
| Constant | -0.365 | 5.104*** | 0.653*** |
| N | 1378 | 1378 | 1378 |
| $\bar{T}$ | 32.05 | 32.05 | 32.05 |
| n | 43 | 43 | 43 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, N = Number of Observations,

$\bar{T}$ = Average Number of Observations per Group, n = Number of Groups

There is a bidirectional causality between aggregate aid from DAC-donors and institutional quality: weaker institutions have attracted more aid, and more aid has led to weaker institutional quality.[6] The former is in line with the efforts from the North to influence institutions in the South (for the better) through more aid, while the latter witnesses not only the failure of such efforts but also the ability of aid to weaken institutions. This possibility of negative effect of aid on institutions has already been emphasized, for instance, by Moyo (2009) and Easterly (2006). Similarly, there is a bidirectional causality between growth and institutional quality: weaker institutions leading to slower growth, and faster growth leading to better institutional quality.

With regard to aid and growth, causality runs only one way – from growth to aid. Slower growth has attracted more aid, which is in line with one justification for aid. On the other hand, there is no robust evidence that aid has directly led to either faster or slower growth. The growth-effect of aid is negative and significant in some specifications and insignificant in others, but is never significantly positive. However, as the causality running from aid to institutional quality and that running from institutional quality to growth are robust, there is a robust negative indirect effect of aid on growth mediated by institutions.

These long run relationships are qualitatively robust to various specifications (in terms of including different lags of the three variables, restricting the analysis to the

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6 Causality is inferred not just from the significance of coefficients. An additional requirement is for the corresponding error correction term ($\alpha_i$) to be statistically significant. Error correcting implies that $\alpha_i$ should be negative; and converge to equilibrium (stability of the system) requires that $\alpha_i > -2$.

post Cold-War period, and excluding the six or 10 recipients with the most frequent occurrence of missing values – results in Tables A2.4, A2.5 and A2.9 in the appendix). In addition, the use of net ODA as a measure of aid (instead of the preferred NAT) leaves the results in Table 2.3 qualitatively the same. In fact, the pairwise coefficient of correlation between the two measures is 0.9633 and is highly significant. Regression results are summarized in Table A2.7 in the appendix. The results also persist after controlling for other important variables such as human capital, net national savings, FDI, population growth and natural resource rent (Table A2.6). Moreover, three policy indicators – government consumption, inflation and openness (i.e., exports plus imports, as a share of GDP) for fiscal, monetary and trade policies respectively have been incorporated into both growth and aid equations. While government consumption and openness have expected signs in both equations, inflation is not. More importantly, the main results are not affected by controlling for these variables (see Table A2.8).[7] Finally, with regard to estimation technique, using the DCCE estimator to account for cross-sectional dependence leaves unaffected the results for the growth and aid equations. In the institutional quality equation, while the coefficient of aid is still negative and the magnitude is very close to the estimate in Table 2.3, the level of significance rises above the conventional levels. (In the preferred model – i.e., the one with the highest adjusted R-squared – Model (3) – in Column 6 of Table A2.3, the p-value for the aid coefficient is 0.152.)

Another remarkable point from Table 2.3 is the differences in the speed of adjustment for the different equations. The institutional quality equation has the slowest speed of adjustment to a shock, while the growth equation has the fastest. Whereas economic growth corrects about 83% of deviation from the equilibrating relation in a year, institutional quality can restore only about 18%. For aid, the adjustment is about 24% per year.

Experimenting with models of up to four lags and comparing them using the AIC and BIC, the model with four lags is chosen. This leaves the results of the aid and institutional quality equations unaffected. However, the (negative) effect of aid in the growth equation becomes statistically significant (see Table A2.4).

Overall, the conclusion is that the effect of aid on economic growth (through channels other than institutional quality) is not robust to different lag-length specifications. Although the result here cannot discriminate between the hypotheses of negative effect and no effect, it, for sure, is against the positive effect group. The negative effect of aid on institutional quality, the positive effect of institutional quality on growth, and thus the indirect negative effect of aid on growth through institutions are all robust.

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7 As policy stance is a reflection of institutional quality rather than its cause (Chang, 2002; Rodrik, 2008), government consumption and inflation are not included in the institution-equation. Trade, however, has the potential to influence institutions as well – with a theoretically ambiguous effect. Its negative institutional effect in the current analysis is consistent with the argument of Nunn & Trefler (2014, p. 265) that "To the extent that specialization and trade enriches specific groups in society, it will provide economic power that can translate into political power and affect institutional change."

Another robust result is the fact that poorly performing countries (in terms of both growth and institutions) attract/receive more aid.

The results reported in Tables 2.3 and A2.4 are estimated using PMG estimator. The choice is made based on Hausman tests. Specifically, first, MG results are compared with results from DFE option. This comparison prefers MG thereby confirming that there is indeed heterogeneity in slope parameters. Subsequently, MG is tested against PMG, and the test favors PMG. That is, the panels share the same long-run parameters. (The p-values for Hausman's tests of MG vis-à-vis DFE and MG vis-à-vis PMG are, respectively, 0.0000 and 0.5840.) In sum, parameter heterogeneity exists and the usual homogeneous parameter techniques give unreliable results. However, the group shares a common long run relationship (which means that the current technique has advantage over estimating a separate time series equation for each recipient). Even though the focus is on the long-run parameters, failure to allow for heterogeneity in short-run and adjustment parameters would imply a misspecified model.

The technique used here also permits the detection of exceptions where the common long-run causal relationships breakdown. Accordingly, based on the unanimity between the two models presented (Tables 2.3 and A2.4) the following cases have been identified. First, the endogeneity of growth cannot be rejected for any recipient. Secondly, for the 'aid-equation', the speed of adjustment to disequilibrium is not statistically significant for Burundi, Democratic Republic of Congo, Kenya, and Nigeria – and though at the margin – for Chad, Gambia and Equatorial Guinea. For these countries the amount of aid they receive does not respond to their performance in terms of economic growth and institutional quality. Except Burundi and Gambia, these are resource-rich countries (Thorborg & Blomqvist, 2015). Similarly, institutional quality is exogenous to the system for Cameroon, Chad, Ethiopia, and Togo – and again, close to the margin – for Benin, Gambia and Kenya. Any improvement or deterioration in institutional quality for this group of countries is not correlated to their economic growth record and the amount of aid they receive.

Summing up, while the long-run growth effect of aid is non-positive its institutional effect is clearly negative. The short-run relationships are generally non-robust to alternative model specifications and estimation techniques. While the SSA countries being studied share more or less the same long-run parameters, there is a clear evidence of recipient-heterogeneity as reflected in aid and institutional quality equations. Whereas aid has generally flown to recipients with poor institutions and slow growth, this has not been the case for Burundi, Democratic Republic of Congo, Kenya, Nigeria, Chad, Gambia and Equatorial Guinea. Moreover, while more aid and slow growth each contributes to deterioration in institutional quality, Cameroon, Chad, Ethiopia, Togo, Benin, Gambia and Kenya are exceptions.

### 2.5.3 *Heterogeneity within DAC-Donors*

The analysis so far addresses the issue of recipient-heterogeneity. Next comes testing for donor-specificity in aid effectiveness. Given the large number of donors, it is not possible to include 21 'aid' variables into a single regression equation. As a result, a separate equation relating growth, institution, and aid is estimated for each donor. However, in assessing the effectiveness of aid from one donor, aid from the other donors should be controlled for. Hence, aggregate aid from DAC-donors is included in each growth/institution equation as an additional variable. In terms of specification, the following modified version of Equation 2.2 is estimated for each donor $j$, $j = 1$, ..., 21:

$$\Delta y_{it} = \gamma_{0i} + \alpha_i \left( y_{it-1} - \beta_{1i} - \beta_{2i} x_{it-1} - \beta_{3i} z_{it-1} - \beta_{4i} Aid_{jit-1} \right) + \sum_{l=1}^{p-1} \gamma_{1li} \Delta y_{it-l}$$

$$+ \sum_{l=0}^{p-1} \gamma_{2li} \Delta x_{it-l} + \sum_{l=0}^{p-1} \gamma_{3li} \Delta z_{it-l} + \sum_{l=0}^{p-1} \gamma_{4li} \Delta Aid_{jit-l} + \varepsilon_{it}. \tag{2.3}$$

Accordingly, if $j = Ireland$ and $y = grGDPPC$ for instance, the coefficient $\beta_{4i}$ has the interpretation of *the marginal growth-effect of one more unit of aid coming from Ireland instead of somewhere else – or keeping total aid constant*. An alternative approach is to use *aggregate aid minus Irish aid*, in place of *aggregate aid*. This has been tried and the results remain intact. (It should, however, be noted that the number of observations upon which the estimations are based differ from one donor to another, since not all donors have stayed in the business for the same length of time. Nor do all donors give aid to the same number of recipients.) The results are summarized in Table 2.4.[8]

What explains the differences in aid effectiveness among donors (summarized in Table 2.4)? In an attempt to answer this question, a simple exercise of correlating donor ranks with effectiveness is undertaken. First, two variables – *growth* and *institution* – were constructed such that positive growth/institutional effect is given a value of 1, zero-effect a value of 2, and negative effect a value of 3. That is, each of the two effects from Table 2.4 is ranked from 1 to 3. The total effect – *total* – is also ranked in the same way, but leaving out four observations (Sweden, Belgium, Australia and Portugal) with indeterminate effect. Then, following the order of donor rankings according to various criteria from four sources – Birdsall et al. (2010), Ghosh & Kharas (2011), Knack et al. (2011) and Easterly & Williamson (2011) – the donors are ranked from 1 to 21. Subsequently, Spearman's correlation coefficients are calculated between the donor quality rankings and their aid-effectiveness rankings. The result is summarized in Table 2.5. In almost all cases, there is a positive association between donor quality (may it be in terms of transparency, selectivity, harmonization, specialization, etc.) and the effectiveness of its aid. However, only a few of the correlations are statistically

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8 Detailed regression results are provided in the appendix (Table A2.12).

Table 2.4: Growth, Institutional and Total Effects of Aid

| Donor | grGDPPC | Institution | Total Effect* |
|-------|---------|-------------|---------------|
| | *Dependent Variable:* | | |
| France | − | − | − |
| Canada | − | − | − |
| Germany | − | − | − |
| Italy | − | o | − |
| Finland | − | o | − |
| Japan | − | o | − |
| Luxembourg | o | − | − |
| Austria | o | o | o |
| Spain | o | o | o |
| Denmark | o | o | o |
| Sweden | + | − | ? |
| Belgium | + | − | ? |
| Australia | + | − | ? |
| Portugal | − | + | ? |
| UK | + | o | + |
| USA | + | o | + |
| Netherlands | o | + | + |
| Norway | o | + | + |
| Switzerland | o | + | + |
| Ireland | + | + | + |
| New Zealand | + | + | + |

* This is based on the signs of the effects from the previous two columns.

significant. In fact, the sample size is fairly small – 21 observations each for growth and institutional effects, and 17 observations for the total effect. The limited number of observations constrained the possibility of going beyond correlation analysis; running ordered logit/probit with 21 data points would not be meaningful. Nonetheless, this exercise reveals that the findings summarized in Table 2.4 are consistent with donor characteristics.

Going beyond rank-correlations and examining the literature on donor behavior reveals that some donors have positive attributes which clearly outweigh negative ones, others have the opposite (negative attributes outweighing the positive), while the remaining donors cannot be easily put in one of these categories. Hence, some of the results are expected or reconcilable while others are unexpected and irreconcilable. The cases of aid from Ireland, the Netherlands, France, Italy and Canada are among the ones highly consistent with the literature. Aid from Denmark and that from USA

Table 2.5: Spearman's Rank Correlation Coefficients

| Source: | Birdsall et al. | | | | Ghosh & Kharas |
|---|---|---|---|---|---|
| Criterion: | Burden | Institution | Transparency | Efficiency | Transparency |
| *Effect Ranked* | | | | | |
| Growth | 0.2793 | 0.0000 | 0.3564 | 0.0674 | 0.4142* |
| | (0.2201) | (1.0000) | (0.1128) | (0.7715) | (0.0620) |
| Institution | -0.0117 | 0.2111 | 0.1876 | 0.2580 | 0.2483 |
| | (0.9598) | (0.3584) | (0.4155) | (0.2589) | (0.2778) |
| Total | 0.1059 | 0.1588 | 0.3705 | 0.0529 | 0.5028* |
| | (0.6860) | (0.5427) | (0.1432) | (0.8401) | (0.0397) |
| Source: | Knack et al. | | | | |
| Criterion: | Selectivity | Alignment | Harmonization | Specialization | Overall |
| *Effect Ranked* | | | | | |
| Growth | 0.5201* | 0.0674 | 0.3178 | 0.1734 | 0.3756* |
| | (0.0157) | (0.7715) | (0.1603) | (0.4523) | (0.0933) |
| Institution | 0.0952 | 0.1297 | 0.0476 | -0.0317 | 0.0862 |
| | (0.6815) | (0.5753) | (0.8377) | (0.8914) | (0.7102) |
| Total | 0.4102 | 0.1323 | 0.3043 | 0.1985 | 0.3043 |
| | (0.1020) | (0.6127) | (0.2350) | (0.4451) | (0.2350) |
| Source: | Easterly & Williamson | Sum of | | | |
| Criterion: | Overall | | Ranks | Growth | Institution |
| *Effect Ranked* | | | | | |
| Growth | 0.1059 | | 0.3178 | | |
| | (0.6476) | | (0.1603) | | |
| Institution | 0.1290 | | 0.1269 | 0.0716 | |
| | (0.5774) | | (0.5836) | (0.7577) | |
| Total | 0.1588 | | 0.2646 | 0.8622* | 0.8060* |
| | (0.5427) | | (0.3047) | (0.0000) | (0.0001) |

* $p < 0.1$, p-value below the correlation coefficients

are among the ones that performed, respectively less and more than expected. For a detailed characterization of each donor, see Table A2.13.

In a nutshell, there is a clear heterogeneity in the effectiveness of aid among the 'traditional' donors. With the exception of few cases (remarkably for Denmark and USA, but also for Belgium and Austria), the results here are either as expected or at least plausible with the donor rankings and characterizations in the literature. In general, smaller donors provide better quality aid – they are more transparent, provide aid with better recipient-country-ownership, have better selectivity, are less fragmented by recipient and/or sector, better attempted to influence recipients' institutions favorably, avoid ineffective channels and have less overhead expenses, among others. Hence, the findings support the need to focus more on aid quality as opposed to the frequent call for the "scaling-up" of aid quantity. Moreover, the under- or overperformance of some donors, relative to expectations, suggests that aligning aid pro-

vision with recipient country priorities and specializing on fewer sectors or recipients are imperative.

### 2.5.4 *Growth and Institutional Effects of Chinese Aid*

The final question the study intends to address is: How does aid from China compare with aid from traditional donors in terms of effectiveness? In general, the data for Chinese aid are scarce to allow a similar level of investigation as undertaken above. However, given the current state of affairs in international development (research), it is imperative to say whatever data allow regarding this important 'new' donor.

To begin with some words of warning, data on China's aid to Africa are not from the Roodman (2005) dataset, and thus are not the preferred net aid transfer (NAT). Besides, what exactly constitutes aid in the case of China is not clearly defined as in the case of DAC donors. To complicate things further, unlike the DAC aid, the data are not from official sources, but rather from media reports. It is, however, the best at hand thanks to the efforts of Strange et al. (2013).

The aid data of Strange et al. (2013) are in 2009 US dollars, and cover the period 2000-2012. As usual the GDP comes from the World Bank's WDI. Aid from China to Africa (data available for 21 countries) ranges from 0 to 46.5% of recipient's GDP, and is about 2.59% on average. The maximum value of 46.5% is for Ghana in 2010, followed by Mozambique in 2010 (= 22.7%) and Zimbabwe in 2009 (= 20.5%). Over the entire period, Niger received the smallest (average) aid (0.53% of its GDP) followed by Senegal (0.62%), and Zimbabwe received the highest (9.8%) followed by Ghana (7.6%).

The t-test for the mean comparison of aid received by above-average and below-average institutional quality groups rejects the null of no difference in favor of the alternative that the group with poorer institutional quality received more aid than the better performing group. Similarly, the group with above-average aid from China has a lower score on institutional quality. In terms of economic growth, it seems that, at the margin, more Chinese aid went to better performing countries.[9] On the other hand, the difference between the average economic growth rates of 2.78% for below-average aid group and 3.75% for the above-average group is statistically insignificant.

An attempt to run a PMG estimation on the three variables was unsuccessful at first. Scrutinizing the data more closely reveals that some countries have to be dropped out of the sample: the institutional quality variable has no variation over the entire period for Sudan, and ten other countries (Cote d'Ivoire, Lesotho, Liberia, Mali, Malawi, Niger, Nigeria, Rwanda, Senegal, and Zambia) are characterized by discontinuous time-series. This is a serious blow to an already small sample. Nonetheless, combining the temporal and spacial variations is better than keeping all the 21 recipients and

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9 The p-value for the one-sided null hypothesis of no difference against the left-sided alternative (of less growth - less aid) is 0.0991.

resorting to the use of cross-sectional regression (averaging over time which removes the temporal dimension). Table 2.6 gives the results.

Table 2.6: Economic Growth, Chinese Aid and Institutions

| *Dep. Var.*: | $\Delta grGDPPC$ | $\Delta Institution$ | $\Delta Aid\_China$ |
|---|---|---|---|
| *Long Run*: | | | |
| grGDPPC | | 0.069*** | 0.085 |
| Aid_China | 0.152*** | -0.224*** | |
| Institution | 1.522*** | | -0.107 |
| *Short Run*: | | | |
| Adj. Speed | -0.865*** | -0.138** | -0.908*** |
| $\Delta$Aid_China | -0.049 | -0.031* | |
| $\Delta$Institution | 2.085 | | -2.535 |
| $\Delta$grGDPPC | | 0.005 | 0.125 |
| Constant | -3.141*** | 0.549** | 3.888*** |
| N | 120 | 120 | 120 |
| $\bar{T}$ | 12 | 12 | 12 |
| n | 10 | 10 | 10 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Inferring from the table, there is a positive unidirectional causality running from Chinese aid to economic growth – more aid leading to faster growth. Chinese aid appears to be exogenous with respect to both economic growth and institutional quality. That is, the evidence here supports the claim that, in giving aid, China does not discriminate between 'good' and 'bad' recipients in terms of institutional quality. Neither does it show selectivity with respect to recipient's economic growth performance.

The positive bidirectional causality between economic growth and institutional quality (established in previous sections) is present in this model as well. Institutional quality not only fosters economic growth but also benefits from faster growth, even in a time span roughly as short as a decade.

Just like the case of some 'traditional' donors, Chinese aid harms the recipients' institutional quality. The two results – the positive effect of Chinese aid on growth and its negative effect on institutional quality – make the overall effect of China's aid indeterminate, at least in the current sample of countries. Given the short time dimension that may question the applicability of the PMG estimator to this case, these relationships have also been estimated using system-GMM. Although the results are not generally expected to be the same, the growth and institutional effects are in agreement with the PMG results (see Table A2.10).

In sum, Chinese aid is better than aid from traditional donors taken as aggregate, as well as that from some DAC-donors taken individually (including France, Canada, Germany, Japan, Italy, Finland and Luxembourg) but possibly inferior to aid from the others. It fits in the same group of donors as Australia, Sweden and Belgium. However,

and once again, the poorer quality of data and the smaller sample size warn us to take the results for China more cautiously. For better comparability, the basic model for aggregate aid from DAC-donors has been re-estimated for the 2000-2012 sub-period. Accordingly, the institutional-effect of DAC-aid is negative but insignificant and the growth-effect is negative and significant in the short run (Table A11). This supports what has been said so far.

## 2.6 CONCLUSION

The debate on aid effectiveness has evolved through various stages. It now seems that we are back to square one searching for intermediating variables between aid and growth as in the 1960s. This study has taken up this approach of *opening the black box* and investigated the intermediating role of institutions. Besides, it has examined if the effects of aid on growth and institutions are different for different recipients (parameter heterogeneity) and also if aid from different donors display different aid effectiveness outcomes (donor heterogeneity).

Using PMG estimator to allow for parameter heterogeneity reveals that the direct effect of (aggregate) aid from 'traditional' donors on economic growth is not robust to different specifications, but always non-positive. However, aid from these sources has a robust negative effect on institutional quality which, together with the robust positive effect of institutional quality on growth, establishes a negative indirect (and overall) effect of aid on growth. Another robust relationship is that poorer performance (both in terms of growth and institutional quality) has attracted more aid from DAC-donors. With a few exceptions where either the influence of aid and growth on institutional quality or the effect of institutions and growth on the amount of aid received is insignificant, recipient-heterogeneity appears to be mainly a short-run phenomenon.

Estimating a different equation for each of these donors shows that this average behavior of negative overall growth-effect of aid holds for some donors but not for others. Specifically, aid flows from France, Japan, Germany, Canada, Finland, Italy and Luxembourg have impacted the region's economy negatively. On the other hand, aid flows from Ireland, the Netherlands, Norway, New Zealand and Switzerland have positive long run effects. The effects of Danish, Spanish and Austrian aids are insignificant. Donors with ambiguous total effect – where the direct effects are positive and the indirect effects are negative or vice versa – are Sweden, Australia, Portugal and Belgium. The results for most of these donors are consistent with how the qualities of their aid have been evaluated in various sources. The short-run relationships are generally not robust to alternative specifications and/or estimation techniques.

Finally, the effect of Chinese aid to Africa has been assessed. While the relatively smaller number of recipient countries and the shorter time-dimension – coupled with the issue of data quality – substantiate caution in taking the result too far, it appears that the direct effect of Chinese aid on growth is positive and its indirect effect is

negative. Hence, like aid from 4 out of 21 'traditional' donors, the overall effect of Chinese aid is indeterminate.

Overall, this study concludes that a universal praise or disapproval of development assistance is clearly wrong. Aid from a large number of donors has neither assisted economic growth nor fostered institutional quality. However, there are donors for which there is enough statistical support in either or both of these areas. There are cases of success (failure) which are clearly reflective of good (poor) donor performances across a number of donor quality indicators – transparency, use of effective channels, poverty- and policy/institutional-selectivity, alignment with recipient priority areas, specialization (with respect to recipients as well as sectors), lower administrative costs, predictability, and focusing on efforts to foster institutions. Therefore, the findings of this study support policy recommendations emphasizing the quality aspect of aid over the common call for 'scaling up aid'.

Another important policy lesson – which comes from the cases of donors with mixed scores on various indicators – is that two aspects of quality appear to be better predictors of success or failure than the rest: concentrating on a few recipients or sectors (i.e., *better specialization* or *less fragmentation)* and *alignment* of donor actions with recipient priorities and systems. The 'above-expectation' results (for the cases of Portugal, Spain, Austria, Switzerland and New Zealand) and 'below-expectation' (for Denmark, Germany and Sweden) – relative to the overall ranking of each of these donors – underscore the relative importance of these two donor-qualities. These are also areas where little has been achieved so far. As pointed out in the literature, despite making declarations and setting agendas, recipient ownership of aid (a prerequisite for alignment) still remains on paper (Keeley, 2012) and donor fragmentation is one of the areas where *no* significant improvement is taking place (Easterly & Williamson, 2011). Therefore, these should be what all parties in aid business focus on if aid is to be more effective.

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*A. Figures*
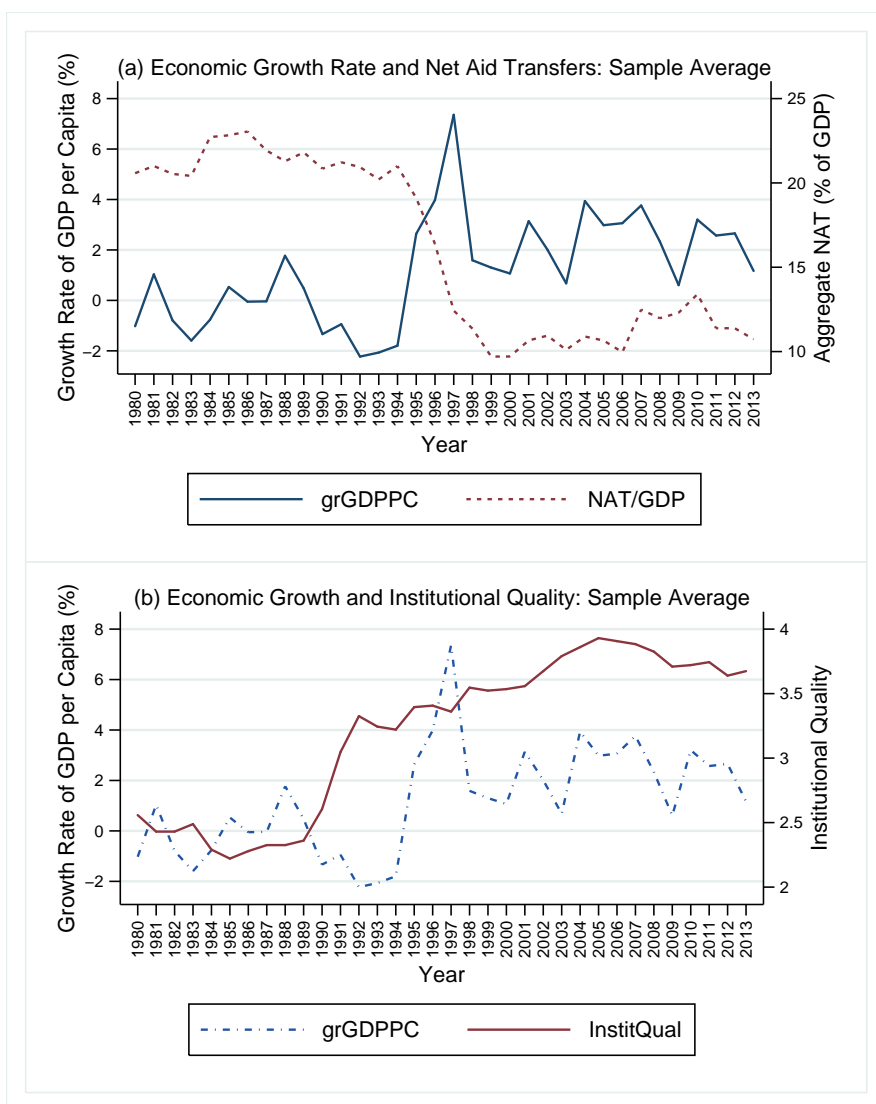


Figure A2.1: Economic Growth, Institutional Quality and Aid in the Sample of Countries
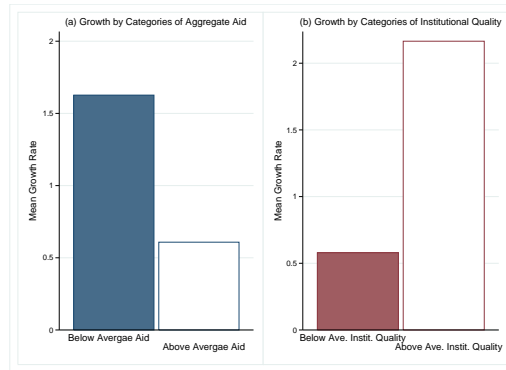
Figure A2.2: Economic Growth by Categories of Aid and Institutional Quality
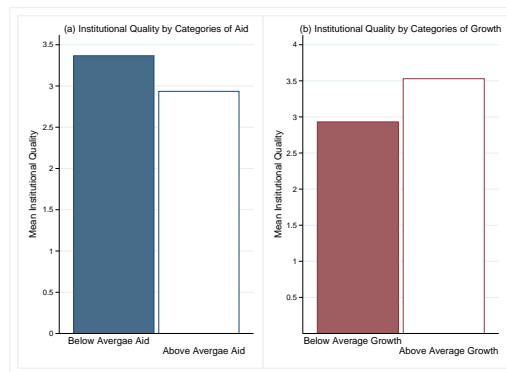


Figure A2.3: Institutional Quality by Categories of Aid and Economic Growth
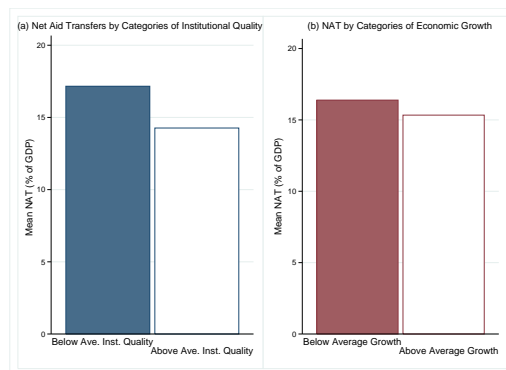


Figure A2.4: Aid by Categories of Institutional Quality and Economic Growth

*B. Tables*

Table A2.1: Mean Values of the Main Variables

| Recipient | grGDPPC | NAT (% of GDP) | Institutional Quality |
|---|---|---|---|
| Angola | 2.54 | 2.25 | 1.82 |
| Benin | 0.93 | 11.89 | 4.40 |
| Botswana | 4.33 | 3.94 | 5.82 |
| Burkina Faso | 2.22 | 19.07 | 3.21 |
| Burundi | -0.59 | 31.34 | 2.15 |
| Cameroon | 0.02 | 3.93 | 1.99 |
| Cape Verde | 5.40 | 45.18 | 5.22 |
| Central African Rep. | -1.10 | 18.17 | 2.87 |
| Chad | 2.57 | 10.69 | 1.90 |
| Comoros | -0.20 | 23.40 | 3.62 |
| Congo, Rep. | 1.34 | 3.66 | 2.59 |
| Cote d'Ivoire | -1.40 | 4.13 | 2.56 |
| D. R. Congo | -2.05 | 6.74 | 1.81 |
| Equatorial Guinea | 12.69 | 19.21 | 1.21 |
| Ethiopia | 2.19 | 17.84 | 2.29 |
| Gabon | -0.18 | 1.48 | 2.93 |
| Gambia | 0.12 | 26.09 | 3.72 |
| Ghana | 1.87 | 11.60 | 4.37 |
| Guinea | 0.40 | 16.70 | 2.21 |
| Guinea-Bissau | 0.13 | 28.05 | 3.09 |
| Kenya | 0.56 | 7.75 | 3.15 |
| Lesotho | 2.31 | 19.05 | 4.04 |
| Liberia | 0.20 | 49.83 | 2.91 |
| Madagascar | -1.19 | 13.22 | 3.87 |
| Malawi | 0.46 | 27.67 | 3.40 |
| Mali | 0.69 | 21.21 | 4.04 |
| Mauritania | 0.27 | 26.95 | 2.15 |
| Mauritius | 3.61 | 2.15 | 6.29 |
| Mozambique | 2.47 | 36.40 | 3.37 |
| Niger | -1.00 | 18.73 | 3.12 |
| Nigeria | 0.97 | 0.60 | 3.35 |
| Rwanda | 2.01 | 31.56 | 2.04 |
| Senegal | 0.19 | 13.94 | 4.60 |
| Seychelles | 2.19 | 5.06 | 3.85 |
| Sierra Leone | 0.16 | 18.14 | 3.49 |
| South Africa | 0.41 | 0.29 | 4.82 |
| Sudan | 1.56 | 8.83 | 1.51 |
| Swaziland | 2.46 | 3.96 | 2.41 |
| Tanzania | 2.14 | 15.92 | 3.31 |
| Togo | -0.19 | 11.73 | 2.50 |
| Uganda | 2.46 | 17.68 | 3.25 |
| Zambia | 0.86 | 14.16 | 3.75 |
| Zimbabwe | -0.30 | 8.83 | 2.66 |
| Total | 1.25 | 15.94 | 3.20 |

Table A2.2: Group Average Comparison of Variables: t-test (Unequal Variance)

| | |
|---|---|
| *GDP per Capita Growth:* | Mean (for Below Average NAT/GDP) = 1.6265 |
| | Mean (for Above Average NAT/GDP) = .6080 |
| | Difference: Mean(Below) - Mean(Above) = 1.0185 |
| | p-value: two-sided (one-sided) = 0.0203 (0.0101) |
| | Mean (for Below Average Institution) = 0.5788 |
| | Mean (for Above Average Institution) = 2.1649 |
| | Difference: Mean(Below) - Mean(Above) = -1.5861 |
| | p-value: two-sided (one-sided) = 0.0001 (0.0000) |
| *Institutional Quality:* | Mean (for Below Average NAT/GDP) = 3.3668 |
| | Mean (for Above Average NAT/GDP) = 2.9349 |
| | Difference: Mean(Below) - Mean(Above) = 0.4319 |
| | p-value: two-sided (one-sided) = 0.0000 (0.0000) |
| | Mean (for Below Average Growth) = 2.9317 |
| | Mean (for Above Average Growth) = 3.5291 |
| | Difference: Mean(Below) - Mean(Above) = -0.5974 |
| | p-value: two-sided (one-sided) = 0.0000 (0.0000) |
| *Net Aid Transfers:* | Mean (for Below Average Growth) = 16.3877 |
| | Mean (for Above Average Growth) = 15.3355 |
| | Difference: Mean(Below) - Mean(Above) = 1.0522 |
| | p-value: two-sided (one-sided) = 0.2259 (0.1129) |
| | Mean (for Below Average Institution) = 17.1601 |
| | Mean (for Above Average Institution) = 14.2665 |
| | Difference: Mean(Below) - Mean(Above) = 2.8936 |
| | p-value: two-sided (one-sided) = 0.0005 (0.0003) |

Table A2.3: Economic Growth, Institutions and Net Aid Transfers (NAT): Dynamic CCE MG Estimates

| Depend. Var.: | ΔgrGDPPC | | | ΔInstitution | | | ΔNAT | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (1) | (2) | (3) | (1) | (2) | (3) |
| *Long Run:* | | | | | | | | | |
| NAT | 0.021 | 0.009 | 0.034 | -0.012 | -0.012 | -0.021 | | | |
| Institution | 0.915*** | 0.746*** | 0.775** | | | | -2.463** | -1.901 | -1.860 |
| grGDPPC | | | | 0.087*** | 0.121*** | 0.129*** | -1.494*** | -1.970*** | -1.136*** |
| *Short Run:* | | | | | | | | | |
| Adjustment Speed | -0.711*** | -0.822*** | -0.836*** | -0.118*** | -0.112*** | -0.123*** | -0.176*** | -0.145*** | -0.219*** |
| ΔNAT | -0.121 | -0.458 | -0.593 | 0.012 | -0.039 | 0.046 | | | |
| ΔInstitution | 1.507* | 1.601** | 2.214 | | | | -0.240 | -0.276 | 0.053 |
| ΔgrGDPPC | | | | -0.000 | -0.004 | -0.002 | 0.046* | 0.069 | 0.113*** |
| Constant | -1.339*** | -0.787*** | -0.896*** | 0.396*** | 0.373*** | 0.428*** | 4.440*** | 3.504*** | 4.942*** |
| N | 1335 | 1259 | 1179 | 1335 | 1259 | 1179 | 1335 | 1259 | 1179 |
| CD statistic | 2.312 | 1.544 | 1.379 | -0.913 | -0.638 | -0.600 | 0.316 | 1.246 | 0.898 |
| CD p-value | 0.021 | 0.123 | 0.168 | 0.361 | 0.524 | 0.548 | 0.752 | 0.213 | 0.369 |
| Adj.R² | 0.529 | 0.581 | 0.651 | 0.201 | 0.217 | 0.275 | 0.343 | 0.339 | 0.415 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, CD = Cross-sectional Dependence. For each dependent variable, models (1), (2) and (3) correspond to cr_lags 1, 2 and 3 respectively, where cr_lags refers to the number of lags of the cross sectional averages included in the regression.

Table A2.4: Economic Growth, Aid and Institutions: ARDL(4,4,4) Model

| Dependent Variable | ΔgrGDPPC | ΔNAT | ΔInstitution |
|---|---|---|---|
| *Long Run:* | | | |
| Institution | 0.209*** | -2.649*** | |
| NAT | -0.053*** | | -0.028*** |
| grGDPPC | | -2.019*** | 0.067*** |
| *Short Run:* | | | |
| Adjustment Speed | -0.908*** | -0.157*** | -0.238*** |
| ΔgrGDPPC | | -0.154*** | 0.005 |
| LΔgrGDPPC | 0.049 | 0.080 | -0.002 |
| L2ΔgrGDPPC | 0.030 | 0.059 | -0.007 |
| L3ΔgrGDPPC | 0.053 | 0.030 | -0.001 |
| ΔInstitution | 2.597** | 0.390 | |
| LΔInstitution | 0.380 | -0.149 | 0.116*** |
| L2ΔInstitution | -0.218 | 0.244 | -0.060* |
| L3ΔInstitution | 0.638 | 1.179** | 0.043 |
| ΔNAT | -0.859 | | 0.001 |
| LΔNAT | -0.515 | -0.265*** | 0.096 |
| L2ΔNAT | -0.275 | -0.089** | 0.076 |
| L3ΔNAT | -0.011 | 0.050 | 0.034* |
| Constant | 1.331*** | 4.482*** | 0.891*** |
| N | 1249 | 1249 | 1249 |
| $\bar{T}$ | 29.05 | 29.05 | 29.05 |
| n | 43 | 43 | 43 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2.5: Economic Growth, Aid and Institutions: ARDL(1,1,1) Model Post Cold-War

| Dependent Variable | $\Delta$grGDPPC | $\Delta$NAT | $\Delta$Institution |
|---|---|---|---|
| *Long Run:* | | | |
| Institution | 0.577*** | -0.645*** | |
| NAT | -0.041** | | -0.013*** |
| grGDPPC | | -0.196*** | 0.045*** |
| *Short Run:* | | | |
| Adjustment Speed | -0.867*** | -0.331*** | -0.283*** |
| Institution | 2.258** | -0.531 | |
| NAT | -0.153* | | -0.026 |
| grGDPPC | | -0.076** | 0.007* |
| Constant | 0.038 | 5.212*** | 1.137*** |
| N | 1031 | 1031 | 1007 |
| $\bar{T}$ | 23.977 | 23.977 | 23.976 |
| n | 43 | 43 | 42 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2.6: Economic Growth, Aid and Institutions: ARDL(1,1,1) Model with Controls

| Dependent Variable | $\Delta$grGDPPC | $\Delta$Institution | $\Delta$NAT |
|---|---|---|---|
| *Long Run:* | | | |
| Rent | -0.022 | -0.006 | -0.007 |
| NAT | -0.014 | -0.016*** | |
| Institution | 0.470*** | | -0.869*** |
| Net National Saving | 0.087*** | 0.008** | -0.037*** |
| FDI | 0.075** | -0.004 | 0.008 |
| Human Capital | 0.094*** | 0.137*** | -0.040 |
| grPOP | -0.643*** | 0.151*** | 1.359*** |
| grGDPPC | | 0.035*** | -0.033 |
| *Short Run:* | | | |
| Adjustment Speed | -0.929*** | -0.309*** | -0.411*** |
| $\Delta$Rent | 2.067 | -0.193 | 0.345 |
| $\Delta$NAT | -0.188 | -0.055 | |
| $\Delta$Institution | 1.064** | | -0.933 |
| $\Delta$Net National Saving | 0.177*** | 0.010* | 0.062 |
| $\Delta$FDI | 0.236 | 0.015 | -0.014 |
| $\Delta$Human Capital | 2.115*** | 0.349 | 1.581 |
| $\Delta$grPOP | -0.908 | -0.945 | -0.060 |
| $\Delta$grGDPPC | | 0.006 | -0.023 |
| Constant | -4.431*** | -1.324*** | 5.850*** |
| N | 929 | 929 | 929 |
| $\bar{T}$ | 28.152 | 28.152 | 28.152 |
| n | 33 | 33 | 33 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2.7: Economic Growth, Net ODA and Institutions: ARDL(1,1,1) Model

| Dependent Variable | $\Delta$grGDPPC | $\Delta$Net ODA | $\Delta$Institution |
|---|---|---|---|
| *Long Run:* | | | |
| Institution | 0.559*** | -1.980*** | |
| Net ODA | -0.007 | | -0.021*** |
| grGDPPC | | -0.212*** | 0.073*** |
| *Short Run:* | | | |
| Adjustment Speed | -0.822*** | -0.282*** | -0.171*** |
| $\Delta$Institution | 2.239** | -1.040 | |
| $\Delta$Net ODA | -0.128*** | | -0.028 |
| $\Delta$grGDPPC | | -0.051* | 0.010*** |
| Constant | -0.462* | 6.191*** | 0.635*** |
| N | 1378 | 1378 | 1378 |
| $\bar{T}$ | 32.047 | 32.047 | 32.047 |
| n | 43 | 43 | 43 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2.8: ARDL(1,1,1) Model Controlled for Policy Variables

| Dependent Variable | $\Delta$grGDPPC | $\Delta$Institution | $\Delta$NAT |
|---|---|---|---|
| *Long Run:* | | | |
| Institution | 0.264** | | -0.717*** |
| NAT | 0.003 | -0.032*** | |
| FDI | 0.074** | 0.002 | 0.064*** |
| grPOP | -0.331*** | 0.184*** | |
| Openness | 0.069*** | -0.012*** | 0.003 |
| Gov't Consumption | -0.159*** | | -0.120*** |
| Inflation | 0.000 | | 0.001*** |
| grGDPPC | | 0.063*** | -0.099*** |
| ln(Population) | | | -2.943*** |
| *Short Run:* | | | |
| Adjustment Speed | -0.857*** | -0.192*** | -0.344*** |
| $\Delta$Institution | 2.532** | | -0.841 |
| $\Delta$NAT | -0.091 | -0.034 | |
| $\Delta$FDI | 0.314** | 0.007 | -0.042 |
| $\Delta$grPOP | 3.887 | -0.478 | |
| $\Delta$Openness | 0.071*** | -0.003 | 0.047** |
| $\Delta$Gov't Consumption | -0.402* | | 0.016 |
| $\Delta$Inflation | -0.065*** | | 0.006 |
| $\Delta$grGDPPC | | 0.010*** | -0.053** |
| $\Delta$ln(Population) | | | 24.718 |
| Constant | -0.833* | 0.770*** | 21.229*** |
| N | 1163 | 1335 | 1163 |
| $\bar{T}$ | 27.047 | 31.047 | 27.047 |
| n | 43 | 43 | 43 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data for government
consumption are from PWT7.1 (Heston et al., 2012)

Table A2.9: Economic Growth, Aid and Institutions: ARDL(1,1,1) Model in Sub-Samples

| Depend. Var. | $\Delta grGDPPC$ (1)[a] | $\Delta grGDPPC$ (2)[b] | $\Delta NAT$ (3)[a] | $\Delta NAT$ (4)[b] | $\Delta Institution$ (5)[a] | $\Delta Institution$ (6)[b] |
|---|---|---|---|---|---|---|
| *Long Run:* | | | | | | |
| Institution | 0.511*** | 0.537*** | -1.436*** | -1.060*** | | |
| NAT | -0.018 | -0.030** | | | -0.025*** | -0.026*** |
| grGDPPC | | | -0.312*** | -0.327*** | 0.067*** | 0.066*** |
| *Short Run:* | | | | | | |
| Adj. Speed | -0.844*** | -0.840*** | -0.264*** | -0.260*** | -0.184*** | -0.191*** |
| $\Delta$Institution | 1.466** | 1.083** | -1.036 | -0.983 | | |
| $\Delta$NAT | -0.189** | -0.208** | | | -0.035 | -0.040 |
| $\Delta$grGDPPC | | | -0.091*** | -0.081*** | 0.009** | 0.009** |
| Constant | -0.457** | -0.333 | 5.391*** | 4.612*** | 0.704*** | 0.726*** |
| N | 1182 | 1051 | 1182 | 1051 | 1182 | 1051 |
| $\bar{T}$ | 31.946 | 31.848 | 31.946 | 31.848 | 31.946 | 31.848 |
| n | 37 | 33 | 37 | 33 | 37 | 33 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, a = excludes Chad, D. R. of Congo, Zimbabwe, Cape Verde, Central African Republic and Equatorial Guinea. b = excludes Comoros, Guinea Bissau, Liberia and Mauritania, in addition to those listed above. Dropping is due to large number of missing values. N = Number of Observations, $\bar{T}$ = Average Number of Observations per Group, n = Number of Groups

Table A2.10: Effects of Chinese Aid: System-GMM Results

| Dependent Variable: | $\Delta grGDPPC$ | $\Delta Institution$ |
|---|---|---|
| L.grGDPPC | 0.475*** | |
| grGDPPC | | -0.001 |
| Aid_China | 0.205** | -0.006* |
| Institution | -0.310 | |
| L.Institution | | 0.940*** |
| Constant | 2.308 | 0.284** |
| N | 120 | 120 |
| $\bar{T}$ | 12 | 12 |
| AB(1) | -1.999** | -2.603*** |
| AB(2) | -1.965** | -1.595 |
| Sargan | 130.0678 | 120.0905 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2.11: Economic Growth, Aid and Institutions for the Period 2000-2012

| Dependent Variable | $\Delta grGDPPC$ | $\Delta NAT$ | $\Delta Institution$ |
|---|---|---|---|
| *Long Run:* | | | |
| Institution | 0.983** | 0.339 | |
| NAT | 0.131 | | -0.0001 |
| grGDPPC | | -0.099 | 0.017 |
| *Short Run:* | | | |
| Adjustment Speed | -0.881*** | -0.410*** | -0.301*** |
| $\Delta$Institution | 3.719 | 1.176** | |
| $\Delta$NAT | -0.909* | | 0.022 |
| $\Delta$grGDPPC | | -0.140*** | 0.010* |
| Constant | -2.137*** | 4.050*** | 1.248*** |
| N | 130 | 130 | 130 |
| $\bar{T}$ | 13 | 13 | 13 |
| n | 10 | 10 | 10 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2.12: Economic Growth, Institutions and Aid: ARDL(1,1,1) Model by Donor

| Dependent Variable | $\Delta grGDPPC$ | $\Delta Institution$ | $\Delta grGDPPC$ | $\Delta Institution$ |
|---|---|---|---|---|
| Donor | USA | | Netherlands | |
| *Long Run:* | | | | |
| Institution | 0.530*** | | 0.582*** | |
| NAT from This Donor | 0.283*** | -0.012 | 0.235 | 1.015*** |
| NAT from All donors | -0.050*** | -0.025*** | -0.016 | -0.001 |
| GrGDPPC | | 0.053*** | | 0.003 |
| *Short Run:* | | | | |
| Adjustment Speed | -0.823*** | -0.182*** | -0.820*** | -0.184*** |
| $\Delta$Institution | 2.134** | | 2.047** | |
| $\Delta$NAT from This Donor | 0.178 | 0.121 | -3.266 | 0.417 |
| $\Delta$NAT from All Donors | -0.173** | 0.004 | -0.391** | -0.003 |
| $\Delta$grGDPPC | | 0.007** | | 0.003 |
| Constant | -0.107 | 0.719*** | -0.525* | 0.567*** |
| N | 1375 | 1375 | 1375 | 1375 |
| $\bar{T}$ | 31.977 | 31.977 | 31.977 | 31.977 |
| n | 43.000 | 43.000 | 43.000 | 43.000 |
| Donor | UK | | France | |
| *Long Run:* | | | | |
| Institution | 0.523*** | | 0.423*** | |
| NAT from This Donor | 0.796*** | -0.026 | -0.145** | -0.096*** |
| NAT from All Donors | -0.027* | -0.024*** | 0.001 | 0.022** |
| GrGDPPC | | 0.061*** | | 0.002 |
| *Short Run:* | | | | |
| Adjustment Speed | -0.798*** | -0.186*** | -0.821*** | -0.188*** |
| $\Delta$Institution | 2.126*** | | 2.032** | |
| $\Delta$NAT from This Donor | -18.129 | 1.344 | -4.066 | 0.018 |
| $\Delta$NAT from All Donors | -0.369*** | -0.018** | -0.425 | 0.011 |
| $\Delta$grGDPPC | | 0.010*** | | 0.002 |
| Constant | -0.504* | 0.726*** | -0.008 | 0.629*** |
| N | 1373 | 1373 | 1375 | 1375 |
| $\bar{T}$ | 31.930 | 31.930 | 31.977 | 31.977 |
| n | 43.000 | 43.000 | 43.000 | 43.000 |

Table A2.12 Continued

| Dependent Variable | ΔgrGDPPC | ΔInstitution | ΔgrGDPPC | ΔInstitution |
|---|---|---|---|---|
| Donor | | Japan | | Germany |
| *Long Run:* | | | | |
| Institution | 0.574*** | | 0.434*** | |
| NAT from This Donor | -0.554** | 0.103 | -0.380** | -0.400*** |
| NAT from All Donors | -0.003 | -0.024*** | 0.018 | -0.003 |
| GrGDPPC | | 0.059*** | | 0.044*** |
| *Short Run:* | | | | |
| Adjustment Speed | -0.822*** | -0.187*** | -0.819*** | -0.196*** |
| ΔInstitution | 2.178** | | 2.026** | |
| ΔNAT from This Donor | -2.451 | 0.146 | 2.545 | -0.302** |
| ΔNAT from All Donors | -0.283** | -0.008 | -0.575* | 0.002 |
| ΔgrGDPPC | | 0.010*** | | 0.007** |
| Constant | -0.302 | 0.714*** | -0.211 | 0.761*** |
| N | 1375 | 1375 | 1375 | 1375 |
| $\bar{T}$ | 31.977 | 31.977 | 31.977 | 31.977 |
| n | 43.000 | 43.000 | 43.000 | 43.000 |
| Donor | | Italy | | Canada |
| *Long Run:* | | | | |
| Institution | 0.471*** | | 0.498*** | |
| NAT from This Donor | -0.211* | -0.038 | -0.778* | -1.500*** |
| NAT from All Donors | 0.000 | -0.022*** | 0.006 | 0.021** |
| GrGDPPC | | 0.061*** | | 0.037*** |
| *Short Run:* | | | | |
| Adjustment Speed | -0.812*** | -0.190*** | -0.815*** | -0.178*** |
| ΔInstitution | 2.255*** | | 2.181*** | |
| ΔNAT from This Donor | 10.918 | -0.414 | -1.999 | 0.121 |
| ΔNAT from All Donors | -0.411 | 0.001 | -0.325* | 0.003 |
| ΔgrGDPPC | | 0.009*** | | 0.007** |
| Constant | -0.286 | 0.724*** | -0.264 | 0.652*** |
| N | 1375 | 1375 | 1375 | 1375 |
| $\bar{T}$ | 31.977 | 31.977 | 31.977 | 31.977 |
| n | 43.000 | 43.000 | 43.000 | 43.000 |

Table A2.12 Continued

| Dependent Variable | ΔgrGDPPC | ΔInstitution | ΔgrGDPPC | ΔInstitution |
|---|---|---|---|---|
| Donor | Norway | | Sweden | |
| *Long Run:* | | | | |
| Institution | 0.436*** | | 0.546*** | |
| NAT from This Donor | 0.398 | 0.954*** | 0.475** | -0.693*** |
| NAT from All Donors | -0.031** | -0.004 | -0.028** | 0.080*** |
| GrGDPPC | | 0.002 | | 0.003 |
| *Short Run:* | | | | |
| Adjustment Speed | -0.813*** | -0.191*** | -0.821*** | -0.156*** |
| ΔInstitution | 2.146** | | 2.196** | |
| ΔNAT from This Donor | 6.938 | -0.959 | -1671.762 | 2.183 |
| ΔNAT from All Donors | -0.190*** | -0.001 | -0.405** | 0.007 |
| ΔgrGDPPC | | 0.001 | | 0.003 |
| Constant | 0.097 | 0.605*** | -0.283 | 0.458*** |
| N | 1375 | 1375 | 1375 | 1375 |
| $\bar{T}$ | 31.977 | 31.977 | 31.977 | 31.977 |
| n | 43.000 | 43.000 | 43.000 | 43.000 |
| Donor | Australia | | Austria | |
| *Long Run:* | | | | |
| Institution | 0.505*** | | 0.497*** | |
| NAT from This Donor | 4.425*** | -1.348*** | 0.421 | 0.620 |
| NAT from All Donors | -0.037*** | -0.004 | -0.010 | -0.025*** |
| GrGDPPC | | 0.002 | | 0.070*** |
| *Short Run:* | | | | |
| Adjustment Speed | -0.817*** | -0.197*** | -0.819*** | -0.174*** |
| ΔInstitution | 2.192** | | 1.947** | |
| ΔNAT from This Donor | -899.936 | -13.563 | -34.310 | -6.171 |
| ΔNAT from All Donors | -0.257** | -0.011 | -0.177** | 0.006 |
| ΔgrGDPPC | | 0.004 | | 0.009*** |
| Constant | -0.095 | 0.694*** | -0.246 | 0.650*** |
| N | 1375 | 1375 | 1372 | 1372 |
| $\bar{T}$ | 31.977 | 31.977 | 31.907 | 31.907 |
| n | 43.000 | 43.000 | 43.000 | 43.000 |

Table A2.12 Continued

| Dependent Variable | $\Delta$grGDPPC | $\Delta$Institution | $\Delta$grGDPPC | $\Delta$Institution |
|---|---|---|---|---|
| Donor | Belgium | | Switzerland | |
| _Long Run:_ | | | | |
| Institution | 0.512*** | | 0.488*** | |
| NAT from This Donor | 0.539** | -0.364*** | -0.352 | 4.427*** |
| NAT from All Donors | -0.015 | 0.062*** | -0.014 | -0.040*** |
| GrGDPPC | | -0.000 | | 0.028** |
| _Short Run:_ | | | | |
| Adjustment Speed | -0.811*** | -0.162*** | -0.805*** | -0.164*** |
| $\Delta$Institution | 2.092** | | 2.022** | |
| $\Delta$NAT from This Donor | 31.784 | 0.370 | -27.572 | -8.742 |
| $\Delta$NAT from All Donors | -0.298 | -0.005 | -0.345** | -0.002 |
| $\Delta$grGDPPC | | 0.001 | | 0.004 |
| Constant | -0.348 | 0.472*** | -0.109 | 0.596*** |
| N | 1373 | 1373 | 1375 | 1375 |
| $\bar{T}$ | 31.930 | 31.930 | 31.977 | 31.977 |
| n | 43.000 | 43.000 | 43.000 | 43.000 |
| Donor | Portugal | | Luxembourg | |
| _Long Run:_ | | | | |
| Institution | 1.909*** | | 1.270*** | |
| NAT from This Donor | -0.554* | 0.303* | 1.086 | -0.353*** |
| NAT from All Donors | 0.059** | 0.041** | -0.027 | -0.012*** |
| GrGDPPC | | 0.006 | | 0.014** |
| _Short Run:_ | | | | |
| Adjustment Speed | -0.747*** | -0.275*** | -0.828*** | -0.341*** |
| $\Delta$Institution | 2.340* | | 1.599*** | |
| $\Delta$NAT from This Donor | 267.923 | -91.749 | -108.977 | -32.071 |
| $\Delta$NAT from All Donors | -0.698 | 0.010 | -0.394 | 0.011 |
| $\Delta$grGDPPC | | 0.002 | | 0.006 |
| Constant | -4.129*** | 0.883*** | -2.451*** | 1.483*** |
| N | 308 | 308 | 717 | 717 |
| $\bar{T}$ | 23.692 | 23.692 | 22.406 | 22.406 |
| n | 13.000 | 13.000 | 32.000 | 32.000 |

Table A2.12 Continued

| Dependent Variable | ΔgrGDPPC | ΔInstitution | ΔgrGDPPC | ΔInstitution |
|---|---|---|---|---|
| Donor | Finland | | Ireland | |
| *Long Run:* | | | | |
| Institution | 0.647*** | | 0.262*** | |
| NAT from This Donor | -3.863** | -1.485 | 2.748** | 2.044*** |
| NAT from All Donors | -0.009 | 0.071*** | -0.036** | -0.007 |
| GrGDPPC | | -0.004 | | 0.015* |
| *Short Run:* | | | | |
| Adjustment Speed | -0.817*** | -0.168*** | -0.838*** | -0.224*** |
| ΔInstitution | 1.480*** | | 1.196** | |
| ΔNAT from This Donor | 27.554 | 11.767 | -168.126 | -8.377 |
| ΔNAT from All Donors | -0.328** | -0.007 | -0.382 | -0.024* |
| ΔgrGDPPC | | 0.001 | | 0.002 |
| Constant | -0.667*** | 0.475*** | 0.518*** | 0.785*** |
| N | 1158 | 1158 | 1050 | 1050 |
| $\bar{T}$ | 31.297 | 31.297 | 30.000 | 30.000 |
| n | 37.000 | 37.000 | 35.000 | 35.000 |
| Donor | Spain | | Denmark | |
| *Long Run:* | | | | |
| Institution | 0.536*** | | 0.615*** | |
| NAT from This Donor | -0.225 | -0.028 | -0.374 | -0.157 |
| NAT from All Donors | -0.028 | 0.006 | -0.012 | -0.020*** |
| GrGDPPC | | 0.003 | | 0.064*** |
| *Short Run:* | | | | |
| Adjustment Speed | -0.838*** | -0.273*** | -0.816*** | -0.190*** |
| ΔInstitution | 2.193** | | 1.480*** | |
| ΔNAT from This Donor | -50.978 | 3.269 | -1.257 | 0.973*** |
| ΔNAT from All Donors | -0.358** | 0.004 | -0.429** | -0.004 |
| ΔgrGDPPC | | 0.001 | | 0.010*** |
| Constant | 0.083 | 0.952*** | -0.635*** | 0.706*** |
| N | 950 | 950 | 1212 | 1212 |
| $\bar{T}$ | 24.359 | 24.359 | 31.895 | 31.895 |
| n | 39.000 | 39.000 | 38.000 | 38.000 |

*Table A2.12 Continued*

| Dependent Variable | ΔgrGDPPC | ΔInstitution |
|---|---|---|
| Donor | New Zealand | |
| *Long Run:* | | |
| Institution | 0.624*** | |
| NAT from This Donor | 20.892 | 24.374* |
| NAT from All Donors | -0.026 | 0.028* |
| grGDPPC | | 0.021 |
| *Short Run:* | | |
| Adjustment Speed | -0.733*** | -0.181*** |
| ΔInstitution | 0.877 | |
| ΔNAT from This Donor | 328.663 | -29.682 |
| ΔNAT from All Donors | -0.353 | 0.001 |
| ΔgrGDPPC | | 0.000 |
| Constant | -0.266 | 0.680*** |
| N | 672 | 672 |
| $\bar{T}$ | 30.545 | 30.545 |
| n | 22.000 | 22.000 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A2.13: Donor Characterizations from the Donor / Aid Quality Literature

| Donor | Characteristics | |
| --- | --- | --- |
| | *Positive* | *Negative* |
| Ireland | • One of the few ranked consistently in the top. | |
| | • Ranked second by Ghosh & Kharas (2011) (based on transparency). | |
| | • Ranked second by Knack et al. (2011) (based on multiple dimensions). | |
| | • Ranked first by Birdsall et al. (2010) (based on focus on fostering recipients' institutions). It is the only bilateral donor "that scores in the top 10 on all four dimensions of aid quality" (Birdsall et al., 2010, p. 15). The four dimensions are: maximizing efficiency, fostering institutions, reducing the burden on recipients, and transparency and learning. | |
| | • ranks among the top in the Commitment to Development Index (CDI). | |

*Table A2.13 Continued*

## Characteristics

| Donor | Positive | Negative |
|---|---|---|
| Netherlands | • Performs well across indicators.<br><br>• One of the highly transparent (Easterly & Williamson, 2011)<br><br>• Among the least agency-fragmented (Birdsall et al., 2010)<br><br>• The best bilateral donor in selectivity and the third best in overall rank (Knack et al., 2011)<br><br>• In the top ten best performers in three out of four indicators, ranks third in fostering institutions, provides 100% untied aid, with high share of its aid recorded in recipients' budget, and is among donors with most coordinated missions (Birdsall et al., 2010). | • Relatively weak in specialization (Easterly & Williamson, 2011; Knack et al., 2011), but this is a characteristic also shared by Ireland and Denmark |
| France, Canada & Italy | | • Consistently appear towards the bottom in various rankings.<br><br>• None fares above average in the rankings of Birdsall et al. (2010), Ghosh & Kharas (2011), Knack et al. (2011) and Easterly & Williamson (2011).<br><br>• Donors who reward corruption (Mattesini & Isopi, 2008). |

Table A2.13 Continued

| Donor | Characteristics | |
| | Positive | Negative |
| --- | --- | --- |
| Japan | • Has one of the best aid agencies (Easterly & Williamson, 2011)<br>• Gives aid to less corrupt countries (Mattesini & Isopi, 2008) | Very much similar to France, Canada and Italy; performs poorly as evidenced in the rankings by Birdsall et al. (2010), Ghosh & Kharas (2011) and Knack et al. (2011). |
| Finland | | • A very poorly specialized (highly fragmented) donor (Knack et al., 2011; Easterly & Williamson, 2011; Birdsall et al., 2010).<br>• Among donors which spend the highest proportion of their Country Programmable Aid (CPA) on administrative costs, and is known for "the proliferation of small amounts of aid across a relatively large number of partners" (Birdsall et al., 2010, p. 60).<br>• The second worst (next to Greece) donor agency quality, and scores very badly in terms of reducing the use of ineffective channels like technical assistance and food aid (Easterly & Williamson, 2011) |

Table A2.13 Continued

| Donor | Characteristics | |
| --- | --- | --- |
| | Positive | Negative |
| Luxembourg | • Donates the highest share of its GNI (in 2014 CDI). <br> • Provides 100% untied aid and the highest share of its aid goes to recipients with good operational strategies (Birdsall et al., 2010). | • Its position in the CDI ranking (2014 composite index of 5.6) is mainly due to quantity sub-index (7.2) rather than quality (4.1). <br> • Less than a quarter (23%) of its aid goes to recipients' development priorities (Birdsall et al., 2010). <br> • Among the least focused on fostering institutions (Birdsall et al., 2010) <br> • Among the worst in aligning its aid with recipient countries' systems, institutions and procedures (Knack et al., 2011). <br> • Has below average transparency score (Ghosh & Kharas, 2011; Birdsall et al., 2010). <br> • High overhead costs and "the same country fragmentation as the US, and slightly more sector fragmentation, even though the US aid budget is 70 times larger" (Easterly & Williamson, 2011, p. 1936). |

*Table A2.13 Continued*

### Characteristics

| Donor | Positive | Negative |
|---|---|---|
| Australia | • Highly untied aid and good orientation towards recipient priority sectors (Birdsall et al., 2010)<br>• Low administrative cost (Easterly & Williamson, 2011; Birdsall et al., 2010)<br>• Top-rated transparency (Ghosh & Kharas, 2011; Birdsall et al., 2010) | • One of the worst in terms of channeling aid through effective ways (>30% of aid in technical assistance) (Easterly & Williamson, 2011)<br>• Scores very poorly in three out of four indictors by Birdsall et al. (2010) including the 'fostering institutions' criterion.<br>• The aid component of its CDI (4,8 for 2014) is below average. |
| United Kingdom | Does well across indicators.<br>• Its aid agencies are rated the best overall (Easterly & Williamson, 2011)<br>• Has the best poor-country orientation and second best in focusing on recipient priority areas (Birdsall et al., 2010)<br>• Has above average transparency (Ghosh & Kharas, 2011) | • Unanimously rated as poor in terms of specialization (Knack et al., 2011; Easterly & Williamson, 2011; Birdsall et al., 2010).<br>• Has poor selectivity (Knack et al., 2011) where selectivity encompasses both poverty- and policy/institutional- selectivity. |

*Table A2.13 Continued*

| Donor | Characteristics | |
|---|---|---|
| | *Positive* | *Negative* |
| Portugal | • Ranks top in terms of directing most of its aid to partner priority areas, its aid has the strongest good-governance orientation, and none of its aid is realized through donor Project Implementation Units (PIUs) (Birdsall et al., 2010). | • Highly (71%) tied aid, and its agencies are among the bottom performers (Easterly & Williamson, 2011) |
| | • Very low administrative costs (Easterly & Williamson, 2011; Birdsall et al., 2010). | • Poor in transparency (Ghosh & Kharas, 2011) |
| | • Fares well in specialization (Easterly & Williamson, 2011; Knack et al., 2011). | • Performs poorly in three out of four indicators (Birdsall et al., 2010). |
| Germany | • Among donors that reward less corruption (Mattesini & Isopi, 2008) | • below-average in selectivity (Easterly & Williamson, 2011) |
| | • Above average in fostering institutions (Birdsall et al., 2010). | • Scores poorly in selectivity and specialization (Knack et al., 2011) |
| | • Above-average in transparency (Ghosh & Kharas, 2011; Easterly & Williamson, 2011; Birdsall et al., 2010). | • One of the least efficient donors (Birdsall et al., 2010) |
| | • Well above-average harmonization and alignment subscores (Knack et al., 2011) | • >30% of its aid commitments not accounted for in project reports. (Birdsall et al., 2010) |
| | • Agency performance in the top five (Easterly & Williamson, 2011) | • The aid component of its 2014 CDI is below average |
| | • Low administrative costs and untied aid (Birdsall et al., 2010) | |
| | • Good predictability to recipients. (Birdsall et al., 2010) | |

Table A2.13 Continued

| Donor | Characteristics | |
| --- | --- | --- |
| | *Positive* | *Negative* |
| Norway & Sweden | • Their aid agencies do well in terms of reducing the use of ineffective channels.<br>• In all evaluations, with the exception of Easterly's agency evaluation, both have above-average transparency.<br>• Even in Easterly & Williamson (2011), where their bilateral agencies that performed poorly, Nordic Development Fund is ranked as the best agency of all (multilateral and bilateral agencies put together).<br>• Are donors that reward less corrupt recipients (Mattesini & Isopi, 2008; Alesina & Weder, 2002)<br>• The least-selfish donors (Berthélemy, 2006).<br>• Both remain in the top half of rankings such as CDI. | • The 'convention' of superior Scandinavian aid has already been challenged (for instance, see Schraeder et al. (1998) and Alesina & Weder (2002)).<br>• Both are poor in selectivity and specialization. |
| Denmark | • Repeatedly ranked number one by CGD.<br>• Ranked above Ireland in Knack et al. (2011).<br>• Ranked just next to Ireland by Ghosh & Kharas (2011).<br>• In the top ten in three out of four indices of by Birdsall et al. (2010).<br>• Does well in selectivity and use of effective channels (Easterly & Williamson, 2011) | • Its aid agency quality is below that of Norway in Easterly's ranking (but still above-average). |

*Table A2.13 Continued*

Characteristics

| Donor | Positive | Negative |
|---|---|---|
| New Zealand | • Scores high across the different rankings.<br><br>• Among the most transparent (Ghosh & Kharas, 2011; Birdsall et al., 2010), or at least above-average transparency Easterly & Williamson (2011); Knack et al. (2011).<br><br>• Has a good agency ranking (Easterly & Williamson, 2011) and very strong good-governance orientation.<br><br>• Has long been known for concentrating on a small number of recipients (Easterly & Williamson, 2011; Birdsall et al., 2010). | • Highly fragmented aid in recent years (Easterly & Williamson, 2011; Knack et al., 2011)<br><br>• Fares poorly in terms of the 'fostering institutions' criterion of Birdsall et al. (2010)<br><br>• High unpredictability – only 11% of its scheduled disbursements is recorded by recipient countries as received within one year of the scheduled time (Birdsall et al., 2010). |
| Spain | • Good transparency (Birdsall et al., 2010; Ghosh & Kharas, 2011).<br><br>• Low administrative costs (Easterly & Williamson, 2011; Birdsall et al., 2010)<br><br>• Good alignment – makes good use of recipient country systems (Birdsall et al., 2010). | • Consistently ranked towards the bottom<br><br>• The weakest in poverty-orientation (with a neighbourhood and history-based aid allocation), the least efficient, and a donor with the second most tied aid (Birdsall et al., 2010).<br><br>• Has the worst aid agencies (Easterly & Williamson, 2011). |

Table A2.13 Continued

## Characteristics

| Donor | Positive | Negative |
|---|---|---|
| Austria | • Above-average transparency score (Ghosh & Kharas, 2011; Easterly & Williamson, 2011; Birdsall et al., 2010). <br><br> • Targets recipients with good Monitoring and Evaluation frameworks. | • Gives the lowest share of its aid in the form of CPA, is the second in terms of spending the largest share of its CPA on administrative costs, has the lowest share of its aid going to recipient priority areas, and gives highly fragmented aid by agency. Overall, it is very poor in three out of four criteria (Birdsall et al., 2010). <br><br> • Very poor overall and in every index of Knack et al. (2011). <br><br> • Poor overall and the poorest on selectivity in Easterly & Williamson (2011). |
| Belgium | • Favorably evaluated in terms of poverty-orientation by Birdsall et al. (2010), where it performed poorly in all the four rankings | Evaluated as a donor with below-average aid quality in five out of five sources (Knack et al., 2011; Easterly & Williamson, 2011; Ghosh & Kharas, 2011; Birdsall et al., 2010, and in the CGD's CDI ranking). |
| Switzerland | • Does well in terms of harmonization (Knack et al., 2011), which means that it is good at aligning itself with government-led approach and coordinating efforts with other donors. <br><br> • Its aid is highly untied. <br><br> • Very good score on avoiding ineffective channels – the best-performer in Easterly & Pfutze (2008). | • Consistently scores below-average in a number of evaluations (Knack et al., 2011; Easterly & Williamson, 2011; Ghosh & Kharas, 2011; Birdsall et al., 2010). <br><br> • Its CDI score of 4.6 overall is not only below average (5.0) but has also a very low quality sub-index (3.9). However, inconsistently with this, in its 2014 brief, CGD states that "the quality of its foreign aid is relatively strong." |

Table A2.13 Continued

| Donor | Characteristics | |
|---|---|---|
| | Positive | Negative |
| United States of America | | • Out of the 21 DAC-donors being analyzed, it is ranked 19th in three out of four criteria and 21st in 'fostering institutions' (Birdsall et al., 2010), 16th in transparency (Ghosh & Kharas, 2011), 20th by Knack et al.'s overall index, and 15th according to Easterly & Williamson (2011). |

Table A2.14: Donor Quality Indices and Rankings

| Source | Knack et al. (2011) | | | | | | | | | | Easterly & Williamson (2011) | | | | | | | Birdsall et al. (2010) | | | | G&K*a | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Donor | Selectivity Index | Selectivity Rank*b | Alignment Index | Alignment Rank | Harmonization Index | Harmonization Rank | Specialization Index | Specialization Rank | Overall Index | Overall Rank | Overall Rank | Specialization | Selectivity | Ineffective Channels | Overhead Cost | Transparency | Average of Ranks | Reducing Burden | Fostering Institutions | Transparency and Learning | Maximizing Efficiency | Transparency Index | Transparency Rank |
| Australia | .122 | 7 | -.042 | 13 | .448 | 6 | .303 | 1 | .256 | 8 | 6 | 56 | 78 | 4 | 90 | 66 | 59 | 7 | 12 | 1 | 13 | .63 | 1 |
| Austria | -.307 | 14 | -.654 | 19 | -.607 | 19 | -.271 | 13 | -.667 | 19 | 13 | 95 | 0 | 48 | 32 | 66 | 48 | 20 | 20 | 11 | 17 | .22 | 11 |
| Belgium | .104 | 8 | .161 | 11 | -.197 | 13 | -.385 | 18 | -.123 | 12 | 21 | 29 | 27 | 33 | 41 | 55 | 37 | 14 | 18 | 14 | 10 | -.15 | 14 |
| Canada | -.357 | 16 | -.241 | 15 | -.481 | 18 | -.264 | 12 | -.471 | 18 | 12 | 27 | 51 | 7 | 76 | 82 | 49 | 15 | 13 | 13 | 15 | -.08 | 13 |
| Denmark | 1.158 | 2 | .711 | 2 | 1.21 | 2 | .093 | 3 | 1.042 | 1 | 10 | 44 | 66 | 74 | 39 | 36 | 52 | 5 | 2 | 3 | 6 | .61 | 3 |
| Finland | .035 | 11 | .447 | 5 | .886 | 4 | -.356 | 17 | .354 | 6 | 20 | 12 | 68 | 15 | 71 | 20 | 37 | 2 | 6 | 9 | 8 | .26 | 9 |
| France | -.908 | 20 | .18 | 10 | -.15 | 12 | .008 | 5 | -.255 | 14 | 14 | 17 | 41 | 44 | 46 | 82 | 46 | 10 | 11 | 17 | 12 | -.4 | 19 |
| Germany | -.452 | 17 | .407 | 7 | .379 | 8 | -.292 | 14 | .046 | 9 | 4 | 51 | 44 | 59 | 98 | 57 | 62 | 11 | 9 | 8 | 20 | .27 | 8 |
| Ireland | .099 | 9 | 1.453 | 1 | 1.337 | 1 | -.164 | 10 | .993 | 2 | 5 | 44 | 61 | 85 | 78 | 36 | 61 | 4 | 1 | 2 | 2 | .62 | 2 |
| Italy | -.486 | 18 | -.403 | 17 | -.213 | 14 | -.098 | 8 | -.425 | 17 | 11 | 80 | 2 | 56 | 73 | 36 | 50 | 12 | 14 | 21 | 11 | -.61 | 21 |
| Japan | -.349 | 15 | .475 | 4 | -.619 | 20 | -.412 | 20 | -.281 | 15 | 2 | 54 | 71 | 41 | 95 | 57 | 63 | 18 | 8 | 16 | 7 | -.37 | 17 |
| Luxembourg | .675 | 4 | -.427 | 18 | .324 | 9 | -.406 | 19 | -.023 | 11 | 8 | 37 | 85 | 81 | 17 | 61 | 56 | 8 | 19 | 18 | 3 | -.47 | 20 |
| Netherlands | 1.332 | 1 | .655 | 3 | .858 | 5 | -.026 | 6 | .909 | 3 | 7 | 17 | 32 | 67 | 93 | 82 | 58 | 3 | 3 | 7 | 9 | .34 | 7 |
| New Zealand | -.573 | 5 | .07 | 12 | -.23 | 15 | -.183 | 11 | .032 | 10 | 3 | 41 | 95 | 63 | 44 | 66 | 62 | 6 | 15 | 4 | 4 | -.59 | 4 |
| Norway | .38 | 6 | .387 | 8 | .439 | 7 | -.311 | 15 | .29 | 7 | 9 | 24 | 37 | 89 | 100 | 20 | 54 | 13 | 5 | 5 | 16 | -.52 | 5 |
| Portugal | -1.018 | 21 | -1.562 | 21 | -1.874 | 21 | .15 | 2 | -1.526 | 21 | 16 | 68 | 34 | 0 | 85 | 36 | 45 | 21 | 17 | 15 | 1 | -.22 | 15 |
| Spain | .086 | 10 | -.289 | 16 | -.412 | 17 | -.342 | 16 | -.367 | 16 | 19 | 10 | 49 | 19 | 80 | 36 | 39 | 16 | 10 | 6 | 21 | .41 | 6 |
| Sweden | .691 | 3 | .356 | 9 | .24 | 10 | .084 | 4 | .431 | 4 | 17 | 12 | 20 | 93 | 61 | 27 | 42 | 9 | 7 | 12 | 14 | .1 | 12 |
| Switzerland | -.063 | 12 | -.122 | 14 | .029 | 11 | -.48 | 21 | -.238 | 13 | 18 | 17 | 22 | 78 | 49 | 36 | 40 | 17 | 16 | 20 | 18 | -.4 | 18 |
| UK | -.143 | 13 | .421 | 6 | .993 | 3 | -.062 | 7 | .428 | 5 | 1 | 34 | 80 | 70 | 83 | 82 | 70 | 1 | 4 | 10 | 5 | -.23 | 10 |
| USA | -.751 | 19 | -.731 | 20 | -.382 | 16 | -.14 | 9 | -.703 | 20 | 15 | 44 | 12 | 37 | 54 | 80 | 45 | 19 | 21 | 19 | 19 | -.35 | 16 |

*a Ghosh & Kharas (2011). *b Ranks are re-assigned out of the 21 donors studied here.

# FOREIGN DIRECT INVESTMENT IN SUB-SAHARAN AFRICA: BEYOND ITS GROWTH EFFECT*

## ABSTRACT

*This study relates Foreign Direct Investment (FDI) to economic growth, institutional quality and manufacturing value added. To this end, it uses dynamic panel data techniques that allow for parameter heterogeneity and possible non-stationarity in the series. The results confirm that economic growth, institutional quality, and natural resources, each play a positive role in attracting FDI. Besides, institutional quality is not an 'environmental variable' that simply determines economic growth and FDI inflows; it is itself affected by both of these variables. Specifically, economic growth enhances institutional quality, whereas FDI appears to raise corruption and undermine the rule of law and accountability. The evidence found also reveals the existence of 'institutional' resource curse – emanating from both natural resources and FDI. Furthermore, FDI has contributed to the 'premature' deindustrialization of the region, except in a few cases where it is non-resource-seeking. While most of these results are in agreement with some previous studies, the study also identifies detrimental institutional and deindustrializing effects of FDI which have hitherto been overlooked. A policy implication is that countries should be selective on the type of FDI they try to attract by weighing its positive growth effect against its deindustrializing and adverse institutional effects.*

*Keywords*: FDI. Economic Growth. Institutions. Deindustrialization. Sub-Saharan Africa.
*JEL Classification*: F21; F23; O14; O43

> *The largest 100 corporations hold 25 percent of the worldwide productive assets, which in turn control 75 percent of international trade and 98 percent of all foreign direct investment. The multinational corporation...puts the economic decision beyond the effective reach of the political process and its decision-makers, national governments.*

Peter Drucker,

## 3.1 INTRODUCTION

THE literature on Foreign Direct Investment (FDI) highlights a range of potential benefits it has for the host economies. These include its role in facilitating technology transfer and skill (human capital) upgrading, its spillover effect on domestic investment, and improvements in institutions. The successful reaping of such benefits, however, depends on conditions prevailing in the host economy. These conditions include the strength of the backward and forward linkages of the sector targeted by FDI, the initial institutional and human capital levels, and trade policies of the host.

Empirical studies have largely focused on the relationship between economic growth and FDI, pushing aside the influences of FDI on other aspects of economic development. The focus on the growth effect of FDI has led some scholars working on Sub-Saharan Africa (SSA) to see the recent change in trend and composition of FD to the region with some degree of optimism. However, to embrace or encourage more FDI inflows, a host country needs to look beyond its growth effect.

One such area of influence not well-studied is the effect of FDI on institutional quality. Compared to the amount of research looking into the growth-FDI nexus or into the role of institutions in attracting FDI, the number of studies examining the effect of FDI on institutional quality is very limited. Moreover, most of the studies which have taken up this issue either utilize cross-sectional data (for instance Kwok & Tadesse, 2006; Dang, 2013; Long et al., 2015) or qualitative case studies (for instance Lee, 2014), or have focused on the developed world (Olney, 2013). Exceptions are Ali et al. (2011) who relate FDI to property rights in 70 developing countries and Demir (2016) relating FDI to International Country Risk Guide (ICRG) scores of 133 countries, both using panel data in which about 28 SSA countries are represented. The findings of these studies are mixed, ranging from negative (Olney, 2013; Lee, 2014) to (generally) insignificant (Demir, 2016) to positive (Kwok & Tadesse, 2006; Ali et al., 2011; Dang, 2013; Long et al., 2015) effects. Common to all these studies, the estimated effects are average (homogeneous) effects based on a mix of highly heterogeneous host countries. The current study focuses on a particular region – SSA – and imposes no restriction of homogeneity in the effect of FDI on institutions. Each host country is unique in someway and could respond uniquely to FDI inflows.

This study intends to fill another research gap as well. Even scarcer than studies linking FDI to institutional outcomes are those assessing the effect of FDI on structural change. Furthermore, these studies have focused on developed countries (Kang & Lee, 2011) or countries in transition (Jensen, 2006). To the best of my knowledge, no study has related FDI inflows to structural change in the context of SSA. Although an important motive for attracting FDI is the desire to industrialize, it is becoming a stylized fact that SSA is undergoing deindustrialization (De Vries et al., 2015), which is both 'premature' and against expectations (Rodrik, 2015). Understanding whether FDI has enhanced or moderated the pace of this experience would have an important lesson for policymakers.

Thirdly, even in the well-studied FDI-growth nexus, studies have imposed parameter homogeneity on the effect of one on the other. An exception is the study by Delgado et al. (2014), where the slope parameter is modeled as a function of corruption. The current studies allows for an unrestricted heterogeneity since heterogeneity could result from many factors, for instance, from the type of FDI.

The findings indicate that the growth-effect of FDI to the region is positive. Secondly, both economic growth and institutional quality records of a country do help in attracting more FDI inflows. On the other hand, FDI has undesirable effects on some institutional quality aspects, namely, rule of law, corruption, and voice and accountability. In addition, FDI to the region preferentially flows to resource-rich countries, and thereby enhances extensive form of economic growth and contributes to the 'premature' deindustrialization of countries in the region. Hence, FDI as a medicine for developmental bottlenecks comes with some serious side-effects.

## 3.2 LITERATURE REVIEW

The significance of FDI in the process of economic development has been underscored in alternative viewpoints in economics. For instance, new growth theories consider FDI to be an important source of economic growth through its effect of facilitating technology transfer, its spillover effect on domestic investment, and improving human capital and institutions (Makki & Somwaru, 2004). At the other end of the spectrum, dependency theorists stress that FDI is one mechanism for South-to-North transfer of surplus value (Sau, 1976). These lines of thought, as well as those occupying the middle ground, agree that FDI is an important link between the developed and developing worlds and that there is a notable overlap and interaction between FDI and international trade.

In line with the former of these two perspectives, the growth effect of FDI has been well researched. Nevertheless, and not surprisingly for an economic issue, the effect of FDI on economic development still remains debatable (Makki & Somwaru, 2004). Firstly, FDI may crowd-out domestic investment, and its success in promoting economic growth depends on an array of conditions (like the strength of its backward and forward linkages, level of financial development, human capital and institutional

quality). Secondly, even in cases where it enhances economic growth, findings regarding its effect on poverty and inequality are mixed (Sumner, 2005).

One possible explanation for such mixed results regarding the development-effects of FDI is difference in conditioning factors such as institutional quality, trade policy and human capital of the host countries. For instance, Slesman et al. (2015, p. 271) find that capital inflows boost growth "only in countries that score above an optimum threshold on the qualities of institutions, while those that fall below record insignificant or even negative effects." Similarly, some argue that institutional quality is the main reason why Sub-Saharan Africa (SSA) as a region has not attracted (and benefited from) as much FDI as the other regions (Adeleke, 2014). Dupasquier & Osakwe (2006) also mention poor governance as one among the many reasons responsible for the region's inability to competitively attract FDI. Likewise, Esew & Yaroson (2014) underscore the significance of the same factor, but for the specific case of Nigeria. However, the primacy of institutional factors over other determinants of FDI inflow is not shared by everyone. In the context of BRICS, for instance, Jadhav (2012) argues that economic factors matter more than both institutional and political factors.

In the context of SSA, even though attributing to any single factor is not easy, there is a growing trend of FDI inflows, especially since 1990s (see Figure A3.1). In addition, the source of FDI to the region is moving away from the traditional sources to new ones. As a result, competition to attract FDI among host countries is now being accompanied by competition on the other end as well. The nature and composition of FDI is also changing. In particular, the long-neglected infrastructure has gained attention from Chinese FDI, and there is a strong correlation and potential for complementarity between Chinese FDI and trade (Agbelenko et al., 2012; Renard, 2011). Moreover, unlike FDI from the West which "is dominated by private firms with limited risk appetite and little long-term commitment," Renard (2011, p. 22) states that, FDI from China is "made with the intention of establishing long-term relationships with governments". With these changes in trend, source, and composition of FDI, scholars are now becoming more optimistic about the development prospects of the region (Dupasquier & Osakwe, 2006). In fact, there is also a warning against an imprudent optimism, based on such concerns as a renewed scramble for Africa, for some see the new partners (mainly, China) as neocolonial powers (Asongu & Aminkeng, 2013).

Another potential diminution to such optimism comes from the fact that it is based mainly on the growth effects of FDI. However, equally deserving as its growth effect is the institutional impact of FDI. This is because if more FDI inflows could lead to improvements in institutional quality, that would be a plus to the long-run economic development. To the contrary, if more FDI inflow undermines institutional quality, any positive growth effect should be discounted as it overstates the benefits of FDI. In either case, the institutional effect of FDI needs due coverage. Economic research has so far focused on the effects of FDI inflows on economic growth, the (reverse) effect of economic performance on FDI inflows, and the role of institutional quality in attracting FDI. Generally, the effect of FDI on institutional quality has long been

neglected. This trend is changing recently, however, and an increasing number of studies are taking up the subject. For instance, Kwok & Tadesse (2006), Ali et al. (2011), Dang (2013) and Long et al. (2015) have examined causality running from FDI to institutions and arrived at the conclusion that FDI improves the institutional quality of the host.

Olney's (2013, p. 191) findings support the opposite view – that "countries are competitively undercutting each other's labor market standards" in a typical race to the bottom. Similarly, based on evidence at the grass roots level and in the context of Africa, Lee (2014) witnesses how bilateral (FDI) agreements between governments on the two sides (*globalization from above*) and the accompanied (tolerance for) *globalization from below* are undermining the accountability of many African governments to their people and thereby exacerbating the living conditions of the poor in the region.

In a more recent and detailed study, Demir (2016) discusses the potential channels through which FDI may influence institutional quality of the host, presents circumstantial evidences of multinationals bribing developing country governments, and tests for difference between the institutional effects of North-South FDI and South-South FDI. He finds no significant institutional effect of North-South aggregate FDI, but significant negative institutional impact of South-South FDI (particularly in resource-rich host countries). Although the difference between the two types of FDI appears to be mild (not robust to different specifications), Demir's is the first study to take up the issue of FDI heterogeneity and test for its presence. However, despite the disaggregation of FDI into North-South and South-South components, the estimated effect in each of these cases refers to the average effect – averaged over a large number of host countries. That is, in statistical terms, the slope parameters estimated are not host-specific. Indeed, he has clearly allowed for the possibility of differential institutional impact of FDI in resource-rich versus resource-poor host countries. However, given the large pool of host countries, there still remains a potential for resource-rich (poor) SSA countries to be characterized by different parameters than other host countries within the resource-rich (poor) category. In fact, it is safer not to assume homogeneous parameters for any set of countries, even within SSA. Thus, this study intends to test for the causal relationship between FDI and institutional quality by allowing for host-specific parameters (in the context of SSA).

The second gap in the literature relates to the impact of FDI on the sectoral composition of the host countries. Of all themes involving (the determinants or effects of) FDI, that relating FDI to structural change is perhaps the rarest (Jensen, 2006; Kang & Lee, 2011). Things are even worse from the developing (SSA) countries' perspective; Jensen (2006) focuses on Central and Eastern European transition economies and Kang & Lee (2011) on OECD countries in general and Korea in particular. Whereas one major reason behind the race to attract FDI is the desire to industrialize, it seems that the opposite is happening, at least in SSA. According to De Vries et al. (2015), it is now a stylized fact that Africa has experienced shrinking share of manufacturing in total value added and employment since 1990s. In a similar account, Rodrik (2015)

finds that SSA is one of the world regions hit hard by 'premature' deindustrialization, which he characterizes as a striking finding because "... sub-Saharan countries are still very poor and widely regarded as the next frontier of labor-intensive export-oriented manufacturing..." (p. 16). However, neither of these studies looked into the role of FDI in explaining such a structural change. This study intends to examine how changes in the relative share of the manufacturing sector in SSA are related to variations in FDI inflows.

Finally, even in studies that examine the FDI-growth nexus, the possibility of host-specific response is rarely accounted for. Apparently, the only study that has addressed the issue of slope-parameter heterogeneity in FDI-growth nexus is Delgado et al. (2014). They have, however, modelled slope heterogeneity as a function of a single variable – corruption. The current study allows for unrestricted heterogeneity and thus does not attribute such heterogeneity to any specific variable.

## 3.3 METHODOLOGY

### 3.3.1 *Model Specification*

In line with the research gaps identified earlier, a basic model is specified for each of the following effects of FDI: the growth, the institutional and the (de-)industrialization effects. In addition, an FDI equation is specified to investigate the reverse causal effects running from these variables to FDI.

Accordingly, the basic model for the growth-equation is given by:

$$grGDPPC_{it} = \alpha_{0i} + \sum_{k=1}^{p} \alpha_{1ki} grGDPPC_{it-k} + \sum_{k=0}^{p} \alpha_{2ki} FDI_{it-k} + \sum_{k=0}^{p} \alpha_{3ki} Instit_{it-k} + \sum_{k=0}^{p} \alpha_{4ki} Rent_{it-k} + \varepsilon_{it}$$

(3.1)

Similar equations can be specified for the other three variables. As all of them involve the same set of variables – economic growth (*grGDPPC*), institutional quality (*Instit*), *FDI* and natural resource rent (*Rent*) – the exercise is simply to normalize Equation 3.1 on each variable in turn. That is, interchanging the role of *grGDPPC* and *FDI* in Equation 3.1 above yields an FDI-equation; and similarly for *Instit*. However, while *Rent* is an important (potential) determinant of institutional quality, FDI inflows and economic growth in the literature, no equation is specified for natural resource rent itself. Instead, an equation is specified for a closely related variable, *ln(M/N)* – (the natural logarithm of) manufacturing value added (*M*) relative to non-manufacturing value added within the industrial sector (*N*) – as a function of economic growth, FDI and institutional quality. A rise in the ratio *M/N* implies expansion of manufacturing relative to non-manufacturing and is interpreted as industrialization while falling *M/N* means deindustrialization. In this last equation, as the denominator (i.e., *N*) is more or less the natural resource sub-sector, the variable *Rent* is not included as a

regressor. However, in variants estimated for robustness check – where the dependent variable is manufacturing value added (*MVA*) – *Rent* is included.

To facilitate the simultaneous estimation of long-run and short-run parameters, Equation 3.1 is reparameterized into an Error-Correction Model (ECM) equivalent:

$$\Delta grGDPPC_{it} = \pi_{0i} + \lambda_i \left( grGDPPC_{it-1} - \beta_{2i}FDI_{it-1} - \beta_{3i}Instit_{it-1} - \beta_{4i}Rent_{it-1} \right)$$
$$+ \sum_{k=1}^{p-1} \pi_{1ki}\Delta grGDPPC_{it-k} + \sum_{k=0}^{p-1} \pi_{2ki}\Delta FDI_{it-k} + \sum_{k=0}^{p-1} \pi_{3ki}\Delta Instit_{it-k} + \sum_{k=0}^{p-1} \pi_{4ki}\Delta Rent_{it-k} + \epsilon_{it};$$

$$(3.2)$$

where $\pi$'s, $\beta$'s and $\lambda$ are parameters to be estimated; $\epsilon$ is the stochastic term; the subscripts $i$ and $t$ stand for country and year, respectively; and $k$ is the lag length. Long-run causality is inferred from two conditions: the significance of $\beta$'s, and $\lambda$ lying in the interval (-2, 0) and being significantly different from zero.

### 3.3.2 *Estimation Techniques*

Principally, the study employs three dynamic panel data estimation techniques that address issue of non-stationarity. These are the dynamic fixed effect (DFE), the mean group (MG) and the pooled mean group (PMG) estimators. These techniques do not assume any variable to be exogenous a priori. Instead, exogeneity is inferred only if the other variable(s) fail to provide any predictive power in the equation concerned.

The DFE option imposes parameter homogeneity except for the intercept, PMG imposes homogeneity on the long run parameters ($\beta$'s in Equation 3.2), and MG does not impose any restriction (Blackburne & Frank, 2007). The Hausman test is employed to choose between them. Between DFE and MG, the test prefers the latter, implying that parameter heterogeneity is an issue that should be addressed. Between MG and PMG, however, the test chooses PMG, i.e., the group of countries share long-run parameters ($\beta$'s) but not the short-run parameters ($\pi$'s) or the adjustment coefficients ($\lambda$'s) – see Table A3.1.

The use of *grGDPPC* as opposed to the level of income (*lnRGDPPC*), in the regression analyses below, is based on unit-root and cointegration tests. Unanimity between the IPS unit-root test and Hadri's stationarity test – i.e., rejection of the null hypothesis in the first case and failure to reject the null in the latter case – is reached with the first-difference of *grGDPPC* but not with that of *lnRGDPPC* (Table A3.2). Similarly, it is only with the use of *grGDPPC* that both Pedroni's and Westerlund's tests of cointegration reject the null of no-cointegration (Table A3.3).

Data on growth rate of GDP per Capita (*grGDPPC*), FDI inflow as share of GDP (*FDI*), and the sectoral shares in total value added – i.e., the manufacturing value added (*MVA*) and the industrial value added (*IVA*) from which non-manufacturing (industrial) value added (*NVA*) is calculated – are extracted from the online database of UNCTAD.[1] Measures of institutional quality come from two sources. The longer series on political rights (*PolRight*), civil liberties (*CivLib*), and their average (*InstitQual*) is obtained from the Freedom House. This is available annually since 1972. These indices have been rescaled so that higher values mean better institutional quality (1 signifying the worst and 7 the best quality). The second set of institutional quality indices – Rule of Law (*RuleLaw*), Voice and Accountability (*Voice*) and Corruption (*Corruption*) – comes from the Worldwide Governance Indicators (WGI) database of the World Bank Group. The natural resource rent as a share of GDP (*Rent*) is from the World Development Indicators (WDI) of the World Bank database. Table A3.4 presents the mean values of the variables.

There are strong and statistically significant correlations amongst the three institutional quality measures from the Freedom House. The same holds for the three institutional quality indexes from the Worldwide Governance Indicators. All the possible pairwise correlations (6*5/2 = 15 pairs from the two sources combined) are also statistically significant (see part (a) of Table A3.5). Along the cross-sectional dimension, the correlations amongst the various institutional quality indices remain intact – strong and statistically significant (part (b) of Table A3.5). On the other hand, the over-time correlations amongst the institutional quality indicators are somewhat different (part (c) of Table A3.5). First, the correlations between the rule of law index and each of the three indexes from the Freedom House, though still positive, are no more statistically significant. Secondly, corruption is now ('unconventionally') positively correlated with each of the other five measures, though its correlation with political rights and rule of law indexes are statistically insignificant. Interestingly, while all the other institutional quality indicators – for the whole region (on average) – have improved over the years, corruption has been on the rise.

So much for the correlation among the measures of institutional quality themselves. Then, how is each of these measures related to the other variables of interest? Based on the pooled-data correlations, FDI displays positive and statistically significant correlations with PolRight, CivLib and InstitQual; negative but insignificant correlations

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1  Accessed January 10, 2016 at: http://unctad.org/en/Pages/Statistics.aspx. UNCTAD defines FDI as "an investment made by a resident enterprise in one economy (direct investor or parent enterprise) with the objective of establishing a lasting interest in an enterprise that is resident in an another economy (direct investment enterprise or foreign affiliate). The lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence on the management of the enterprise. The ownership of 10% or more of the voting power of a direct investment enterprise by a direct investor is evidence of such a relationship." *NVA* is simply *IVA–MVA*

with RuleLaw and Voice; and, positive yet insignificant correlation with Corruption. On the other hand, regardless of the institutional quality index used, it seems that cross-country variation in average FDI inflows is not related to institutional quality. Despite the statistical insignificance, the signs (in all the six cases) suggest that more FDI is associated with 'bad' institutions. Over time, FDI is positively (and significantly) correlated with all indices of institutional quality, except corruption. The positive association between FDI and corruption is statistically insignificant.

With regard to economic growth, it is positively and significantly correlated with PolRight, CivLib and InstitQual both in pooled and time-series settings, but insignificantly in the cross-sectional one. Of the remaining three measures of institutional quality, none is significantly associated with growth in time-series, only corruption is positively (and significantly) associated with it in the pooled-data, and corruption (negatively) and rule of law (positively) associated with it in the cross-sectional settings.

Unanimously for all the six indexes, the share of value added coming from the manufacturing sub-sector (in total value added, or GDP) is positively and significantly associated with 'good' institutions in the pooled part. Although the signs in the pooled-data setting hold for the cross-sectional one as well, only corruption has a marginally significant association with manufacturing value added (MVA). Over time, with the exception of corruption, MVA is unfavorably associated with institutional quality, but only correlations with the Freedom House measures are significant.

Finally, differences in economic growth - the 'track record' - are positively related to differences in FDI in all the three settings: pooled, cross-sectional and time-series. MVA is unfavorably associated with both economic growth and FDI inflow in the pooled-data setting. Unlike growth, FDI retains its significance under the cross-sectional case as well. Likewise, under the time-series case, MVA varies inversely (and significantly) with both economic growth and FDI inflow. Correlations for the value added in the non-manufacturing industrial sub-sector (NVA) are not reported here, but the overall picture is more or less the flip side of MVA.

The differences – between pooled, cross-sectional and time-series cases – in sign and significance of the correlations reported may give an indication that some (pooled-data-based) results are driven more by over-time variations than cross-country differences, or vice versa. For instance, the significant positive relationship between FDI and InstitQual in the pooled setting appears to be a manifest of the time-series aspect rather than of the cross-sectional dimension. However, all of these correlations are contemporaneous ones, and do not take into account the possibility of time lags in a variable's response to a change in another. The regression results in a later section address this issue.

To add some historical flavor to these correlations, Figure 3.1 depicts the time trends of the major variables. One remarkable point from the figure is the rise in institutional quality beginning around 1989 and the contrasting fall in both economic growth (grGDPPC) and FDI around the same time. Two major global incidents may partly
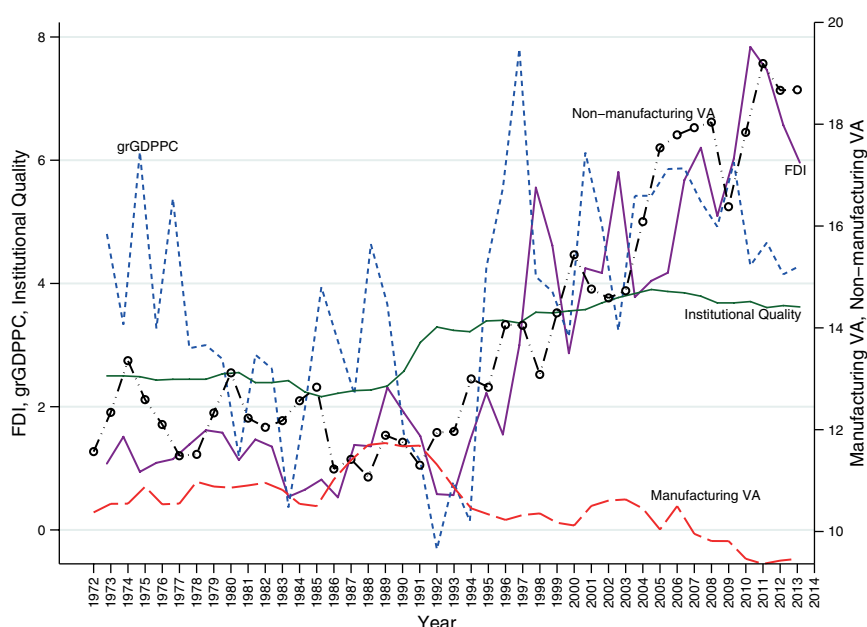
Figure 3.1: Time Series Plot of Some Variables (Regional Averages)

explain these 'valleys' in the latter two variables (grGDPPC and FDI) that lasted al-most a decade. One – particularly relevant for FDI – is the end of the Cold War which led to the West's "focus on Eastern Europe and relegation of Africa to the background" (Edoho, 2011, p. 111). The other factor is the Structural Adjustment Pro-grams (SAPs) which squeezed the public sector without bringing about the desired boost in the private sector, and this could be blamed for the drop in grGDPPC. While SAPs are acknowledged to have failed in SSA in particular (for instance, see Currie-Alder et al. (2014) and Kingston et al. (2011)), it is unfair to attribute the decline fully to the programs. The political instability and civil wars which came (or intensified) with the global ideological victory of free-market economy over command economy might have played some role. However, equally importantly, SAPs cannot be claimed to explain the sharp rise in institutional quality index. Again, the same ideological transition might have contributed. Looking for the right explanation(s) for the con-trasting trends is beyond the scope of this study; however, it is imperative to notice that progress in institutional quality is not always related to favorable movements in economic growth and FDI inflow.

The slow change in institutional quality relative to all other variables in Figure 3.1 also makes intuitive sense – institutions evolve only over the long term. The region's economic stagnation is also clear from this figure: despite the sharp fall before early 1990s and a rise thereafter, grGDPPC in 2014 is less than that in 1972 (four decades

earlier). Lastly, the co-movement of FDI and non-manufacturing value added is more striking than any other pair in the figure.

## 3.5 RESULTS AND DISCUSSION

### 3.5.1 *FDI, Institutional Quality and Economic Growth*

The first equation estimated is the growth (grGDPPC) equation, and the regression results from a wide range of alternative specifications are reported in Table 3.1. Unanimously for all models, FDI inflow has a positive and statistically significant effect on economic growth in the long run (first row of Table 3.1). Model 1 presents the bivariate version of the long run association between FDI and growth. Models 2-4 add the average institutional quality measure – *InstitQual* – from the Freedom House, with differing lag length specifications. Models 5 and 6, respectively, replace the average institutional quality measure by the civil liberties and political rights components, and Model 7 controls for natural resource rent. Models 8-10 employ a different set of institutional quality measures: rule of law, voice and accountability, and corruption. The positive growth effect of FDI is robust throughout. The magnitude of the effect varies somewhere between 0.13 (Model 10) and 0.27 (Model 4). The coefficients of FDI in Models 8-10 are less than those in Models 1-7. This perhaps reflects that the effect of FDI increases with the length of time considered. The short run effects of FDI on economic growth are generally insignificant (except in Model 3) (Table 3.1).

Regarding the effect of institutional quality on economic growth, Models 2-7 (Table 3.1) reveal a robust positive and statistically significant long run growth effect of institutions. The growth effect of institutional quality is positive and significant even in the short run, except in Model 3.[2] The other set of institutional quality measures (i.e., those from the WGI) entail the use of a shorter panel due to data availability. Nonetheless, consistent with the other measures, voice and accountability (*Voice*) contributes positively to economic growth both in the short-run and the long-run. Corruption has also the expected negative sign, though significant only in the short run. Rule of law has unexpected negative signs both in the short run and the long run, but insignificant in both cases. Finally, the effect of natural resource rent on economic growth is positive, but statistically significant only at a level of significance marginally above the 10% (p-value of 0.102).

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2 The linear combinations of the short run coefficients of institutional quality variables in Models 3 and 4 are 1.065 and 1.828, respectively, and the corresponding p-values are 0.296 and 0.100.

Table 3.1: Estimation Results for the Growth Equation

|  | | Dependent Variable: ΔgrGDPPC | | | | | | | | |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Long Run:* | | | | | | | | | | |
| FDI | 0.216*** | 0.180*** | 0.239*** | 0.271*** | 0.177*** | 0.186*** | 0.143*** | 0.131*** | 0.141*** | 0.126*** |
| InstitQual | | 0.308*** | 0.308*** | 0.300*** | | | 0.303*** | | | |
| CivLib | | | | | 0.327*** | | | | | |
| PolRight | | | | | | 0.264*** | | | | |
| Rent | | | | | | | 0.031 | | | |
| RuleLaw | | | | | | | | -0.259 | | |
| Voice | | | | | | | | | 2.337*** | |
| Corruption | | | | | | | | | | -0.314 |
| *Short Run:* | | | | | | | | | | |
| Adj. Speed | -0.820*** | -0.819*** | -0.826*** | -0.813*** | -0.821*** | -0.822*** | -0.823*** | -0.832*** | -0.850*** | -0.833*** |
| ΔFDI | 0.143 | 0.104 | 0.144* | 0.148 | 0.119 | 0.080 | 0.103 | -0.006 | 0.024 | 0.063 |
| LΔFDI | | | 0.039 | 0.124 | | | | | | |
| L2ΔFDI | | | | 0.094 | | | | | | |
| ΔInstitQual | | 2.788*** | 2.571*** | 2.783*** | | | 2.527*** | | | |
| LΔInstitQual | | | -1.506* | -0.897** | | | | | | |
| L2ΔInstitQual | | | | -0.058 | | | | | | |
| LΔgrGDPPC | | | 0.041 | 0.030 | | | | | | |
| L2ΔgrGDPPC | | | | -0.039 | | | | | | |
| ΔCivLib | | | | | 1.410*** | | | | | |
| ΔPolRight | | | | | | 2.762*** | | | | |
| ΔRent | | | | | | | 2.659 | | | |
| ΔRuleLaw | | | | | | | | -0.464 | | |
| ΔVoice | | | | | | | | | 7.043*** | |
| ΔCorruption | | | | | | | | | | -3.868* |
| Constant | 2.498*** | 1.800*** | 1.628*** | 1.451*** | 1.724*** | 1.932*** | 1.661*** | 3.332*** | 4.746*** | 3.679*** |
| N | 1932 | 1906 | 1860 | 1814 | 1906 | 1906 | 1860 | 810 | 810 | 808 |
| $\bar{T}$ | 42 | 41.435 | 40.435 | 39.435 | 41.435 | 41.435 | 40.435 | 18 | 18 | 17.956 |
| n | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 45 | 45 | 45 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, N = Number of Observations, n = Number of Countries, $\bar{T}$ = Average Number of Observations per Country

In a similar manner, ten specifications of the FDI equation were estimated. Table 3.2 presents the results. Robust across all the models, faster economic growth attracts more FDI. Similarly, better institutional quality fetches more FDI. The only institutional quality index whose effect on FDI is insignificant is voice and accountability. Rule of law and corruption are apparently more important to multinationals than the accountability of the government to its citizens. Consistent with the majority of the literature on determinants of FDI to developing countries in general and SSA in particular (for instance, see Asiedu, 2002), natural resource rent has a highly significant positive effect on FDI inflow.

Table 3.3 summarizes the estimation results for the institutional quality equation. On the basis of the Freedom House indices, FDI does not have a significant effect on institutional quality. While the long run coefficient of FDI in Model 2 is statistically significant (at the 5% level), slight modification of the lag length (Models 3 and 4) or the dropping of a control variable (Model 1) changes this result dramatically. Similarly, the significance at the margin in Model 5 also disappears in Models 6 and 7. Based on the indices from the WGI, which are less crude than the Freedom House indices, the influence of FDI on institutional quality is highly significant (in the long run). More FDI inflow is associated negatively with rule of law and voice and accountability, and positively with corruption.

In almost all the models, economic growth encourages better institutional quality, both in the short run and the long run (Table 3.3). The only exception is the insignificance of its corruption-reducing effect. Another important determinant of institutional quality in this table is the natural resource rent variable. In line with the natural resource curse literature, this variable significantly hurts institutional quality through undermining the rule of law and boosting corruption. Consistently, its effect on voice and accountability is of negative sign but not statistically significant. The changes in the sign and/or significance of its coefficients in Models 5-7 reveal that the institutional quality effect of natural resource rent is shaky (not robust) with the use of the Freedom House variables.

Table 3.2: Estimation Results for the FDI Equation

| | Dependent Variable: ΔFDI | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
| *Long Run:* | | | | | | | | | | |
| grGDPPC | 0.068*** | 0.066*** | 0.135*** | 0.185*** | 0.065*** | 0.066*** | 0.074*** | 0.046** | 0.072*** | 0.052*** |
| InstitQual | | 0.361*** | 0.408*** | 0.454*** | | | | | | |
| CivLib | | | | | 0.350*** | | | | | |
| PolRight | | | | | | 0.325*** | | | | |
| Rent | | | | | | | 0.090*** | | | |
| RuleLaw | | | | | | | | 1.714*** | | |
| Voice | | | | | | | | | 0.491 | |
| Corruption | | | | | | | | | | -2.209*** |
| *Short Run:* | | | | | | | | | | |
| Adj. Speed | -0.411*** | -0.434*** | -0.383*** | -0.359*** | -0.432*** | -0.426*** | -0.445*** | -0.586*** | -0.579*** | -0.599*** |
| ΔgrGDPPC | 0.013 | 0.003 | 0.020* | 0.023 | 0.008 | 0.001 | 0.014 | 0.020 | 0.020 | 0.018 |
| LΔgrGDPPC | | | -0.010 | -0.008 | | | | | | |
| L2ΔgrGDPPC | | | | -0.000 | | | | | | |
| ΔInstitQual | | 0.855 | 0.732 | 0.584 | | | 0.677 | | | |
| LΔInstitQual | | | -0.037 | -0.122 | | | | | | |
| L2ΔInstitQual | | | | -0.481* | | | | | | |
| LΔFDI | | | -0.120*** | -0.153*** | | | | | | |
| L2ΔFDI | | | | -0.083** | | | | | | |
| ΔCivLib | | | | | 0.433* | | | | | |
| ΔPolRight | | | | | | 0.989 | | | | |
| ΔRent | | | | | | | -0.499 | | | |
| ΔRuleLaw | | | | | | | | -2.284 | | |
| ΔVoice | | | | | | | | | 1.288 | |
| ΔCorruption | | | | | | | | | | 1.648 |
| Constant | 1.360*** | 0.910** | 0.750* | 0.758 | 0.914** | 0.942** | 0.409 | 3.946*** | 3.289*** | 3.986*** |
| N | 1932 | 1906 | 1860 | 1814 | 1906 | 1906 | 1860 | 810 | 810 | 808 |
| $\bar{T}$ | 42 | 41.435 | 40.435 | 39.435 | 41.435 | 41.435 | 40.435 | 18 | 18 | 17.956 |
| n | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 45 | 45 | 45 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, N = Number of Observations, n = Number of Countries, $\bar{T}$ = Average Number of Observations per Country

Table 3.3: Estimation Results for the Institutional Quality Equation

| | Model 1 ΔInstitQual | Model 2 ΔInstitQual | Model 3 ΔInstitQual | Model 4 ΔInstitQual | Model 5 ΔInstitQual | Model 6 ΔCivLib | Model 7 ΔPolRight | Model 8 ΔRuleLaw | Model 9 ΔVoice | Model 10 ΔCorruption |
|---|---|---|---|---|---|---|---|---|---|---|
| *Long Run:* | | | | | | | | | | |
| FDI | 0.013 | 0.024** | -0.009 | -0.011 | 0.018* | 0.014 | 0.001 | -0.009*** | -0.010*** | 0.007*** |
| grGDPPC | | 0.035*** | 0.019*** | 0.016** | 0.029*** | 0.012 | 0.062*** | 0.018*** | 0.038*** | -0.002 |
| Rent | | | | | 0.011** | -0.007 | 0.007 | -0.010*** | -0.003 | 0.013*** |
| *Short Run:* | | | | | | | | | | |
| Adj. Speed | -0.160*** | -0.151*** | -0.152*** | -0.158*** | -0.151*** | -0.171*** | -0.165*** | -0.225*** | -0.213*** | -0.318*** |
| ΔFDI | 0.008 | 0.008 | 0.007 | 0.001 | 0.006 | 0.008 | 0.004 | -0.002 | -0.004 | -0.001 |
| LΔFDI | | | -0.004 | -0.012 | | | | | | |
| L2ΔFDI | | | | -0.003 | | | | | | |
| ΔgrGDPPC | | 0.006*** | 0.006** | 0.007** | 0.005*** | 0.004** | 0.008*** | 0.003*** | 0.006*** | 0.001 |
| LΔgrGDPPC | | | 0.001 | 0.001 | | | | | | |
| L2ΔgrGDPPC | | | | 0.002 | | | | | | |
| LΔInstitQual | | | 0.097*** | 0.106*** | | | | | | |
| L2ΔInstitQual | | | | 0.002 | | | | | | |
| ΔRent | | | | | -0.128 | -0.136 | -0.146 | 0.053 | 0.117 | -0.109 |
| Constant | 0.473*** | 0.434*** | 0.439*** | 0.455*** | 0.419*** | 0.548*** | 0.435*** | -0.122*** | -0.154*** | 0.144*** |
| N | 1906 | 1906 | 1860 | 1814 | 1860 | 1860 | 1860 | 765 | 765 | 763 |
| $\bar{T}$ | 41.435 | 41.435 | 40.435 | 39.435 | 40.435 | 40.435 | 40.435 | 17 | 17 | 16.956 |
| n | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 45 | 45 | 45 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, N = Number of Observations, n = Number of Countries, $\bar{T}$ = Average Number of Observations per Country

To recapitulate, there are bidirectional causality between growth and FDI as well as between growth and institutional quality, in the long run. Both FDI and institutional quality foster economic growth; and, economic growth, in turn, has favorable effects on both FDI inflow and institutional quality. The direction of causality between FDI and institutional quality depends on the indicator of institutional quality used. Using PolRight, CivLib or InstitQual – from the Freedom House – suggests that the direction of causality is one-way: FDI responds positively to, but does not trigger, improvement or deterioration in institutional quality. The WGI dataset shows a bidirectional long run causality between FDI and institutional quality. FDI responds positively to improvements in the rule of law and negatively to corruption, but appears uninfluenced by voice and accountability. On the other hand, FDI adversely affects the institutional quality of host countries. It raises the level of corruption directly. Perhaps, this is because the inflow entails bribery and other forms of corruption at the startup stage of multinational corporations (MNCs). This type of association between MNCs (FDI inflow) and corruption is in line with the arguments of Hawley (2000), which is also recognized by Fan et al. (2009), among others. Some argue that it is the stock of FDI, more than the flow, that may nurture corruption. Data from the current sample seem to support this claim. However, as the stationarity test rejects the null that FDI stock is an I(1) variable (in favor of I(2)), this could be a spurious result. Hence, this line of analysis is not pursued further.

FDI has also a robust significant effect of undermining the rule of law. While multinationals apparently are not influenced by voice and accountability scores, they do negatively influence the voice and accountability index. Perhaps host country governments become less and less accountable to their citizens as they learn to become more and more accountable to multinationals, consistent with a point made by Koenig-Archibugi (2004). A case in point is well-documented in Lee (2014). Accordingly, following a riot by the "Tri-Star 'girls'" triggered by 'disciplinary beating', the company fired close to 300 workers without compensation. Subsequently, as if the long list of concessions made (which could, arguably, make some economic sense) was not enough, the government had to 'claim responsibility for the attack.' Partly quoting from a study by De Haan and Vander Stichele (2007), Lee (2014, p. 126) states that: "President Museveni announced to the press that, 'I sacked those girls because of indiscipline, as their action would have scared off investors who had plans to set up business here ...'."[3]

However, the total institutional impacts of FDI are ambiguous. While FDI harbours corruption and does a direct harm to voice and accountability, and the rule of law, its growth-enhancing effect implies favorable indirect institutional effect. The contrasting direct effects of FDI on growth and on institutions trigger conflicting dynamics

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3 The underlying cause of the 'disciplinary beating' and the riot is the very harsh working conditions including denial of access to drinking water, ventilation and use of toilet during working hours, and verbal and sexual abuses. Lee (2014) provides, to say the least, a nice documentation of stories related to FDI in SSA, which would, definitely, never show up in macroeconomic statistics.
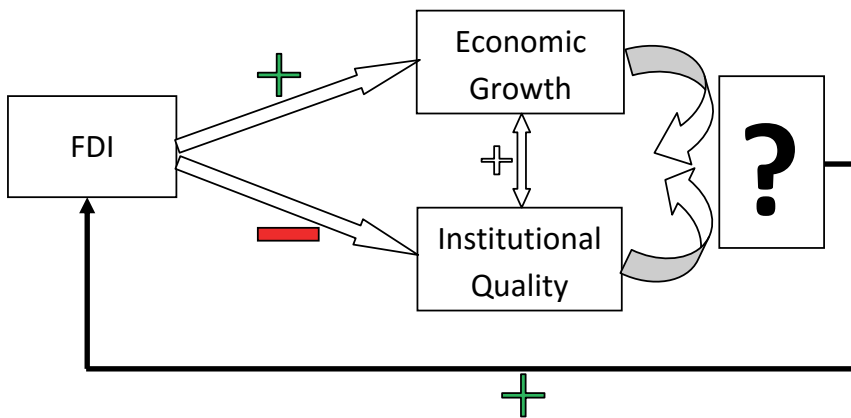
Figure 3.2: A Summary Sketch of the Nexus between FDI, Growth and Institutional Quality

between the latter two. The stronger of these two effects (of FDI), in turn, affects the amount of FDI forthcoming, setting in another round of conflict and perpetuating the cycle (see Figure 3.2). Based on what is happening elsewhere in the economy (or the world at large), either of these effects could turn out to be the stronger one at a specific round. In the unlikely case where the *ceteris paribus* assumption holds, FDI could be a 'perpetual blessing' or a 'perpetual curse'.

Included in all the three equations is the natural resource rent. While economic growth is positively associated with natural resource rent, this is statistically insignificant (though at the margin). On the other hand, natural resource rent attracts FDI inflows, and undermines the rule of law and raises the level of corruption. Testing for the reverse causality running from economic growth, FDI and institutions to the natural resource sub-sector (more precisely, to structural change) is the subject of the next subsection.

At this point, some words on the short run relationships are in order. The bidirectional causality between economic growth and institutional quality holds in the short run as well. There is no robust short run causality between FDI and economic growth, nor is there such association between FDI and institutional quality. MNCs take some time rather than responding instantaneously to changes in economic growth or institutional quality. And indeed, the benefits of FDI take time to be reaped. However, even if institutions may evolve only slowly, people's perceptions about institutional quality change with economic performance.

Another noticeable point from the 'short run' regression results (Tables 3.1-3.3) is the significance of the lagged values of the dependent variables in the FDI and institutional quality models. There is a strong memory or persistence in institutional quality, as indicated by the positive and statistically significant coefficients of its first lag in Models 3 and 4 (Table 3.3). That is, incidence of events which harm or efforts which improve institutions in one period has impact on institutional quality for the subse-

quent year as well. With regard to FDI inflows, it seems that times of increased inflows are followed by times of slowdown (Models 3 and 4 in Table 3.2). This is consistent with the observation that some foreign (multinational) firms have been jumping from one host country in the region to another (Lee, 2014). It also makes intuitive sense for a continent that is considered a latecomer to the business, since – without adequate and reliable information – multinationals could be treading carefully as they test an 'unknown' business environment.

### 3.5.2  *Structural Change*

The manufacturing sector has long been recognized to be the source of productivity growth, skill transfers, and more generally a source of both static and dynamic structural change bonus (Storm, 2015). Empirically, "there are no important examples of success in economic development in developing countries since 1950, which have not been driven by industrialisation" (Szirmai, 2012, p. 417). If the manufacturing sector is so important, then developing countries should naturally be concerned with how to boost its share in their respective economies and must actively address factors that work against it.

Meanwhile, the trend around the world is that the employment and output shares of the manufacturing sub-sector are falling, with a few exceptions. This is true for developed and developing countries alike. However, unlike deindustrialization in the developed world which is largely due to rapid technological progress in manufacturing, deindustrialization in developing world is mainly a result of globalization (Rodrik, 2015). An important aspect of globalization is the growing prominence of multinationals and their FDI. Whether FDI contributes to industrialization or deindustrialization depends on its type and sector of destination. In the context of this study, for the positive growth effect of FDI (established in the previous subsection) to have overarching and sustainable effects, it is imperative that the investment is directed to areas with potential for productivity increase and strong spillovers (conventionally, the manufacturing sector), or at least, should not massively flow to sectors with no or poor backward and forward linkages. A logical question is then: *what is the association between FDI inflows and the manufacturing sub-sector, in the context of SSA?* This section intends to answer this question.

Using both the nominal and real definitions of manufacturing value added (MVA), there is a clear deindustrialization in SSA beginning around 1990 (Figure A3.2 (top)). The year 1990 marks the outset of intensified and massive liberalization moves but it is also "a demarcation of the period in which globalization gathered speed" (Rodrik, 2015, p. 21). The pattern he finds for the developing countries at large holds for SSA as well. The difference between the two definitions, though slight, has also been rising since early 1990s. The real MVA has fallen a bit faster than the nominal, implying that the deindustrialization is not due to the world market (relative) price of manufactured

products turning against the countries in the region. (This is similar to what Rodrik has found for Latin America.)

Nonetheless, not all countries in SSA share the same deindustrialization story though. Democratic Republic of Congo (DRC), Ghana and Guinea-Bissau have experienced the worst deindustrialization scenario between 1970 and 2014 (drops of 35, 24 and 11 percentage points, respectively). On the other hand, Lesotho and Swaziland have seen double-digit rises in the share of their manufacturing value added in GDP (see Figure A3.3 in the appendix). Countries in the former group are richer than those in the latter one in terms of natural resources. The average natural resource rents (as share of GDP) are as follows: DRC 20.36%, Guinea-Bissau 17.44%, Ghana 8.93%, Swaziland 6.75% and Lesotho 6.28%. As Lesotho and Swaziland are resource-poor countries by SSA standard (Thorborg & Blomqvist, 2015), their proximity to South Africa may partly explain the type of FDI going there. As discussed in Basu & Srinivasan (2002), these countries have attracted market-seeking FDI attributed to their location in relation to South Africa and the trade sanctions on South Africa in the 1980s and 1990s. Besides, the two countries are among the major beneficiaries of the Textile and Apparel Provision of the AGOA (African Growth and Opportunity Act) (Lee, 2014; Chen et al., 2015). On the contrary, DRC and Ghana are among the resource-rich countries of the region (Thorborg & Blomqvist, 2015), and the FDI they attracted is mainly in mineral extraction industries. Up to 80% of FDI stock in the former is in the mining sub-sector (Oxford Policy Management & Synergy Global, 2013), and despite the recent rising trend in its manufacturing FDI (Chen et al., 2015), the mining sub-sector is also the largest destination of FDI to Ghana (see Tsikata et al., 2000).

In this study, deindustrialization is not just about the declining contribution of the industrial sector relative to the other (primary and service) sectors. That appears to be a universal experience by now. This study goes a step further: it zooms into the industrial sector itself and looks at the trend in the manufacturing sub-sector relative to the non-manufacturing industrial sub-sector. Accordingly, the sample average reveals that manufacturing value added of the region had been growing faster than non-manufacturing before 1990; that manufacturing value added was greater than the non-manufacturing value added between 1981 and 1991 (except for 1984 and 1985); and that there is a sharp fall in the relative share of manufacturing value added since 1991 (Figure A3.2 (right)). The deindustrialization observed is stronger with the use of this definition than the simple MVA (as share of GDP) definition. However, the two definitions yield qualitatively similar results.

A cursory inspection of both time-series and cross-sectional dimensions of the data show that increases in both FDI inflow (Figure 3.3) and GDP per capita (Figure A3.4) are associated with deindustrialization. The negative relationship between FDI to the region and the share of manufacturing value added is consistent with the argument that FDI to SSA chases natural resources. The association with rising income is 'natural' as "deindustrialization is the common fate of countries that are growing" (Rodrik, 2015, p. 9). The only thing 'unnatural' about it is that it happened at a very low

level of income (Rodrik's 'premature deindustrialization') and that it slops downward throughout, as opposed to the expected inverted U-shape.
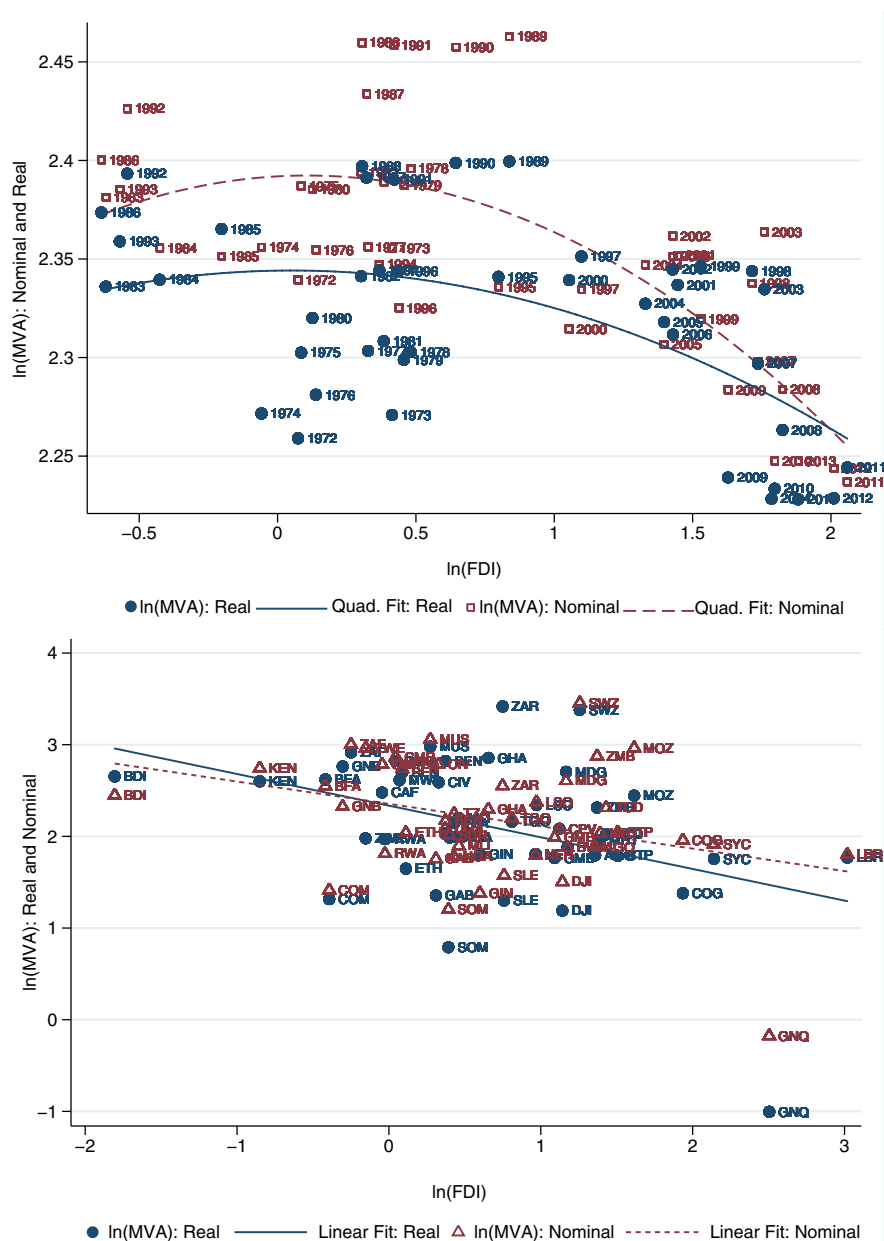


Figure 3.3: Manufacturing Value Added vs. FDI: Time-series [*top*] and Cross-sectional [*bottom*] Plots

Table 3.4: FDI and Value Added in the Manufacturing (Relative to the Non-manufacturing) Industrial Sector

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | $\Delta\ln(M/N)$ | $\Delta\ln(M/N)$ | $\Delta\ln(M/N)$ | $\Delta\ln(M/N)$ | $\Delta$MVA | $\Delta$FDI | $\Delta$FDI | $\Delta$FDI | $\Delta$FDI | $\Delta$FDI |
| *Long Run:* | | | | | | | | | | |
| FDI | -0.096*** | -0.066*** | -0.088*** | -0.042*** | 0.010 | | | | | |
| grGDPPC | -0.091*** | -0.032*** | -0.037*** | -0.057*** | -0.066*** | 0.044*** | 0.097*** | 0.090*** | 0.046* | 0.070*** |
| InstitQual | -0.223*** | 0.033** | 0.049*** | 0.032** | -0.112 | 0.421*** | 0.457*** | 0.499*** | 0.539*** | 0.311*** |
| Rent | | | | | -0.124*** | | | | | 0.087*** |
| ln(M/N) | | | | | | -1.164*** | -1.192*** | -1.176*** | -1.198*** | |
| MVA | | | | | | | | | | -0.020 |
| *Short Run:* | | | | | | | | | | |
| Adj. Speed | -0.086*** | -0.141*** | -0.124*** | -0.143*** | -0.163*** | -0.439*** | -0.395*** | -0.388*** | -0.375*** | -0.442*** |
| $\Delta$FDI | -0.002 | -0.003 | -0.001 | 0.008 | -0.003 | | | | | |
| L$\Delta$FDI | | -0.003 | 0.003 | -0.002 | | | -0.124*** | -0.157*** | -0.200*** | |
| L2$\Delta$FDI | | | 0.007 | 0.005 | | | | -0.070 | -0.098 | |
| L3$\Delta$FDI | | | | 0.007 | | | | | -0.054 | |
| $\Delta$grGDPPC | -0.007*** | -0.004*** | -0.003* | -0.001 | -0.016* | 0.001 | 0.013 | 0.015 | 0.021 | 0.011 |
| L$\Delta$grGDPPC | | 0.001 | 0.001 | 0.005** | | | -0.002 | 0.005 | 0.036 | |
| L2$\Delta$grGDPPC | | | 0.002 | 0.006** | | | | 0.014 | 0.028 | |
| L3$\Delta$grGDPPC | | | | 0.003 | | | | | 0.008 | |
| $\Delta$InstitQual | 0.021 | 0.024 | 0.025 | 0.027 | 0.127 | 0.878* | 0.777* | 0.740* | 0.729* | 0.730* |
| L$\Delta$InstitQual | | -0.015 | -0.018 | -0.014 | | | -0.167 | -0.238 | -0.405 | |
| L2$\Delta$InstitQual | | | -0.027 | -0.037* | | | | -0.421 | -0.288 | |
| L3$\Delta$InstitQual | | | | 0.026 | | | | | -1.185*** | |
| $\Delta$ln(M/N) | | | | | | 0.369 | -0.122 | -0.278 | -0.115 | |
| L$\Delta$ln(M/N) | | -0.027 | -0.068* | -0.057 | | | -0.248 | -0.560 | -0.797 | |
| L2$\Delta$ln(M/N) | | | -0.016 | -0.023 | | | | -1.462 | -2.540 | |
| L3$\Delta$ln(M/N) | | | | 0.011 | | | | | -1.879 | |
| $\Delta$Rent | | | | | | | | | | -0.363 |
| $\Delta$MVA | | | | | 0.501 | | | | | 0.181 |
| Constant | 0.060*** | -0.042* | -0.020 | -0.022 | 1.954*** | 0.780* | 0.669* | 0.701 | 0.595* | 0.566* |
| N | 1858 | 1811 | 1764 | 1717 | 1860 | 1858 | 1811 | 1764 | 1717 | 1860 |
| $\bar{T}$ | 40.391 | 39.370 | 38.348 | 37.326 | 40.435 | 40.391 | 39.370 | 38.348 | 37.326 | 40.435 |
| n | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, N = Number of Observations, n = Number of Countries, $\bar{T}$ = Average Number of Observations per Country

Moreover, as FDI is positively associated with economic growth, it means that FDI contributes to deindustrialization both directly through altering sectoral shares (between manufacturing and non-manufacturing) and indirectly through raising income level. The formal tests for the association between FDI and the share of manufacturing in total economic activities (as well as relative to non-manufacturing) and the direction of causality are undertaken using the PMG estimator.

Regression results in Table 3.4 confirm the positive relationship between FDI and deindustrialization observed earlier. In addition, the relationship is of bidirectional nature and robust to alternative specifications. As the first row of Models 1-4 shows FDI has a robust and statistically highly significant adverse influence on the relative share of manufacturing value added. This influence remains intact after controlling for institutional quality and economic growth. Models 6-9 test for causality in the opposite direction. As presented in the previous subsection, both economic growth and improved institutional quality enhance the inflow of FDI to the region. After controlling for these two variables, as in the bivariate regressions (not reported), higher shares of manufacturing value added relative to non-manufacturing (i.e., M/N) call forth less FDI inflows.

However, it is possible that the bidirectional association between FDI and (M/N) works through the denominator of the latter – N. That is, FDI may reduce the relative share of manufacturing value added by raising the denominator of (M/N) with little or no adverse effect on the numerator (M) per se. Models 5 and 10 are estimated to check for this possibility, using the manufacturing value added and natural resource rent (both as percentage share of GDP) as two separate variables. It is evident from Model 10 that, after controlling for natural resource rent (part of the denominator in Models 1-4 and 6-9), manufacturing value added (MVA) does not have a significant influence on FDI inflows. And from Model 5, there is no significant deindustrializing-effect of FDI apart from that which operates through expanding the non-manufacturing industrial sub-sector (*Rent*) and indirectly through economic growth (*grGDPPC*). In a nutshell, FDI inflows are associated with relative, but not absolute, deindustrialization.

## 3.6 CONCLUSION

To summarize the main findings, more FDI flows to countries with good economic track record as measured by growth in per capita GDP, and this result is robust to a number of model specifications. In the opposite direction, FDI also robustly contributes to economic growth. With few exceptions (as in the insignificance of the effect of rule of law on growth), the (statistical) causality between institutional quality and economic growth is also positive, bidirectional and robust to alternative specifications.

On the other hand, the relationship between FDI and institutional quality depends on what measure is used for the latter. Indeed, more FDI flows to countries with higher scores in terms of political rights, civil liberties, average institutional quality,

and rule of law, and to less corrupt ones. However, FDI appears not to respond to changes in voice and accountability. As to causality in the opposite direction, FDI does not induce any long-run improvement or deterioration in political rights, civil liberties or their average. Nonetheless, robust detrimental effects of FDI boil to the surface with the use of voice and accountability, corruption and the rule of law indices. The direct effect of natural resources on growth is positive. However, natural resources attract FDI (whose contribution is unclear) and undermine institutional quality – à la the famous *resource curse*! The findings here suggest the existence of a broader resource curse – emanating both from FDI and natural riches – rather than the narrower *natural resource curse* common in the literature. Besides, it is a modified form of resource curse as the adverse effect is on institutional quality (and through institutional quality, on economic growth) rather than directly on economic growth as defined in Poelhekke & van der Ploeg (2013) for instance.

FDI has also contributed to the region's premature deindustrialization both directly and indirectly through enhancing resource-based extensive growth. That is, both FDI and economic growth reward the non-manufacturing industrial sector (basically, the extractive industry) – which is the source of their success – vis-à-vis the manufacturing sector. This should in no way be taken to suggest that resource-based FDI should be halted. Preventing the share of manufacturing from falling by keeping the denominator (non-manufacturing) stagnant can never be an option. However, industrial policies that transfer revenues from the resource sector to manufacturing should be pursued.

In addition to the deindustrializing and resource-curse effects, the positive feedback loops between FDI, economic growth and natural resources should be questioned on ground of sustainability. That is, natural resources are depletable! Moreover, there are a lot of issues related to FDI that the current study has not covered. These include investigating the association of FDI with rising inequality (Jirasavetakul & Lakner, 2016; Herzer et al., 2014), deteriorating "domestic labour, environmental and health standards" (Van Vuuren, 2002, p. 71) and enhanced capital flight in the region. As stated in Thorborg & Blomqvist (2015), SSA suffers from illicit financial flows more than any other region of the world, and this is linked to multinationals in the extractive industries.

The existence of such additional negative aspects associated with FDI greatly undercuts the positive growth effects of FDI. As a result, the findings of this study are more likely to understate than overstate the downside of FDI. Nonetheless, these findings point out enough counteracting (institutional and structural) factors that issue warning against the current unguided competition to attract FDI among countries of the region. It is imperative for SSA countries to be selective on the type of FDI they try to attract by weighing its positive growth effect against its deindustrializing and

resource curse effects, among others.[4] However, the fact that the political elites are the beneficiaries of the 'curse' may entail a continued competition to attract as much FDI as possible, with no or little regard for its type and non-growth effects.

Finally, the results of this study do not prove causality in its philosophical sense as a change in any one of the variables would influence most of the other variables, and thus, none of these variables can be taken as 'the unmoved mover'. Despite the use of state-of-the-art estimation technique, one should be warned that no amount of statistical exercise proves causality. The fact that the data at hand support hypotheses of bi-directional causation would also add to the difficulty policymakers face in choosing where to intervene. However, of all the variables assessed here, institutional quality is the only one with clearly favorable effect on all the others. Besides, it is characterized by high persistence, implying that a change in institutional quality at a point in time would have a lasting effect. Hence, without claiming that institutions rule over other factors,[5] it is imperative that policymakers focus on getting institutions right.

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4 Comparison between Swaziland and Lesotho on the one hand and DRC and Ghana on the other supports the hypothesis that market-seeking or export-platform FDI outperforms resource-seeking FDI. However, more in depth investigation is needed in this regard, and firm/industry level analysis is suggested as an issue for further research.
5 See, for instance, Rodrik et al. (2004) and Acemoglu et al. (2005) for the debate.

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*A. Figures*
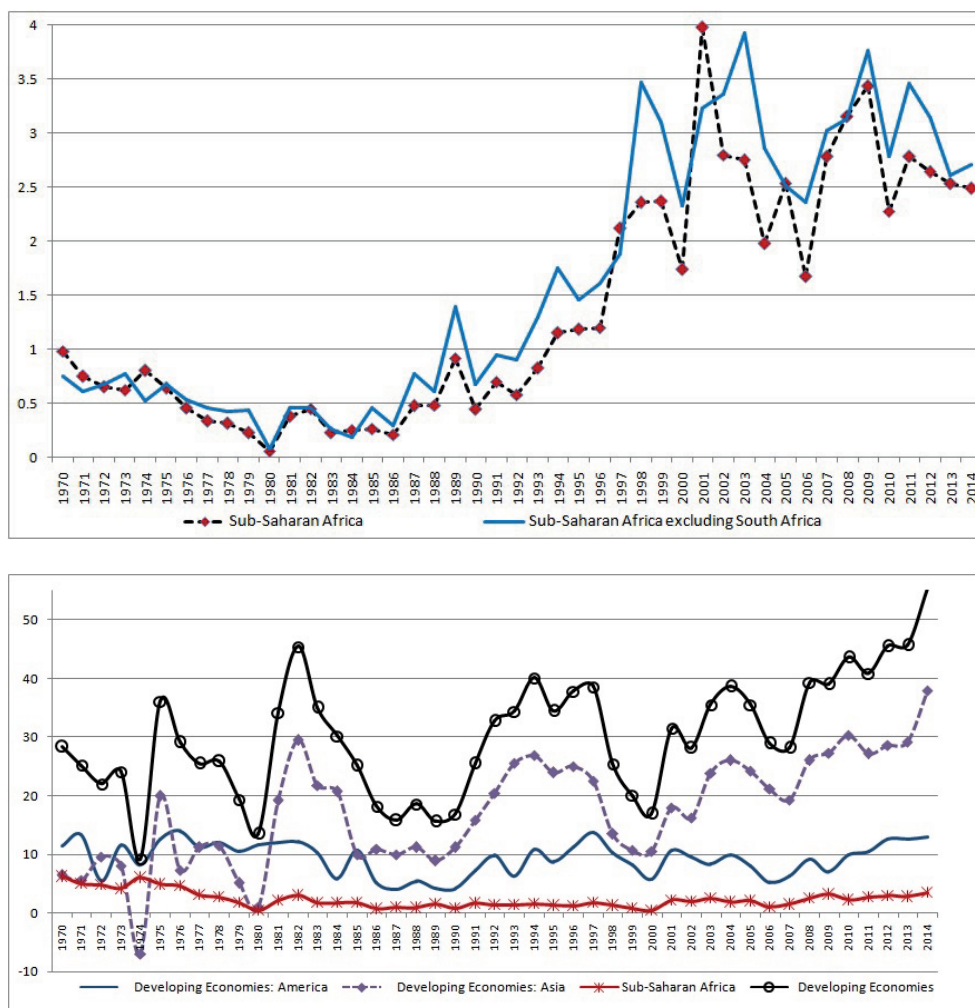


Figure A3.1: FDI Inflow to SSA (% of GDP) [*top*], and Regional Shares of Developing Countries in FDI Inflows (% of World Total) [*bottom*]: 1970-2014
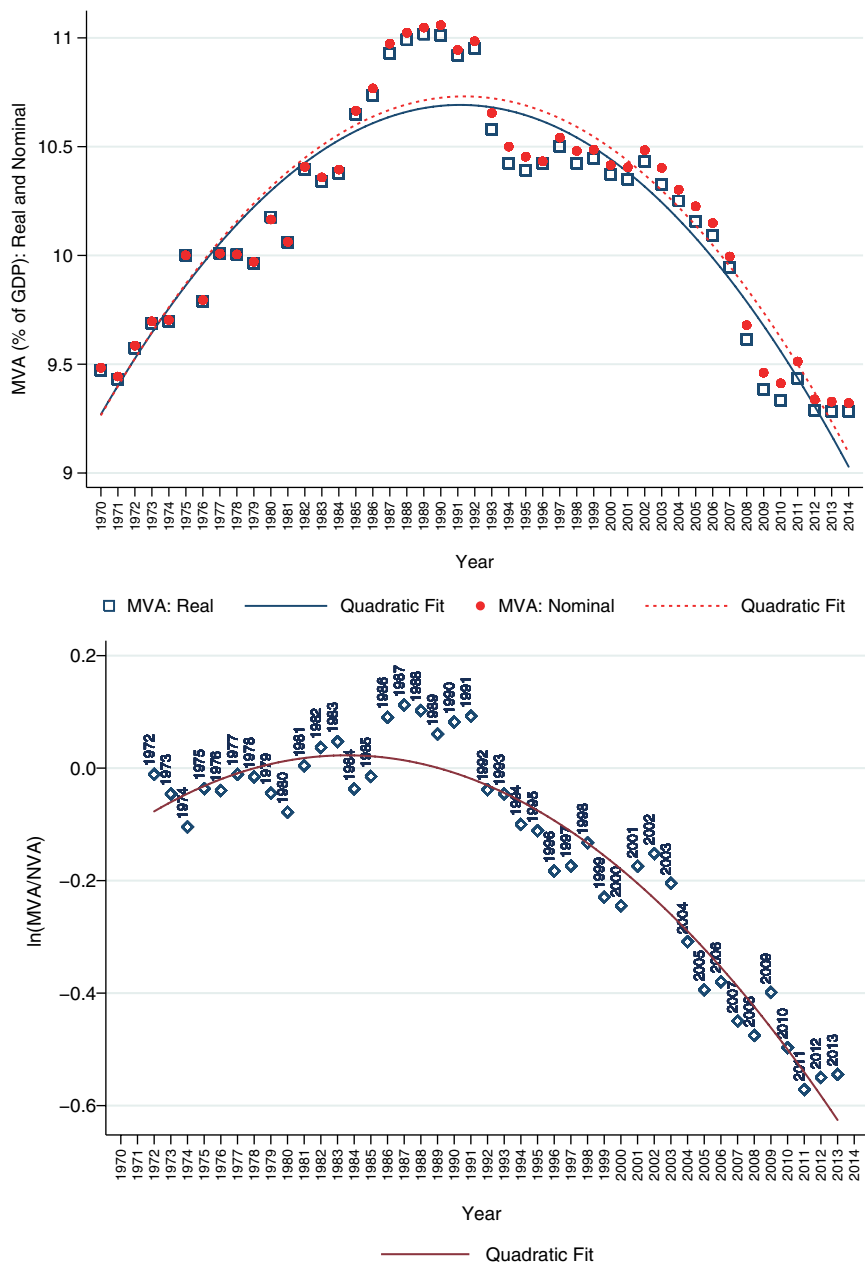
Figure A3.2: Manufacturing Value Added: Real vs Nominal MVA [*top*], and Real MVA Relative to Non-manufacturing Value Added [*bottom*]
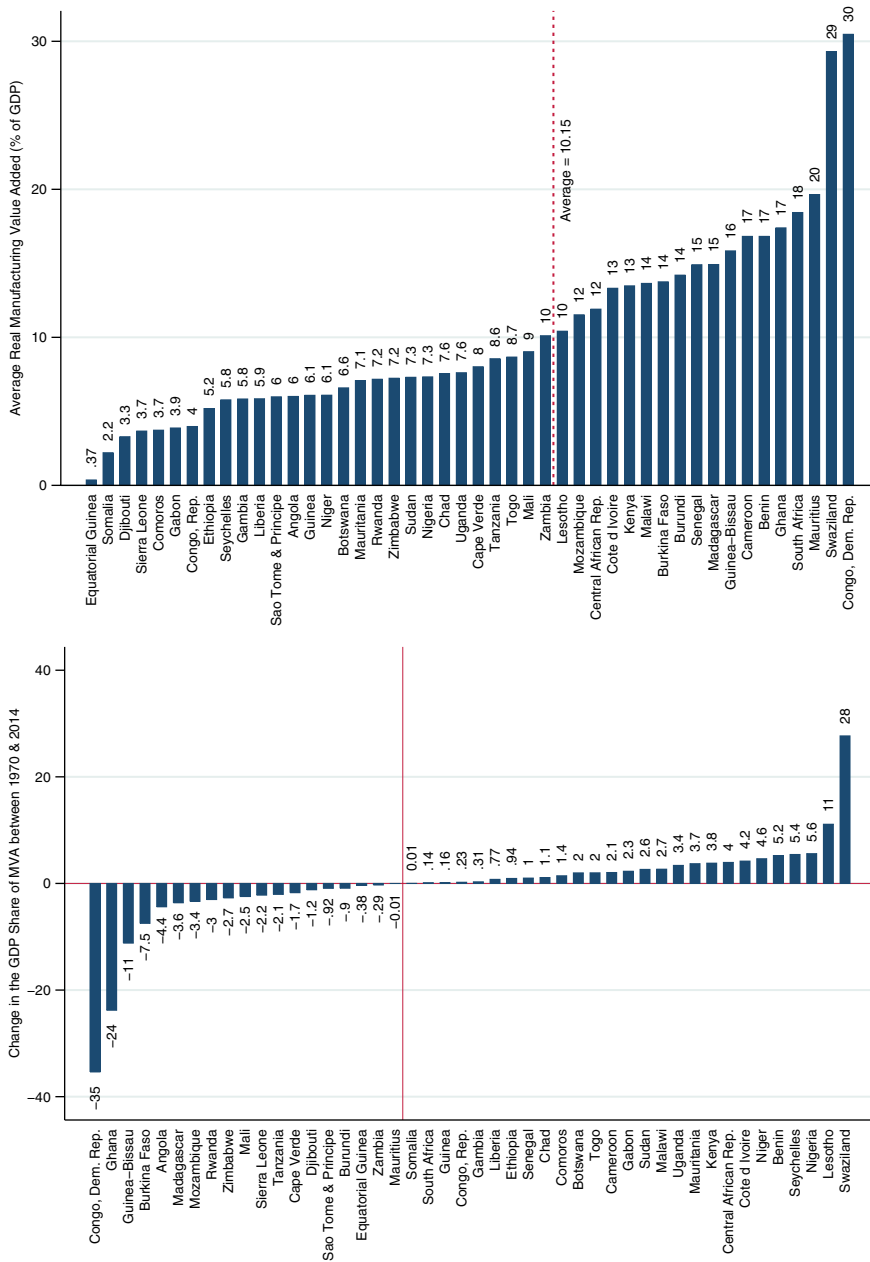
Figure A3.3: Real Manufacturing Value Added: Period Average [*top*], and Its Change between 1970 & 2014 [*bottom*]
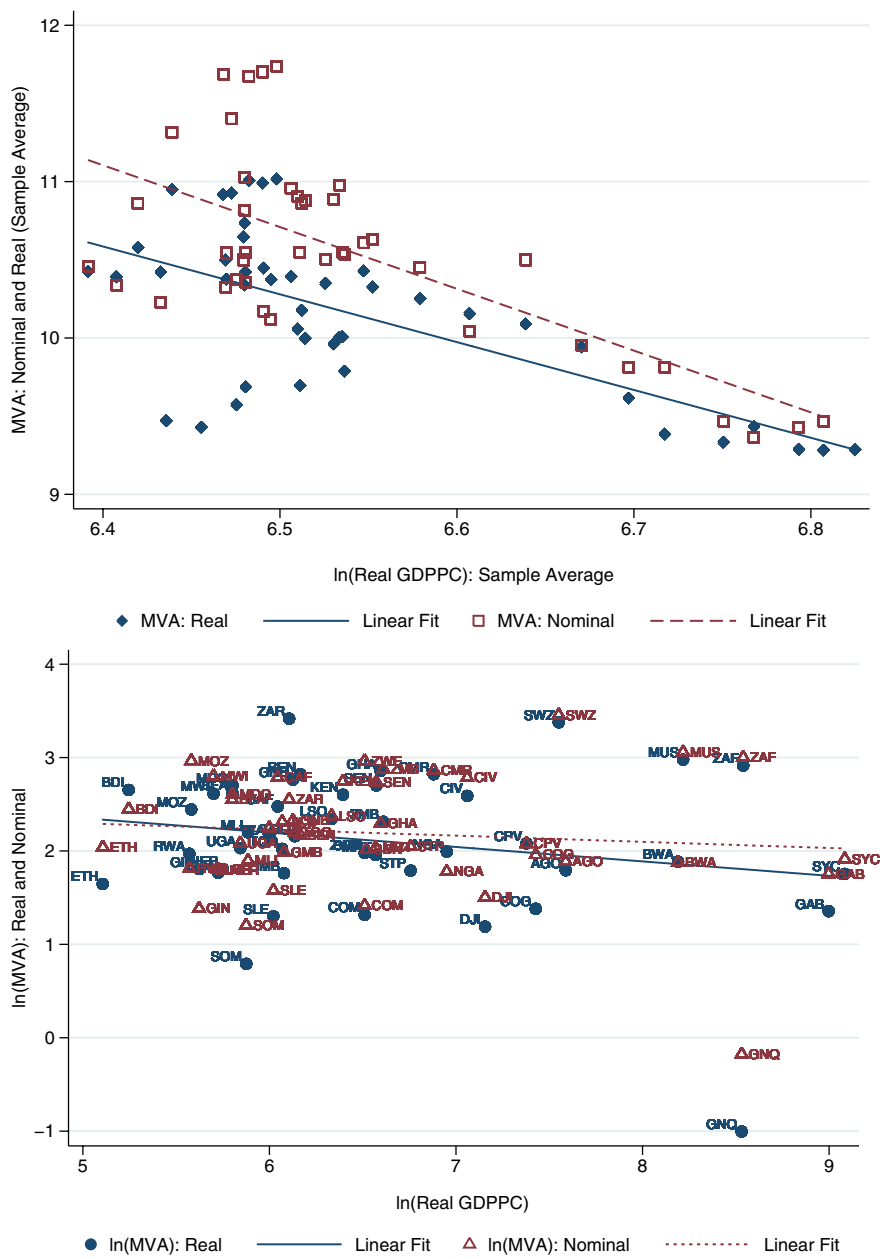
Figure A3.4: Manufacturing Value Added against GDP per Capita: Time-series [*top*] and Cross-sectional [*bottom*] Plots

B. *Tables*

Table A3.1: Hausman's Test: (a) between MG & DFE; (b) between MG & PMG

|  | *Consistent Estimator**  | *Efficient Estimator*** | *Test Statistic* | *p-Value* |
|---|---|---|---|---|
| (a) | Mean Group (MG) | Dynamic Fixed Effects (DFE) | 22.45 | 0.0001 |
| (b) | Mean Group (MG) | Pooled Mean Group (PMG) | 2.28 | 0.5171 |

* Consistent under both the null ($H_0$) and the alternative ($H_a$) hypotheses.

** Inconsistent under $H_a$, but efficient under $H_0$. [$H_0$: Difference in coefficients not systematic.]

Table A3.2: Unit-Root/Stationarity Tests: *p-values*

| Variable | IPS Unit Root Test | | Hadri Stationarity Test | |
|---|---|---|---|---|
|  | *Level* | *Difference* | *Level* | *Difference* |
| *ln*RGDPPC | 0.9884 | 0.0000 | 0.0000 | 0.0000 |
| grGDPPC | 0.0000 | 0.0000 | 0.0000 | 1.0000 |
| FDI | 0.0000 | 0.0000 | 0.0000 | 1.0000 |
| InstitQual | 0.0078 | 0.0000 | 0.0000 | 0.9283 |
| Rent | 0.0000 | 0.0000 | 0.0000 | 1.000 |
| *ln*(M/N) | 0.0981 | 0.0000 | 0.0000 | 0.5749 |
| $H_0$: | All panels contain unit-roots | | All panels are stationary | |

Table A3.3: Tests of Cointegration

| Variables | Pedroni's Test* | | | Westerlund's Test** | | |
|---|---|---|---|---|---|---|
| Involved | Stat. | Panel | Group | Stat. | Value | Rob. p-value |
| ln(RGDPPC), | $v$ | -2.885 | . | Gt | -1.800 | 0.802 |
| FDI | $\rho$ | 0.4134 | 1.436 | Ga | -4.811 | 0.996 |
| InstitQual & | $t$ | -1.482 | -2.58 | Pt | -4.412 | 0.982 |
| Rent | adf | -1.097 | -1.815 | Pa | -1.116 | 0.990 |
| ln(RGDPPC), | $v$ | -2.942 | . | Gt | -1.778 | 0.854 |
| FDI | $\rho$ | -0.136 | 2.061 | Ga | -5.346 | 0.986 |
| InstitQual & | $t$ | -3.305 | -0.9249 | Pt | -11.543 | 0.410 |
| ln(M/N) | adf | -3.161 | -0.5727 | Pa | -4.481 | 0.644 |
| grGDPPC, | $v$ | 6.102 | . | Gt | -3.805 | 0.000 |
| FDI | $\rho$ | -16.41 | -15.7 | Ga | -14.518 | 0.000 |
| InstitQual & | $t$ | -23.51 | -28.6 | Pt | -25.399 | 0.000 |
| Rent | adf | -22.52 | -27.16 | Pa | -17.255 | 0.000 |
| grGDPPC, | $v$ | 6.422 | . | Gt | -3.995 | 0.000 |
| FDI | $\rho$ | -16.84 | -15.95 | Ga | -14.666 | 0.000 |
| InstitQual & | $t$ | -24.28 | -29.58 | Pt | -22.525 | 0.000 |
| ln(M/N) | adf | -23.61 | -28.06 | Pa | -16.007 | 0.000 |

* "All test statistics are distributed N(0,1) under a null of no cointegration, and diverge to negative infinity [under the alternative] (save for panel v)' (Neal, 2014).

** Robust P-values are obtained from bootstrapping 500 times; bootstrapping is invoked because of possible cross-sectional dependence (Persyn & Westerlund, 2008).

Table A3.4: Descriptive Statistics: Mean Values of the Variables

| Country | grGDPPC | FDI | InstitQual | Corruption | RuleLaw | Voice | Rent | ln(M/N) |
|---|---|---|---|---|---|---|---|---|
| Angola | 4.10 | 3.89 | 1.79 | 1.32 | -1.44 | -1.27 | 30.14 | -1.96 |
| Benin | 4.15 | 1.45 | 3.87 | 0.69 | -0.47 | 0.22 | 7.27 | 0.39 |
| Botswana | 8.30 | 3.24 | 5.74 | -0.85 | 0.60 | 0.59 | 2.94 | -1.72 |
| Burkina Faso | 4.82 | 0.66 | 3.37 | 0.24 | -0.56 | -0.42 | 9.19 | 0.68 |
| Burundi | 3.45 | 0.16 | 1.98 | 1.12 | -1.30 | -1.15 | 16.86 | 0.82 |
| Cameroon | 3.48 | 1.04 | 2.09 | 1.06 | -1.15 | -1.07 | 10.44 | 0.44 |
| Cape Verde | 4.30 | 3.07 | 4.89 | -0.49 | 0.49 | 0.82 | 0.48 | -0.73 |
| Central African Rep. | 0.52 | 0.96 | 2.49 | 1.08 | -1.47 | -1.06 | 9.58 | 0.85 |
| Chad | 4.18 | 4.18 | 1.84 | 1.16 | -1.30 | -1.23 | 15.32 | 0.65 |
| Comoros | 2.70 | 0.67 | 3.67 | 0.86 | -1.09 | -0.55 | 1.64 | -0.63 |
| Congo, Dem. Rep. | 0.74 | 2.11 | 1.78 | 1.48 | -1.74 | -1.58 | 20.36 | -0.31 |
| Congo, Rep. | 4.16 | 6.93 | 2.44 | 1.06 | -1.28 | -1.17 | 47.37 | -1.83 |
| Cote d'Ivoire | 2.78 | 1.39 | 2.53 | 0.79 | -1.20 | -1.04 | 6.15 | 0.80 |
| Djibouti | 2.47 | 3.13 | 2.80 | . | . | . | 0.79 | -1.24 |
| Equatorial Guinea | 10.75 | 12.23 | 1.27 | 1.49 | -1.32 | -1.74 | 25.13 | -3.86 |
| Ethiopia | 4.37 | 1.12 | 2.17 | 0.68 | -0.75 | -1.17 | 13.74 | 0.21 |
| Gabon | 3.57 | 1.36 | 2.74 | 0.73 | -0.45 | -0.72 | 41.93 | -2.13 |
| Gambia | 3.50 | 2.98 | 4.10 | 0.57 | -0.26 | -0.99 | 3.40 | -0.04 |
| Ghana | 3.76 | 1.92 | 4.06 | 0.12 | -0.09 | 0.17 | 8.93 | 0.46 |
| Guinea | 3.07 | 1.82 | 2.00 | 0.89 | -1.37 | -1.19 | 12.56 | -2.01 |
| Guinea-Bissau | 2.13 | 0.74 | 2.93 | 1.10 | -1.47 | -0.94 | 17.44 | 0.78 |
| Kenya | 3.98 | 0.43 | 3.20 | 0.97 | -0.92 | -0.46 | 4.13 | 0.69 |
| Lesotho | 5.20 | 2.64 | 3.94 | 0.06 | -0.13 | -0.18 | 6.28 | -0.04 |
| Liberia | 3.78 | 20.46 | 2.92 | 1.02 | -1.48 | -0.75 | 36.65 | -0.49 |
| Madagascar | 1.58 | 3.21 | 3.70 | 0.22 | -0.52 | -0.30 | 5.09 | 1.47 |
| Malawi | 3.84 | 1.07 | 3.07 | 0.50 | -0.29 | -0.27 | 8.54 | 0.87 |
| Mali | 4.33 | 1.58 | 3.52 | 0.57 | -0.41 | 0.02 | 6.35 | -0.26 |
| Mauritania | 3.35 | 4.02 | 2.13 | 0.38 | -0.65 | -0.87 | 20.93 | -0.94 |
| Mauritius | 5.19 | 1.31 | 6.14 | -0.51 | 0.95 | 0.88 | 0.03 | 0.94 |
| Mozambique | 5.00 | 5.03 | 3.13 | 0.49 | -0.69 | -0.17 | 9.69 | 1.41 |
| Niger | 2.25 | 2.63 | 2.87 | 0.83 | -0.72 | -0.60 | 7.38 | -0.52 |
| Nigeria | 4.40 | 1.53 | 3.37 | 1.13 | -1.23 | -0.85 | 35.46 | -1.08 |
| Rwanda | 4.76 | 0.97 | 2.01 | 0.19 | -0.82 | -1.32 | 7.82 | -0.13 |
| Sao Tome & Principe | 2.96 | 4.51 | 4.46 | 0.39 | -0.49 | 0.27 | 1.01 | -0.27 |
| Senegal | 3.14 | 1.09 | 4.36 | 0.24 | -0.17 | -0.01 | 3.32 | 0.86 |
| Seychelles | 4.39 | 8.50 | 3.86 | -0.33 | 0.25 | 0.14 | 0.06 | 0.14 |
| Sierra Leone | 2.61 | 2.13 | 3.40 | 0.89 | -1.13 | -0.62 | 11.84 | -0.73 |
| Somalia | 1.48 | 1.48 | 1.12 | 1.71 | -2.34 | -1.95 | 4.38 | -0.38 |
| South Africa | 2.50 | 0.78 | 4.55 | -0.33 | 0.09 | 0.67 | 4.35 | 0.20 |
| Sudan | 3.88 | 1.49 | 1.65 | 1.22 | -1.41 | -1.72 | 5.25 | -0.12 |
| Swaziland | 5.20 | 3.52 | 2.56 | 0.27 | -0.61 | -1.27 | 6.75 | 1.53 |
| Tanzania | 4.58 | 1.54 | 3.10 | 0.73 | -0.39 | -0.35 | 5.03 | 0.22 |
| Togo | 2.10 | 2.25 | 2.36 | 0.87 | -0.87 | -1.15 | 9.19 | -0.40 |
| Uganda | 4.31 | 1.45 | 2.84 | 0.87 | -0.52 | -0.69 | 15.82 | 0.35 |
| Zambia | 2.60 | 3.94 | 3.64 | 0.69 | -0.49 | -0.33 | 14.81 | -0.18 |
| Zimbabwe | 3.15 | 0.86 | 2.67 | 1.12 | -1.48 | -1.30 | 5.63 | 0.47 |
| Total | 3.74 | 2.90 | 3.06 | 0.65 | -0.76 | -0.64 | 11.68 | -0.15 |

Table A3.5: Correlation among Various Indicators of Institutional Quality, FDI, Economic Growth and Manufacturing Value Added

| | InstitQual | PolRight | CivLib | RuleLaw | Corruption | Voice | grGDPPC | FDI | MVA |
|---|---|---|---|---|---|---|---|---|---|
| *(a) Pooled:* | | | | | | | | | |
| InstitQual | 1.000 | | | | | | | | |
| PolRight | 0.972*** | 1.000 | | | | | | | |
| CivLib | 0.960*** | 0.867*** | 1.000 | | | | | | |
| RuleLaw | 0.742*** | 0.683*** | 0.766*** | 1.000 | | | | | |
| Corruption | -0.694*** | -0.644*** | -0.711*** | -0.873*** | 1.000 | | | | |
| Voice | 0.950*** | 0.915*** | 0.930*** | 0.831*** | -0.767*** | 1.000 | | | |
| grGDPPC | 0.113*** | 0.108*** | 0.111*** | -0.049 | 0.069** | -0.022 | 1.000 | | |
| FDI | 0.089*** | 0.083*** | 0.089*** | -0.047 | 0.038 | -0.017 | 0.189*** | 1.000 | |
| MVA | 0.096*** | 0.094*** | 0.092*** | 0.210*** | -0.279*** | 0.129*** | -0.087*** | -0.124*** | 1.000 |
| *(b) Cross-Sectional (Period Average):* | | | | | | | | | |
| InstitQual | 1.000 | | | | | | | | |
| PolRight | 0.991*** | 1.000 | | | | | | | |
| CivLib | 0.986*** | 0.955*** | 1.000 | | | | | | |
| RuleLaw | 0.842*** | 0.823*** | 0.846*** | 1.000 | | | | | |
| Corruption | -0.812*** | -0.791*** | -0.817*** | -0.921*** | 1.000 | | | | |
| Voice | 0.918*** | 0.917*** | 0.898*** | 0.863*** | -0.822*** | 1.000 | | | |
| grGDPPC | 0.141 | 0.122 | 0.160 | 0.337** | -0.269* | 0.134 | 1.000 | | |
| FDI | -0.082 | -0.072 | -0.093 | -0.096 | 0.069 | -0.063 | 0.336** | 1.000 | |
| MVA | 0.205 | 0.190 | 0.218 | 0.216 | -0.252* | 0.186 | -0.126 | -0.241# | 1.000 |
| *(c) Time-Series (Sample Average):* | | | | | | | | | |
| InstitQual | 1.000 | | | | | | | | |
| PolRight | 0.986*** | 1.000 | | | | | | | |
| CivLib | 0.985*** | 0.941*** | 1.000 | | | | | | |
| RuleLaw | 0.232 | 0.295 | 0.175 | 1.000 | | | | | |
| Corruption | 0.434* | 0.306 | 0.497** | 0.063 | 1.000 | | | | |
| Voice | 0.826*** | 0.777*** | 0.812*** | 0.657*** | 0.453* | 1.000 | | | |
| grGDPPC | 0.412*** | 0.392*** | 0.420*** | -0.230 | -0.041 | -0.046 | 1.000 | | |
| FDI | 0.794*** | 0.779*** | 0.785*** | 0.471** | 0.334 | 0.480** | 0.496*** | 1.000 | |
| MVA | -0.639*** | -0.643*** | -0.616*** | -0.0596 | -0.238 | -0.121 | -0.515*** | -0.718*** | 1.000 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, # $p = 0.106$

# 4

## INSTITUTIONS, COMPARATIVE ADVANTAGE AND THE MARGINS OF TRADE*

### ABSTRACT

*Recognizing the role of institutions in shaping comparative advantage took longer than recognizing, late as it is, the role of institutions in development in general. Using a panel data of exporter-importer pairs over the period 2008-2015, this chapter assesses the effect of institutions on comparative advantage and decomposes it into the intensive and extensive margins. The findings indicate that institutions are robust sources of comparative advantage: better institutional quality not only improves the probability of exporting contract-intensive products (extensive margin) but also enhances the volume of export conditional on exporting (intensive margin). This is robust to the use of alternative variety-based and destination-based definitions of the margins. While more of the effect materializes through the intensive margin, the effect on the extensive margin is more robust. In addition, institutions enhance the chance of survival in the export of contract-intensive products in particular. Developed regions reap the benefit of institutional reforms through both margins whereas developing regions benefit more from the extensive margin. The benefits to developing regions come more from trade within their regions than their trade vis-à-vis the developed regions. Finally, our findings reject the claim that institutions are more important than factor endowments in shaping trade pattern. Such a claim appears to result from aggregation bias.*

*Keywords*: Comparative Advantage. Institution. Export. Intensive Margin. Extensive Margin.
*JEL Classification*: F14

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# 5

## CONCLUDING REMARKS

" *Trekking through the tropics trying to make poor nations rich has raised more questions than it has answered. ... [But] ... [n]othing would be sadder than to give up the quest altogether.* "

William Easterly, *2001. The Elusive Quest for Growth, p. 289, 291*

EFFORTS to convince developed nations to scale-up their aid to developing countries – with the aim of meeting the target of 0.7% of the former's Gross National Product so as to end the poverty of the latter – presuppose that shortage of finance is the binding constraint. Similarly, advising poor countries to encourage FDI inflows through measures such as tax holidays takes for granted that the link between FDI and development is unambiguously favorable. Both of these efforts might have been based on genuine ambitions. However, their presumptions are both unfounded and continue to guide policy prescriptions in spite of warnings from scholars (Easterly, 2001, 2006; Rodrik, 2008, 2010; Stiglitz, 2006, to mention a few) on the imperatives of proper diagnosis before treatment. Another problem with such policy prescriptions is that they are pursued mainly hinging on their potential to influence economic growth, thereby overlooking their influences on other aspects of development.

Chapters 2 and 3 have taken up these issues. They have scrutinized whether these financial aspects of economic globalization could be the answer to the quest for development in the context of SSA – by looking at their growth effects and beyond. Inspired by the the relationship these two chapters have established between international finance (aid and FDI) and institutional quality (plus, structural change in the case of FDI), Chapter 4 has examined the influence of institutions on another aspect of economic globalization – trade.

Chapter 2 reveals that total net aid transfers (NAT) from DAC-donors has contributed negatively to the economic growth of the region. This is a direct effect over and above its more robust unfavorable effect on institutional quality. The existence of strong and positive bidirectional causality between institutional quality and growth strengthens the negative effects of aid. While Chinese aid also shares the negative

effect on institutional quality, its growth effect is, however, positive. However, it is important to recall that DAC-donors are heterogeneous both in terms of the criteria they use in giving aid and the quality of their aid (agencies) as captured by indicators such as transparency, selectivity, specialization, harmonization, alignment and efficiency. Aid from donors with better scores on these grounds are generally better (than aid from those scoring badly) in terms of both the growth and institutional effects. Accordingly, smaller donors tend to outperform bigger ones. Nonetheless, there are cases of over-performing and under-performing donors in relation to expectations formed based on these qualities. Specialization and alignment appear to be better predictors of the performance of aid from such donors with mixed scores on various quality indicators.

A policy implication of such heterogeneous effects is to call for the shift of focus from scaling-up to giving better aid (from quantity to quality). If all that is at stake were to make aid more effective, this would suggest that France or Canada (for instance) should entrust their aid to Ireland. There is more at stake, however. Moreover, given the history of unfulfilled promises and empty declarations, there is little reason for optimism in quality improvements. Genuine efforts to help the poor should try to limit the assistance given to governments of the poor. Otherwise, aid will continue to be "the process by which the poor in rich countries subsidize the rich in poor countries" as Peter Bauer protested. In addition, whenever and wherever donor power/leverage oer recipient politics allows, bypassing the governments of poor nations is one option. This could be difficult, but not impossible; there are already donor agencies which collaborate with universities (for instance) and engage in community development programs. Another option is to bypass both donor and recipient governments. Just to give an example that this is possible, upon relocating to Southwestern Ethiopia in 2004, I was impressed to hear a change that a single person's initiative can bring about. There, the name Karl (for Karlheinz Böhm) – the founder of Menschen für Menschen – is more familiar than most (if not all) governmental and non-governmental organizations. As the latest figures indicate, his foundation has built 428 schools, 2284 water points and 101 health facilities, among others.[1] Last, but not least, I agree with Easterly (2006) that the effectiveness of such efforts should not be hunted for in macroeconomic variables such as growth, and that such efforts should not be overflowed by the desire to do impact evaluations.

As a private business flow with better incentive mechanism, FDI is expected to outperform aid as a source of development financing. Chapter 3 confirms this to be the case as long as economic growth is concerned. FDI has a robust positive effect on the growth rate of GDP per capita, and this is where the call for tax reduction or exemption and similar advice seems to come from. On the other hand, flowing preferentially to countries with better institutional quality, better growth or more natural resources, FDI in turn contributes to the expansion of the extractive sector and deterioration in some aspects of institutional quality. Consistent with anecdotal observations, the in-

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1 Source: `https://www.menschenfuermenschen.de/`, accessed October 15, 2017.

flow of FDI has contributed to corruption, as well as the undermining of the rule of law and voice and accountability. The influence on corruption is even worse when the stock of FDI is taken instead of the flow, although stationarity tests warn us not to take the stock-based results seriously. The expansion of the non-manufacturing industrial sub-sector has outpaced that of the manufacturing sub-sector and has thus translated itself into (relative) deindustrialization, which is both premature and counter expectational.

Policy wise, not all FDI is alike, and it pays to be selective in encouraging FDI. This is easier said than done, however. The source of the problem is less likely to lie in lack of awareness than in the benefits that accrue to political elites. On the good side, whether it is due to the rise of public awareness in this era of information and communication technology (ICT) or the degree of repression (approaching its limit), the youth are taking to the streets of big cities in many SSA countries. This seems to have resulted in some concessions by politicians at least in some cases, which I consider to be one source of optimism. In this regard, media from the developed world could also assist in exposing the practices of multinationals. A few such steps have already been taken, and they need to be encouraged. Two exemplary reports from Ethiopia are worth mentioning: one was produced by Kalla Faktas (Google translated as *Cold Facts*) program aired in February 2015, by the Swedish Channel TV4;[2] and the other produced by ZEMBLA program of the Dutch Media VARA, in March 2016.[3] The former exposed issues of land grabbing involving H&M, businesses of Al Amoudi – a Saudi-Ethiopian investor locally nicknamed by Ethiopians as "the nanny of the Ethiopian government" – and other tributary foreign investors. The latter exposed issues of land grab, unfair use of water resources, unfair treatments of workers and tax evasions by Heineken in Ethiopia, which at the same time benefited from millions of Dutch government subsidy that effectively restricted local farmers to supply exclusively to Heineken. If such efforts could be scaled-up instead of aid, FDI would not only enhance growth but also turn around its current unfavorable effects on institutions to a blessing. More importantly, host country governments should provide comparable incentives for small domestic businesses that are in a disadvantageous position to play by the 'rule of money'.

Taking growth, industrialization and institutions as developmental goals, it is already clear that FDI has an ambiguous overall developmental effect. Considering the instrumental role of institutions, on the other hand, reveals that good institutions are unequivocally beneficial: contributing directly to economic growth and indirectly through discouraging the inflow of aid and attracting FDI. The more recent literature, including the works of Nunn (2007) and Levchenko (2007), has brought another long neglected role of institutions to the forefront: institutions as a source of comparative advantage. Chapter 4 has contributed to this strand of the trade literature in two ways.

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2  Available  https://www.youtube.com/watch?v=5-ImoKhymL4  or  https://www.dn.se/ekonomi/swedfund-hjalper-hm-i-etiopien/

3  Available https://zembla.bnnvara.nl/nieuws/hollandse-handel

First and foremost, it has disentangled the effect of institutions on pattern of trade into the intensive and extensive margins, comparing the relative importance of the two. Using world data, it has shown that the effect comes through both margins, with more of the influence materializing through the intensive margin. It has also shown that the claim that institutions play more role than physical and human capital combined is the result of aggregation bias. The second contribution is the analysis of these relationships in developed and developing (OECD and Non-OECD) as well as SSA and non-SSA country sub-categories, examining the from-region, across-region and within-region aspects. Remarkably, developed regions benefit through both margins (more through intensification) while developing ones benefit mainly via the extensive margin. For SSA, benefits of institutional reforms or improvements are limited to the extensive margin and come from the within region dimension. Hence, for a country in SSA, overtaking export-sector competitiveness from a country outside the region becomes more and more difficult with the contract-intensity of the product. Despite the weakness of the differential trade effect of institutions by institutional intensity of sectors, such improvements do boost overall exports.

In a nutshell, unambiguous hope lies in focusing on improving institutional quality. External finance in the form of FDI could play a supplementary role. Without claiming to have put the aid-effectiveness debate to an end, it is evident that aid has failed, at least in SSA. Future avenues of research within the globalization-institution-development nexus include: the (macro-level) institutional influences of migration and remittances particularly through dissemination of information and political activism; the effect of FDI on income distribution; the effect of institutional quality on export diversification; and the micro- and/or meso-level analysis of what purpose (other than growth) aid can reasonably serve.

A better future demands that more responsibility and power lie in the hands of domestic players – public and private – for *only oneself can precisely locate and scratch one's itching*!

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*This addendum of valorization is added in compliance with article 23.5 of the "Regulation governing the attainment of doctoral degrees at Maastricht University" decreed by resolution of the Board of Deans, dated 3 July 2013.*

I T is unequivocal that poverty is a prevalent problem that deserves the utmost attention of policymakers. However, it is not straightforward to design and implement solutions. Efforts to eradicate poverty should be informed by debates based on research. Policies and efforts which are not based on evidences could miss their targets. The studies that constitute this dissertation are intended to contribute to the debate surrounding the solutions to developmental problems, with particular emphasis on Sub-Saharan Africa.

The first two studies (Chapters 2 and 3) are concerned with financing development internationally (i.e., from external sources). As the findings of Chapter 2 indicate not only has aid failed to systematically foster economic growth, but it has also negatively affected the institutional quality of the recipients. Thus, to try to indicate poverty using more aid is tantamount to using an ordinary axe to cut a metal. We need to change the axe; only a better kind of aid – and not more of the same kind we already know – could help the fight against poverty. Even then, aid can never be a magic bullet.

At least in regard to the effect of economic growth, FDI is a better source of external finance than aid. However, this comes with other countervailing effects. There are more potentially positive or negative effects, but this study has identified two undesirable effects: on institutional quality and on structural transformation.

In both chapters, institutional quality is treated as a dependent variable that is influenced by aid and FDI inflows, and this is an important area where the dissertation contributes to the debate. Institutional quality is an important intermediary between finance and economic growth. Of equal (if not more) importance is the value of institutions as development outcomes. Civil liberty, political rights, the rule of law, among others, are desirable in themselves. Hence, by ignoring how these financial flows affect institutions and – through institutions – other outcomes, the debate misses an important block. The efforts being exerted to solve problems of the developing world appear to be driven by ideological orientations. As a result, it has been the norm (with some exceptions) not to question if the problem lies in finance or something else. Supportive of the counterclaim that finance is not the supreme factor is the amount of illicit financial outflow from Sub-Saharan Africa, which is much more than aid or FDI and close to their sum. Institutional quality, on the other hand, has robust desirable effects on the development indicators used in this dissertation – economic growth

and industrialization, but also emancipates developing countries from kneeling down before financial lenders and multinationals.

Chapter 4 adds another evidence on the importance of institutions. Institutions shape the pattern of trade; improving institutional quality could help countries progress from exporting simple (less contract-intensive) products to exporting complex (more contract-intensive) products. They do so through influencing both the extensive (probability of exporting, number of destinations, or number of varieties) and intensive (volume, volume per destination, or volume per variety) margins. For the less developed countries, the influence materializes mainly through the extensive margin. This is a relatively young area of research, and as such I believe that the contribution of this dissertation in this line is particularly important.

Each of the three studies in this dissertation is just a drop in the ocean. However, the findings of each are believed to contribute to keeping the debate alive, and this is what should be expected from a single study. Acting on the basis of findings from single studies is perhaps one of the factors that explain the failure of policies from institutions such as the World Bank. Thus, while this dissertation does not provide specific policy recommendations to implement right away, it calls the attention of policymakers to the value of considering non-growth effects of any policy and to the significance of not taking for granted that finance is the (binding) problem of developing countries. Moreover, the empirical evidences suggest that efforts to improve institutions in developing countries through more aid and/or FDI flows from the developed world are misplaced and having the exact opposite effect.

Overall, the dissertation is intended to feed into the debate on the interplay between economic globalization and development in the less developing world, particularly those in Sub-Saharan Africa. Presentations at seminars/conferences and publishing the results in peer-reviewed scholarly journals are the channels for effecting this purpose. Thus far, different versions of the chapter on aid have been presented at: (i) UNU-MERIT in-house seminar of *Research Theme III* (*Economic Development, Innovation, Governance and Institutions*) on 17 May 2016; (ii) *"The World and Africa" in the 21st Century: China, the West and Economic Interventions in Africa – A Conference in the Critical Tradition of W. E. B. Du Bois* (Howard University) on 24 March 2017; and (iii) *The First Annual Internal Conference of UNU-MERIT* on 29 June 2017. Besides, this paper has been published first as a working paper (*UNU-MERIT Working Paper Series #2016-009*) and eventually in *Review of Development Economics, 2018; 22:23–44*, (first published online on 7 June 2017). The chapter on FDI was presented at *Vienna Investment Conference: Quality FDI, Growth and Development* (organized by UNIDO and Kiel Institute for the World Economy, 14-15 September 2016); and is recently published as UNU-MERIT working paper #2018-013.

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Hassen has (co)authored several distance learners' modules and authored a teaching material on microeconomics. He has thus far published three research articles, including one in *Review of Development Economics*. His research interest lies in economic development broadly defined, with focus on the interplay between development, economic globalization (trade, regional integration, foreign aid, foreign direct investment, and migration and remittances) and institutions. He is also interested in applied microeconomics, macroeconomics and econometrics.

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