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Determinants Of The Flow Of Bilateral Adaptation-Related Climate Change Financing To Sub-Saharan African Countries

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DETERMINANTS OF THE FLOW OF BILATERAL ADAPTATION-RELATED CLIMATE CHANGE FINANCING TO SUB-SAHARAN AFRICAN COUNTRIES

The Extent to which Environmental, Economic, Historical and Political Factors Play a Role

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Abstract: The apparent mismatch between countries receiving Adaptation-related Climate Change Financing (ACCF) and those most vulnerable to climate change is a concern which is the motivation for this research. This paper examines the determining factors of receiving ACCF for sub-Saharan African countries and finds that the recipient policy and an existing aid relationship are significant determinants of funding. ACCF therefore appears to be contingent on democratic characteristics of the recipient and prevailing a donor-recipient relationship, with vulnerability not being a factor. Our research draws a parallel between ACCF and traditional, bilateral aid allocation, and stresses the importance of accurate climate finance allocation practices.

Preface

"We do not face a choice between protecting our environment or protecting our economy. We face a choice between protecting our economy by protecting our environment – or allowing environmental havoc to create economic havoc."

– Robert E. Rubin

Co-Chairman, Council on Foreign Relations and Former United States Secretary of the Treasury

In the lead up to the climate negotiations in Paris at the end of 2015, this quote seems particularly fitting. Climate change negotiations have long been stalled by the idea that compelling countries to cut their greenhouse gas emissions would be the death knell to their economies, all the while overlooking the idea that future economic prosperity will be contingent on the actions we take now to mitigate future effects of climate change and to adapt to its current effects. The latter is particularly relevant to lower income countries who have contributed the least to greenhouse gas emissions, but are disproportionately impacted by climate change through a limited capacity to adapt to its effects. Adaptation-related climate change financing is therefore pivotal for lower income countries. The apparent mismatch between countries receiving adaptation-related climate change financing and those most vulnerable to climate change is a concern. This concern is the motivation for this research.

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Prize

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Table of Contents

List of Tables

List of Figures

List of Equations

List of Abbreviations

ACCF	Adaptation-Related Climate Change Financing
CCF	Climate Change Financing
CIAGR	Consultative Group for International Agricultural Research
CIFR	Centre for International Forestry Research
CO2	Carbon Dioxide
COP	Conference of the Parties
CRA	Climate-Related Aid
DAC	Development Assistance Committee
FAO	Food and Agricultural Organisation
FSF	Fast Start Finance
GDP	Gross Domestic Product
GHG	Greenhouse Gases
IBRD	International Bank for Reconstruction and Development
IUCN	International Union for the Conservation of Nature
MCCF	Mitigation-Related Climate Change Financing
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
OLS	Ordinary Least Squares
PTS	Political Terror Scale
SSA	Sub-Saharan Africa
UK	United Kingdom
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WFP	World Food Programme

Executive Summary

The central aim of this paper is to ascertain the key determining factors for bilateral Adaptation-related Climate Change Finance (ACCF) to sub-Saharan Africa (SSA). In doing so this paper is divided into four chapters. The first chapter, the introduction, includes an outline of the context in which the research takes place, the research questions, and a review of relevant literature. The second chapter outlines the methodology, while the third chapter lays out the results and analysis, and the fourth chapter provides conclusions and recommendations.

Chapter 1 begins by highlighting that there are scientific, social-political-economic and ethical conceptions of climate change. The first defines climate change as relating to "…how increasing greenhouse gas (GHG) concentrations affect global temperatures, ocean chemistry, and vegetation and the associated impacts that emerge from these changes" (Hoffmann, 2013:4). The second conceptualisation includes contextual factors (Hoffmann, 2013). The third perspective includes specifications on areas that are currently most vulnerable to climate change and those that will be in the future (Hoffmann, 2013).

In drawing on the ethics conception, this paper notes that while lower income countries have contributed less to climate change in terms of emissions, these countries will be disproportionately affected by the impacts of climate change as a result of limited levels of adaptive capacity. This is particularly true for sub-Saharan Africa which is considered the region most vulnerable to the impacts of climate change. It is for this reason that this paper focuses on ACCF to SSA.

Sub-Saharan Africa does not receive the largest portion of climate change financing, despite targeting vulnerable countries being a key provision in the United Nations Framework Convention on Climate Change (UNFCCC). Based on this incongruity, the central research question is, 'what are the key determining factors for the receipt of adaptation-related climate change financing in sub-Saharan African countries?' while the sub-research question asks to what extent environmental, economic, historical, and political factors play a role in determining adaptation-related climate change financing flows to sub-Saharan African countries.

In reviewing the literature on climate change financing, this paper summarises pertinent climate change negotiations and agreements related to financing. Notable principles established during negotiations include the principles of 'polluter pays', 'respective capability', 'new and additional'

financing, 'adequate and precautionary' financing, and 'predictable' financing (Schalatek & Bird, 2014). These principles have proved to be fairly contentious, particularly relating the idea that developed countries, with more capability, need to fund developing countries, with more need, despite emerging economies such as China and Mexico increasing their emissions considerably.

In reviewing literature on the determinants of climate change financing, this paper finds that much of the work has been concentrated on dichotomous ideas of donor interest and recipient need. In seeking to expand on this, this paper draws on the work of Clist (2011) which aims to look passed this dichotomy, highlighting the role of the relationship between donors and recipients. In doing so Clist highlights the importance of the '4Ps', poverty, population, policy and proximity. Clist's '4P' framework is used as the basis for methodology and analysis in this paper. In doing so however the '4P' model is amended to include vulnerability measures. Drawing on Clist (2011), this paper uses an ordinary least squares (OLS), multivariate regression for the allocation of ACCF from seven key donors to SSA.

This paper finds that, of the variables considered in the amended 4P model, language, an existing aid relationship (both proximity variables) and policy are important determinants for ACCF allocation. This paper finds there to be an unexpectedly negative, but significant relationship between ACCF and language indicating that donors are more likely to provide ACCF to countries that they do not share a language with. The paper finds there to be a positive relationship between ACCF and both an existing aid relationship and policy. This indicates that ACCF is more likely to go to countries where the recipient and donor have an existing aid relationship and where the recipient country has democratic characteristics.

A key concern raised in assessing these findings is that donors appear to be approaching ACCF in the same manner that development aid is approached irrespective of potential flaws in development aid allocation practices. An additional concern worth noting is that the amended 4P model explains slightly less than a quarter of the variance in ACCF. Further research is therefore required to assess the strength of the model when, for example, applied to an expanded set of countries.

This paper concludes by highlighting the need for the inclusion of aid effectiveness principles into ACCF allocation practices, particularly those of ownership, mutual accountability and results. Furthermore, the paper recommends that at an international governance level, particularly relating to UNFCCC, more clearly defined targets and objectives are required to better target ACCF. Finally, the

paper advocates that the UNFCCC rethink their principle of 'new and additional' financing based on the idea that climate change considerations be built into, and targeted along with, development considerations.

Chapter 1 : Introduction

In seeking to assess the nature of adaptation-related climate change financing (ACCF) in sub-Saharan Africa (SSA), the first chapter of this paper outlines the context of the discussion, sets out the research questions, and reviews the relevant literature on the determining factors for receiving ACCF.

1.1. Context

Key contextual elements to consider in this discussion are first, the definition of climate change, second the causes and consequences of climate change, and third, the current state of climate change financing (CCF). These elements are summarised in turn in the paragraphs that follow.

Defining 'climate change' is in itself not straight forward. It is however an important task in that the definition frames negotiations, debates and research priorities. Hoffman (2013) notes that there are three characterisations of climate change, namely a scientific characterisation, a social-political-economic characterisation and an ethical characterisation.

Scientifically, climate change is defined as "…how increasing greenhouse gas (GHG) concentrations affect global temperatures, ocean chemistry, and vegetation and the associated impacts that emerge from these changes" with carbon dioxide (C02) being amongst the most harmful GHGs (Hoffmann, 2013:4). O'Brien et al. (2007) refer to the scientific conception as an 'outcome' definition where associated research focuses on emission trends, developing climate change scenarios, and seeking to find solutions to adaptation challenges.

Drawing on the scientific definition of climate change Figure 1 below shows the level C02 emissions between 1960 and 2011, measured in metric tonnes of C02 per capita. This figure shows that there is a considerable difference between the emissions of high income countries and those of lower income countries. High income countries emitted 7.5 metric tonnes of C02 per capita in 1960 and 11.1 metric tonnes per capita in 2011; an improvement from a peak of 12.3 metric tonnes in 1979 (World Bank, 2015b). Barrett (2014) echoes these findings by noting that since the 1960s the world's developed countries have emitted between 1.6 and 2.7 kilo-tonnes of carbon per capita, while the least developed countries have emitted an estimated 115 tonnes of carbon per capita.

The second largest emitters, by income group, have been upper middle income countries, but at less than half of the emissions of high income countries. Furthermore the emissions of upper-middle income countries are currently largely driven by China. Figure 1 shows that China is, in its own right, currently the second largest emitter of C02 in metric tonnes per capita when compared to the other country groupings. It is therefore important to acknowledge that there is variation within these country groupings.

Given the differences in levels of industrialisation these results are perhaps not surprising. What is important to take from the below however, and this forms the basis for CCF, is that lower income countries have contributed considerably less to global C02 emissions.

Figure 1: CO2 Emissions, 1960 - 2011, Metric Tonnes per Capita
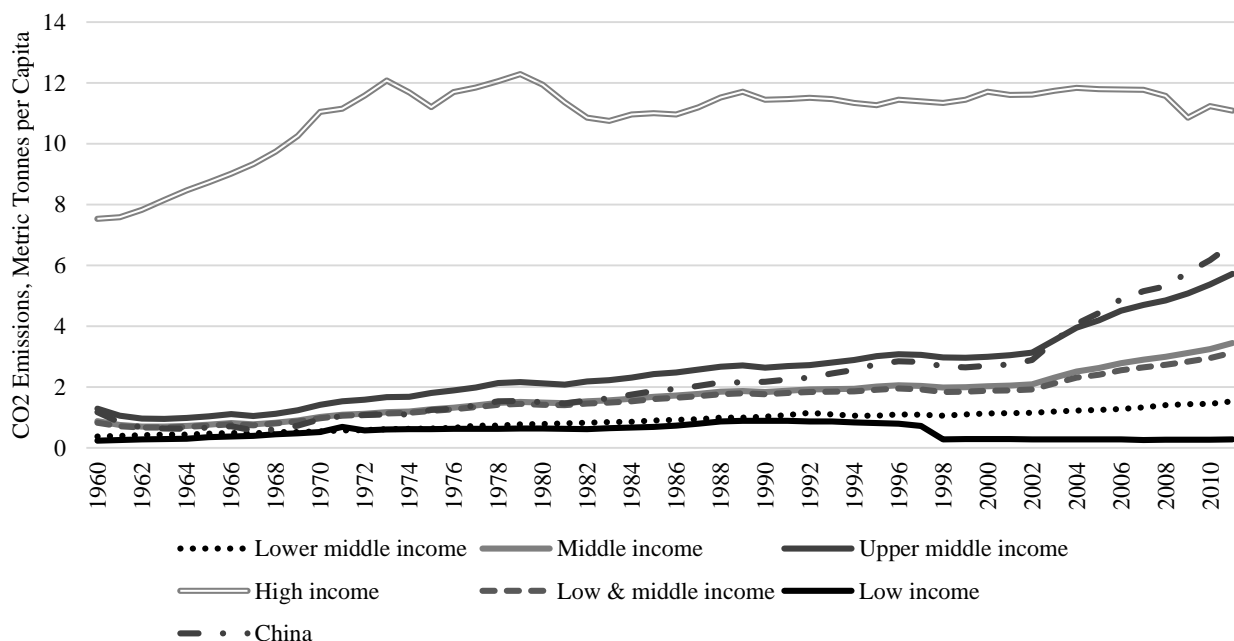
Source: Graph based on data from World Bank, 2015b

Figure 2 below shows C02 emissions in metric tonnes per capita, but by region. From the below it is clear that North America has consistently emitted considerably more C02 in metric tonnes per capita than any other region, followed by Central Europe and the Baltics. On the lower end of the spectrum sub-Saharan Africa has consistently produced the lowest levels of C02 emissions in metric tonnes per capita. It is furthermore estimated that SSA is only responsible for 4% of annual greenhouse gas (GHG) emissions (Barnard et al., 2014). Again, these figures may not be surprising given that sub-Saharan African countries are typically at lower levels of development and industrialisation. It is however, as

above, important to be aware that some regions have contributed less to C02 emissions, but will, as elaborated on below, be disproportionately affected by the impacts of climate change.

Figure 2: C02 Emissions by Region, Metric Tonnes per Capita, 1960 - 2011
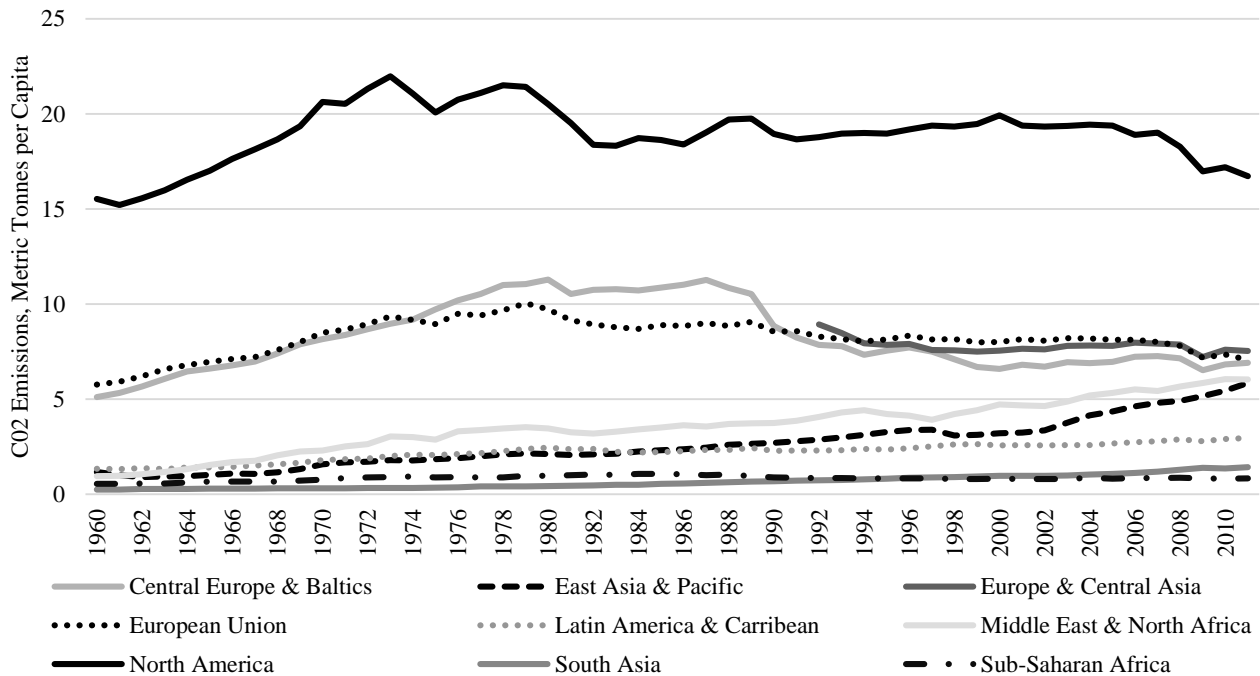
Source: Graph based on data from World Bank, 2015b

Turning to the social-political-economic perspective of climate change, in this sense conceptualising climate change includes considerations for economic development, the materials required for energy production, and government, private sector and non-governmental organisation (NGO) interests (Hoffmann, 2013). From an ethical perspective, definitions of climate change will seek to include a focus on who is most affected by climate change currently, and who will be most affected in the future (Hoffmann, 2013). The social-political-economic and ethical conceptions would fall into what O'Brien et al. (2007) refer to as 'contextual' definitions in that they take into account political and institutional structures, climate variation, and economic and social structures.

While acknowledging the importance of a scientific foundation for any research on climate change, this paper will primarily draw on the social-political-economic and ethical considerations of climate change. The primary reason for this is that impacts of climate change extend beyond the physical aspects of diminishing water supplies, extreme weather, agricultural productivity loss and sea level rise (Wheeler, 2011). The physical impacts of climate change tend to be exacerbated by the level of

adaptive capacity of a country, defined as "the ability to cope with the impacts of climate change" (OECD, 2011: 15). OECD (2011) further notes that the ability of a country to adapt to climate change is often linked to its level of development with developing countries typically having less resources and capacity to limit the impacts of climate change.

Added to this, and as noted above, developing countries have contributed less to climate change. Figure 3 below, drawing on the Notre Dame Global Adaptation Index (ND-GAIN) summarises country vulnerability, taking into account physical exposure to climate change as well as adaptive capacity (ND-GAIN, 2014c). It is clear from the below that SSA, as a region, is most vulnerable to climate change with Somalia, Burundi, Liberia, Chad, Eritrea and Sudan being particularly at risk. The high level of vulnerability that the SSA region faces forms the basis of this paper's decision to focus on CCF in SSA.

Figure 3: Country Vulnerability to Climate Change, 2013

Least Vulnerable   Most Vulnerable
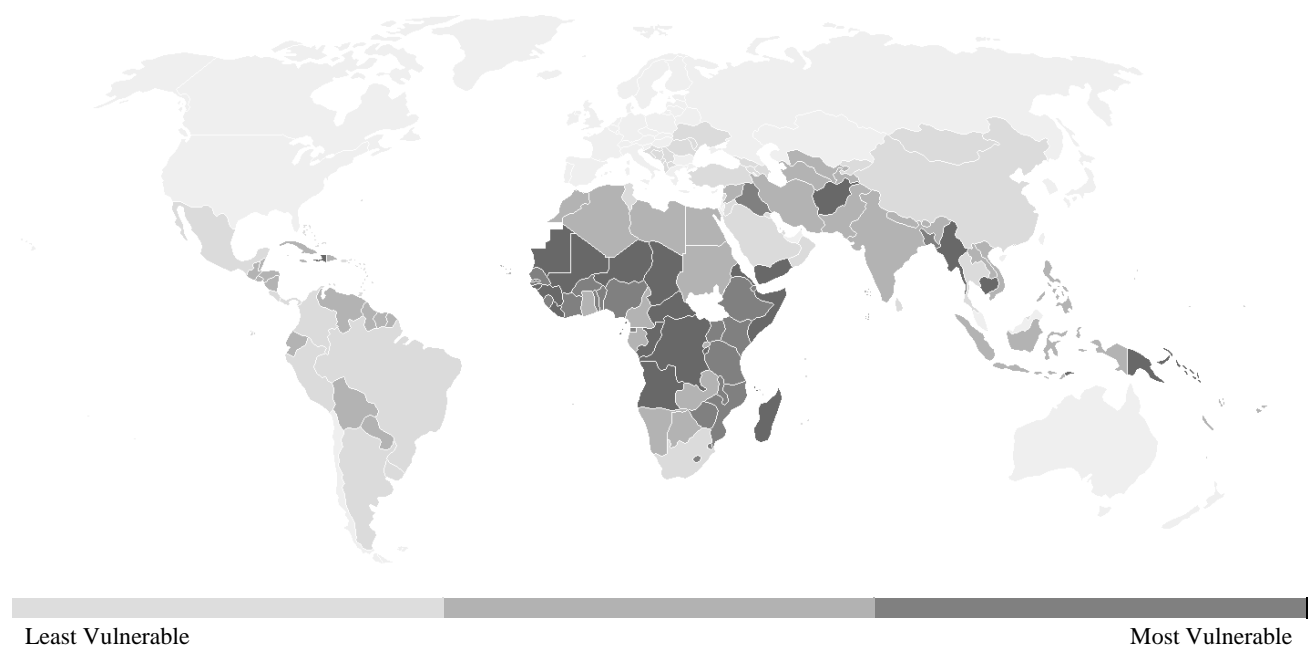
Source: Map compiled with data from ND-GAIN, 2014c

By 2020 it is estimated that in some SSA countries agricultural yields are expected to decline by 50%; and by 2080 there is expected to be an increase of between 5% and 8% of arid and semi-arid area on the continent, as a result of climate change (Reid, 2014). This will further add to the developmental pressure of a region that has the largest share of under-nourished people, high levels of population growth, and a high level of reliance on the agricultural sector for employment, gross domestic product (GDP) and sustenance (Muller et al., 2014). Finally while the region as a whole is certainly highly

vulnerable to climate change, there is a fairly high degree of variability both between countries and within countries (Busby et al., 2014).

A key tenement of the United Nations Framework Convention on Climate Change (UNFCCC) is that CCF be directed to the most vulnerable countries (Nakhooda, et al., 2013). While the UNFCCC negotiations will be outlined in more detail in the literature review below, it is at this juncture important to note that while vulnerability is central to the UNFCCC CCF process, in practice the world's most vulnerable countries do not appear to be receiving a significant portion of CCF (Nakhooda, et al., 2013). The UNFCCC has, furthermore, made calls for a more equal distribution between adaptation-related climate change (ACCF) and mitigation-related climate change (MCCF) (Nakhooda, et al., 2013).

Figure 4 below outlines ACCF and MCCF by region for the period 2010 – 2013, as sourced from the Organisation for Economic Cooperation and Development's (OECD) data on environmental Official Development Assistance (ODA), including ACCF and MCCF (OECD, 2015a). The OECD has tracked MCCF since 2002 and ACCF since 2010 (OECD, 2015a). The figure below compares regional receipts of CCF since 2010 to facilitate a comparison between ACCF and MCCF flows. Of the total CCF between 2010 and 2013, South and Central Asia received the largest portion of CCF, followed by Far East Asia and SSA (OECD, 2015a). Given the UNFCCC's focus on vulnerability, the expectation would be that SSA receives the bulk of the financing; which does not seem to be case.

Figure 4: ACCF and MCCF, by Region, 2010 - 2013, US$ Millions
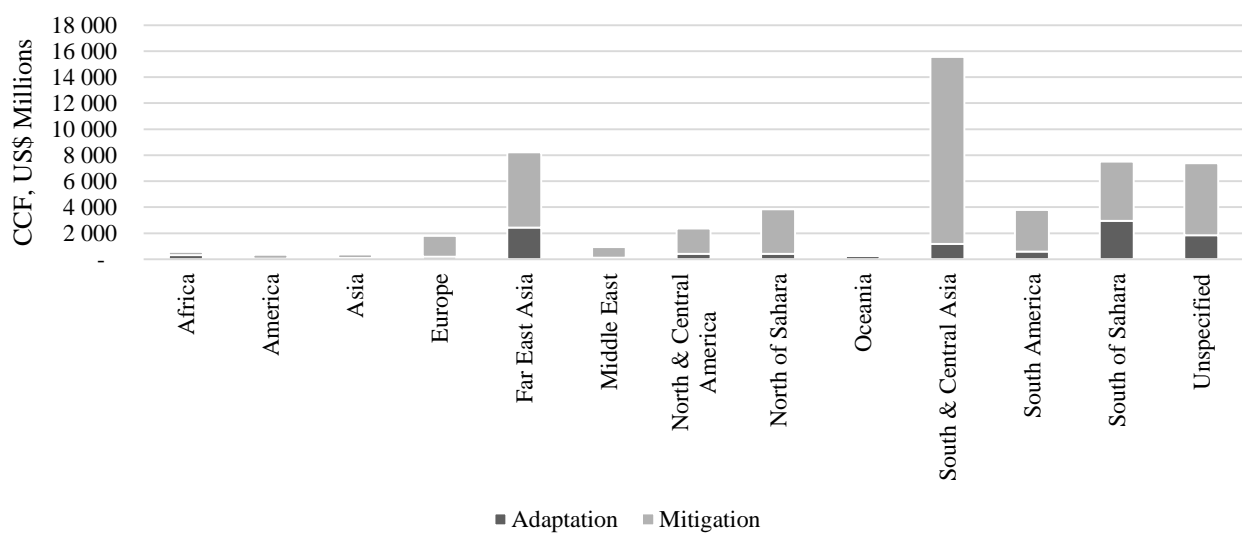
Source: Graph based on data from OECD, 2015

Furthermore Figure 4 above shows that the bulk of financing between 2010 and 2013 was allocated to MCCF, for all regions. Globally, Figure 5 below shows that in 2013, ACCF formed only 25.38% of total CCF. This finding is supported by Rubbelke (2011) who notes that a possible explanation for this is that mitigation is seen to relate to public goods, while adaptation action is seen to create benefits that are excludable. Essentially, the former's effects are non-excludable and non-rivalrous, while the latter is restricted to the area of intervention.

Figure 5: Climate Change Financing, by Adaptation and Mitigation, 2002 - 2013 (% of Total)
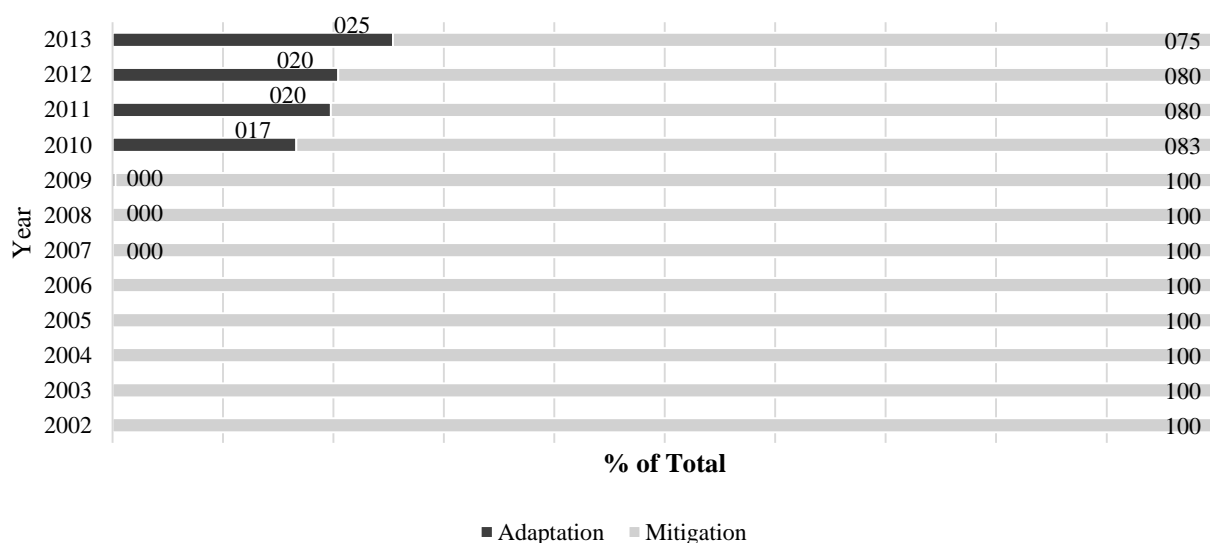
Source: Graph based on data from OECD, 2015

MCCF was, between 2010 and 2013, made up of 74.58% loans, 25.11% grants and 0.31% equity investments (OECD, 2015a). On the other hand, ACCF was comprised of 62.18% grants, 37.32% loans and 0.51% equity investments (OECD, 2015a). For SSA specifically ACCF was made up of 85.81% grants, 13.81% loans, and 0.38% equity investments (OECD, 2015a). Because MCCF is largely made up of loans there is likely to be less to investigate in terms of the determining factors for receiving loans as they would intuitively be linked to the recipient's ability to repay the loan. For ACCF on the other hand, because a large portion of funding is in the form of grants, more research is required in ascertaining the determining factors for its flows.

In summary, this section has defined climate change, noting the importance of including ethical, social, political and economic considerations in assessing climate change. It has shown that while SSA has historically contributed the least to C02 emissions, the region will be disproportionately affected by climate change as a result of low levels of adaptive capacity. This section has highlighted that while

SSA is the most vulnerable region, it does not receive the largest share of CCF. Finally, the above has noted that there has been a bias towards MCCF, but that ACCF is the chosen CCF flow for this paper because while the former is mostly likely determined by a country's ability to repay loans, the determining factors for the latter are considerably less clear.

1.2. Research Questions

Following on the assertion above that SSA is the most vulnerable region to climate change, but not the recipient of the largest portion of ACCF, Figure 6 below plots SSA country-level ACCF inflows from OECD Development Assistance Committee (DAC) donors in terms of their ND-GAIN vulnerability scores. Higher vulnerability scores are indicative for increasing country vulnerability to climate change (ND-GAIN, 2014c).

Figure 6: Country ACCF Inflows and Vulnerability, 2010 - 2013

Increasing Vulnerability
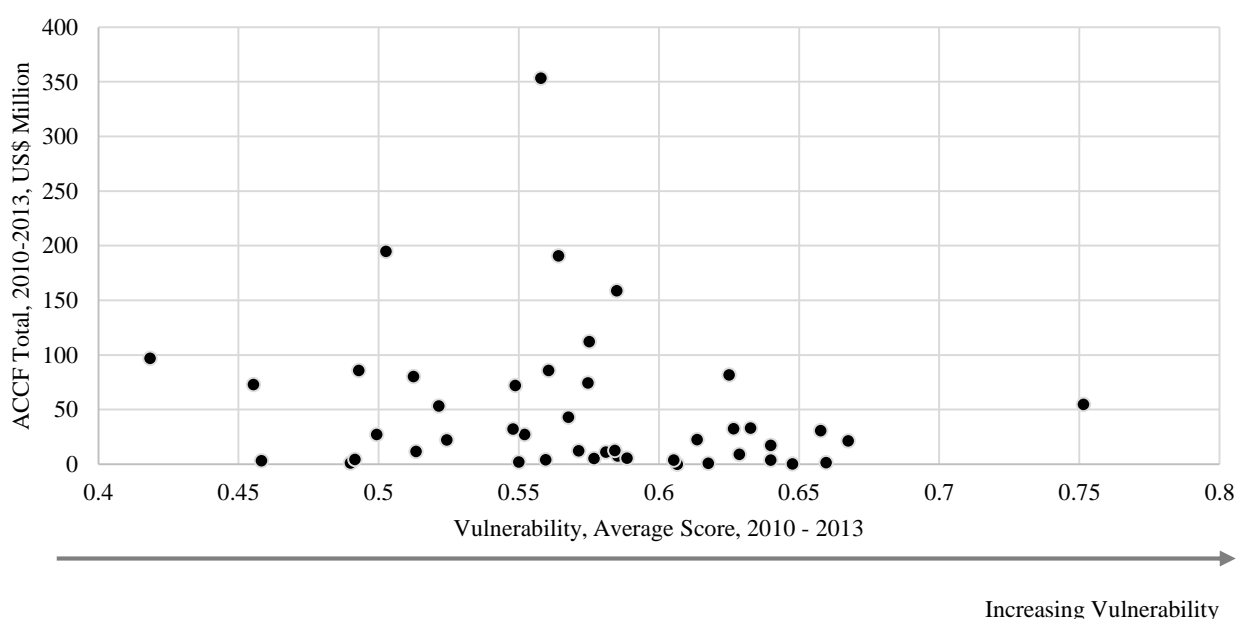
Source: Graph based on data from ND-GAIN, 2014c and OECD, 2015a

Figure 6 appears to support the assertion that the most vulnerable countries do not receive the most ACCF. Determining which additional factors are at play in determining the flows of ACCF is the purpose of this paper. In line with this, the research questions are as follows.

Research Question: What are the key determining factors for the receipt of adaptation-related climate change financing in sub-Saharan African countries?

Sub-Research Question: To what extent do environmental, economic, historical, and political factors play a role in determining adaptation-related climate change financing flows to sub-Saharan African countries?

In seeking to understand the provision of ACCF, the literature review below outlines the state of ACCF within climate change negotiations. Thereafter literature related to the determining factors of ACCF allocation is reviewed. The extent of this literature is however limited and this paper therefore adds to the review by drawing on literature related to ODA allocation. In doing so, the review concludes by providing a framework for analysis.

1.3. Brief Overview of Relevant Literature

In ascertaining the costs of addressing climate change, Diamond and Bruch (2011) note that estimates range upwards from US$4 billion per annum up until 2030. UNFCCC, for example, estimates that between US$156 billion and US$165 billion will be required for MCCF annually until 2030; while McKinsey estimates US$324 billion for the same period (Climate Funds Update, 2015). On the other hand, the World Bank estimates that between US$70 billion and US$100 billion will be required for ACCF annually between 2010 and 2050 (Climate Funds Update, 2015). While there is consensus that CCF is required, who is to provide it and how it is to be provided is the subject of ongoing climate change negotiations. These negotiations are outlined in the paragraphs that follow.

1.3.1. Climate Change Negotiations

Central to climate change negotiations is the UNFCCC. The UNFCCC was established in 1992 as one of the three Rio Conventions which arose from the Rio De Janeiro Earth Summit (OECD, 2011). Importantly, the UNFCCC distinguishes between Annex 1 and Non-Annex 1 countries with the former largely being developed countries and the latter developing countries.

Figure 7 provides an overview of the meetings, Conference of the Parties (COP) sessions and agreements that have occurred since the establishment of UNFCCC. For the purposes of this paper, the paragraphs that follow will outline only the agreements that are pertinent to CCF specifically.

Figure 7: Timeline of Climate Change Negotiations

1992: Rio Conventions →	1994: UNFCCC Formally Established →	1995: First Meeting of COP in Berlin →	1997: Kyoto Protocol at COP3 →	1998: COP4 Buenos Aires ↓
2002: COP8 New Dehli ←	2001: COP7 Marrakech ←	2001: COP6-2 Bonn ←	2000: COP6 The Hague ←	1999: COP5 Bonn
2003 COP9 Milan →	2004 COP10 Buenos Aires →	2005 COP11 Montreal →	2006: COP12 Nairobi →	2007: COP 13 Bali ↓
2010: UN High Level Advisory Group ←	2010: COP16 Cancun ←	2009: COP15 Copenhagen ←	2009: COP15 Bangkok ←	2008: COP14 Poznan
2011: COP17 Durban →	2012: COP18 Doha →	2013: COP19 Warsaw →	2014: COP20 Lima →	2015: COP15 Paris

Source: UNFCCC, 2014

A key part of the UNFCCC is a clause that notes that "developed countries shall provide new and additional financial resources to developing countries" (UNFCCC, 2014). In addition, Article 4.3 of the UNFCCC highlights that developed countries should provide funding for the "full and incremental costs" of climate change in developing countries (Schalatek & Bird, 2014). Finally the UNFCCC advocates that climate actions be centred on countries' "common, but differentiated responsibilities and respective capabilities" (CDR) (Schalatek & Bird, 2014). Harvey (2015) notes that in its establishment, the provisions of UNFCCC called for action, but that the wording remained fairly vague.

COP3 in Kyoto in 1997 was more specific. It was here that a protocol was developed to cut global GHG emissions by 5% when compared to 1990 levels (Harvey, 2015). Annex 1 countries were furthermore given specific emissions reduction targets, while this specification was not applied to Non-Annex 1 countries (Harvey, 2015). This protocol was not however ratified by the United States of America (USA) (Harvey, 2015). For the protocol to have come into force, ratification was required by countries' responsible for, collectively, at least 55% of global emissions (Harvey, 2015). Without

the USA, this target was not met and the protocol did not come into force at the time (Harvey, 2015). This however changed in 2004 when Russia ratified the protocol and as a result the 55% target was reached (Harvey, 2015).

The 2007 Bali Action, resulting from COP13 argued that CCF must be 'adequate, predictable, sustainable, new and additional' (Schalatek & Bird, 2014). COP15 in Copenhagen in 2007 provided specific CCF targets, resulting in a commitment to providing US$100 billion per year in additional CCF from 2020; and that developed countries would contribute US$30 billion between 2010 and 2012 in what became known as the 'fast start finance' (FSF) period (Grantham Research Institute, 2013). COP13 furthermore resulted in an agreement for all developed countries and the larger developing countries to reduce their emissions (Harvey, 2015). While not legally binding, this was ratified at COP14 in Cancun in 2010 (Harvey, 2015). The 2010 Cancun Agreements further stipulated that polluter countries would need to contribute to CCF based on historical and current GHG emissions, commonly known as the 'polluter pays' principle (Schalatek & Bird, 2014).

In summary, a number of key principles were established through the frameworks and negotiations outlined above. These principles include the principles of 'polluter pays', 'respective capability', 'new and additional', 'adequate and precautionary', and 'predictable' (Schalatek & Bird, 2014). As noted 'polluter pays' refers to countries with higher levels of GHG emissions funding climate change efforts; 'respective capability' refers to the idea that countries should provide CCF based on their means; and 'new and additional' highlights that CCF should be separate from ODA (Schalatek & Bird, 2014). 'Adequate and precautionary' emphasises that CCF be sufficient to slow global temperature increases; and lastly, 'predictability' refers to better planning in medium term funding cycles (Schalatek & Bird, 2014).

The arguments underlying these clauses are arguments of responsibility, justice and ethics. Fussel (2010) argues that vulnerability is a function of capability while the provision of finance is a function of responsibility. Fussel (2010) goes onto say that, as noted in the sections above, developing countries are more vulnerable because they have lower levels of adaptive capacity; while for higher income countries the inverse is true. The responsibility for CCF would then be with developed countries, having disproportionately contributed to the problem (Fussel, 2010). Adding to this argument, Grasso (2010) argues that developed countries are ethically responsible for the provision of climate change financing.

The principles outlined above are fairly contentious in climate change negotiations. A considerable sticking point is the view that the world has changed considerably since the establishment of UNFCCC in terms of who the world's largest emitters of GHG are and the rising negotiating power of emerging economies (Gomez-Echeverri, 2013). Cooper (2012) for example notes that by 2020 developing countries will emit more carbon dioxide than the world's total GHG emissions in 1990. Some critics argue that developing countries have contributed to climate change through overgrazing and deforestation and are therefore also partly responsible (Latin, 2011). Furthermore, the argument has been made that being solely responsible for CCF is politically unfeasible in terms of citizen buy-in (Latin, 2011).

In addition to criticism along developed / developing country lines, the UNFCCC has also been criticised from a technical perspective. Brunner and Enting (2014) for example note that the UNFCCC has not set mid-term financing targets, nor signified an end period for finance requirements. As a result CCF is not predictable from a recipient perspective (Brunner & Enting, 2014). Furthermore, UNFCCC processes have defined monetary input, but have not defined specific outputs or outcomes, nor outlined monitoring and evaluation activities (Brunner & Enting, 2014).

Finally, a key criticism and a key consideration when assessing CCF is that there is uncertainty about what exactly is considered CCF (Grantham Research Institute, 2013). This has implications for tracking CCF. In addition, as a result of there being a high degree of overlap between the development and climate change fields, donors have in some instances reclassified portions of their ODA to meet CCF objectives (Grantham Research Institute, 2013).

Bearing these caveats in mind, the section that follows provides an overview of the aid and CCF allocation literature, beginning with a review of the FSF period.

1.4. Determining Factors in ACCF Allocation

In reviewing the determining factors for ACCF, this paper, as noted above draws on work related to ODA allocation. In addition to this being a result of the limited nature of allocation literature that relates directly to CCF, this paper argues that ODA and ACCF allocations are analogous. In this paper, for example, ACCF data is retrieved from the OECD where it is defined as climate-related ODA. ACCF is therefore, in this paper, related to ODA in that it is reported as a component of ODA. Furthermore, the ACCF and ODA commitments follow similar patterns in that the majority of

commitments are in the form of grants (OECD, 2015 and OECD QWIDS, 2015). For example, based on calculations using OECD (2015) and OECD QWIDS (2015), of the ACCF flows into sub-Saharan Africa (SSA) 58.06% were grants and similarly, but on a larger scale, of the ODA flows into SSA, grants formed 79.10% of total commitments. Furthermore both ODA and ACCF commitments typically flow from higher income countries to lower income countries.

1.4.1. The Fast Start Finance Period

A helpful starting point for assessing the determinants of ACCF allocation is the literature that was produced after the UNFCCC's FSF period which, as noted above, ran from 2010 to 2012. Between 2010 and 2012, donors exceeded the US$30 billion target, raising US$34 billion (Nakhooda, et al., 2013). While by no means extensive, some work has been done on key outcomes of this period. Nakhooda et al. (2013) found that while funding increased, some donors were reassigning existing projects to climate change projects, going against the UNFCCC's 'new and additional' CCF requirement. This claim is supported by OXFAM (2012) who estimates that only 33% of the funds allocated could be considered 'new and additional'.

Furthermore, during this period the bulk of the funding went to lower middle income countries, followed by high income countries, upper middle income countries and lastly, by low income countries (Nakhooda, et al., 2013). This implies that the most vulnerable countries were not targeted. Nakhooda et al. (2013) explain this by noting that the flow of FSF is related to the strength of recipient country institutions with higher income countries arguably having better institutions and overall levels of development. In other words, these countries are better able to manage the funds. While this may indeed be the case, a key tenement of the UNFCCC is that financing be provided to the most vulnerable countries which has not, as noted, been the case in the fast start finance period (Nakhooda, et al., 2013).

To provide additional insight into the determining factors of ACCF, the section that follows includes a review of ODA literature. First this review will look at allocation literature that considers donor interest and recipient need. Thereafter the review draws on the work of Paul Clist (2011) in outlining a model that attempts to move beyond the dichotomy of donor interest and recipient need, by emphasising the existing relationship between donor and recipient.

1.4.2. Allocation Literature: Donor Interest and Characteristics

i. Donor Interest

The body of work on donor interest is considerable. The paragraphs that follow aim to outline this work as succinctly as possible. Work done by Hoeffler and Outram on ODA (2011) and by Lewis (2003) on environmental aid both highlight that donor interest is key to ODA and environmental aid flows in that donors typically provide more aid to recipients where they have a commercial interest. It is however also noted that there is variation within donors and that for example, Germany does not tend to follow the trend of assisting their larger trade partners (Hoeffler & Outram, 2011). Conversely to Germany, Lewis (2003) specifically looks at the environmental aid practices of the United States Agency for International Development (USAID) and notes that through the agency, the USA is more likely to fund countries with rich natural resources and countries that are democratic. From this, donor interests abroad appear to be key, rather than donor characteristics at home.

In 'Determinants of Donor Generosity: A Survey of the Aid Budget Literature'. Fuchs et al. (2014) zero in on the prevailing conditions in donor countries that will affect ODA flows. Through their research Fuchs et al. (2014) find that aid budgets tend to increase with increased donor country wealth, arguing that higher levels of donor income make ODA more palatable to donor country taxpayers. Furthermore Fuchs et al. (2014) find there to be a positive relationship between the flow of ODA and whether the donor country has an independent aid agency. In addition, Fuchs et al. (2014) find that donor country aid effort does not, as hypothesised, decrease as population size decreases; that 'peer pressure' in the form of other donors' activities does not increase the likelihood of a donor providing ODA; higher donor-country social spending is not positively correlated with higher aid flows; and finally, a donor country's macroeconomic conditions do not have an effect on aid flows.

ii. Recipient Characteristics

Consensus around recipient need appears to be that it does not rank highly as a determining factor for the receipt of aid. Nakhooda et al. (2013) echo this in their review of the FSF period by noting that FSF was not highly correlated with GHG emissions or recipient vulnerability to climate change. In a study looking at the intra-national flows of CCF in Malawi, Barrett (2014) finds that vulnerability is not a determining factor. Barrett (2014) notes that instead, it is possible that CCF goes to higher income areas that are better able to operationalise the funding; or indeed that it goes to areas where agriculture is important. Therefore Barrett (2014) finds that even if donors direct funds to more vulnerable countries, there are no guarantees that these funds will filter down into the neediest areas of the country.

Adding to this, research by Fuchs et al. (2014) illustrates that aid budgets do not increase based on recipient need.

Another area where research has been conducted is that of recipient merit. Hoeffler and Outram (2011) for example, look at the activities of five key donors. In doing so they find that donors do not tend to base their aid decisions on recipient merit overall, but that there are different areas that are more important for different donors (Hoeffler & Outram, 2011). In this sense Hoeffler and Outram (2011) take merit to mean countries with higher growth, better democracy scores and lower human rights abuses (Hoeffler & Outram, 2011). In terms of individual donor behaviour, Hoeffler and Outram (2011) note that the UK appears to favour democratic countries with sound economic policies, while France, Germany and Japan tend to favour countries with better human rights, and the US tends to give more aid to countries with lower levels of human rights (Hoeffler & Outram, 2011).

1.4.3. The Relationship between Donors and Recipients: The 4P Framework

As noted above, little research has been published on the determinants of receiving CCF in general, or ACCF specifically. In seeking a framework for method and analysis therefore, it was not possible to use a paper specifically relating to ACCF. This research therefore draws on work related to the determinants of ODA flows. In doing so the work of Paul Clist (2011) entitled *"25 Years of Aid Allocation: Whither Selectivity"* is used.

This paper is selected as a framework because it departs from the more rigid discourse of 'donor interest' and 'recipient need' in ascertaining the determinants of ODA commitments (Clist, 2011). Clist (2011) notes that the donor interest and recipient need rhetoric implies that these facets are mutually exclusive. Instead Clist (2011) adopts a more nuanced, and arguably more realistic approach, namely the '4Ps' – poverty, population, policy and proximity. While poverty, population and policy are looked at in terms of the recipient country, the proximity variable aims to focus more on the relationship that exists between the donor and the recipient (Clist, 2011). In doing so the proximity variable looks at trade between the donor and recipient; the distance between the donor and the recipient; whether the recipient was ever colonised by the donor; and whether the donor and recipient share a common language and religion (Clist, 2011). Fuchs et al. (2014) add this by noting that while a historical relationship would be expected to coincide with more aid, they have in fact found that in some instances aid is a substitute for colonial histories where donors overcompensate in countries that they do not have an existing relationship with.

In line with this focus on the relationship between donor and recipient, Barrett (2014) finds that within Malawi more climate aid goes to districts with an established aid network. Therefore an existing aid relationship could add to Clist's (2011) summary factors outlined above. Hoeffler and Outram (2011) add to this by noting that favourites in aid allocation will continue receiving more aid. This is particularly important for the US, Germany and France (Hoeffler & Outram, 2011).

Details on the method used by Clist (2011) as well as the operationalisation of the '4P' framework for ACCF are provided in the methodology chapter that follows.

Chapter 2 : Methodology

2.1. Application of the '4P' Framework for ACCF

In order to research which of the '4Ps' are key elements in ascertaining ODA flows, Clist (2011) makes use of the 'Two-Part' or 'Cragg' model where the first regression (a probit regression) determines which recipients receive ODA and the second regression (a linear regression) seeks to determine how much ODA these recipients receive (Clist, 2011). This decision is made in order to ensure that the betas are not biased towards zero by recipients that do not receive any ODA (Clist, 2011). Clist's (2011) model is estimated by the donor and outlined in the equation below.

Equation 1: Clist's 4P Regression Model

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots A_i = \alpha + \beta_1 Poverty_i + \beta_2 Population_i + \beta_3 Policy_i + \beta_4 Proximity_i + \varepsilon_i$$

In operationalising the '4P' framework for ACCF, a few changes are made to the selection of indicators. A key change made, for example, is that climate change vulnerability is included as an indicator of recipient need vis-à-vis adaptation to climate change. Clist's (2011) overall model is therefore amended slightly, as reflected in the equation below.

Equation 2: Amended 4P Regression Model

$$C_i = \alpha + \beta_1 Vulnerability_i + \beta_2 Poverty_i + \beta_3 Population_i + \beta_4 Policy_i + \beta_5 Proximity_i + \varepsilon_i$$

In addition to changes in indicators this paper departs slightly from Clist in terms of methodology. A key departure from Clist's framework is that this paper is interested in a broader view on the variables that best explain ACCF flows. Therefore rather than looking at which variables are important to specific donors as Clist (2011) does, this paper looks at which variables are more generally meaningful. This decision is made in line with the research questions.

Furthermore, instead of the 'two-part model' which is noted above, this paper makes use of an 'Ordinary Least Squares' multivariate regression, aggregating 4-year data into a single observation for each donor-recipient combination. In seeking to address the possibility that the betas will be biased towards zero as a result of some recipients not receiving any ACCF, this paper ran two Ordinary Least Squares (OLS) regressions; one where recipients that received no funding were included and one

where they were not. In doing so it was found that both regressions produced the same results, indicating that including recipients that receive no ACCF does not bias the betas towards zero.

Finally, this paper acknowledges that a time series regression would likely have produced more insightful results. The decision against using a time series regression was based on the fact that a number of explanatory variables included in the model did not vary in the period under consideration. Specifically, vulnerability, language, distance, religion and colony did not vary.

While this section serves to provide an overview of the approach used by Clist and the approach used in this paper, the paragraphs that follow outline the use of the specific variables in the model, in turn.

2.1.1. Data

i. Time

Clist (2011) constructs 5 year averages using 25-year data. This approach is made possible due to the fact that ODA has been tracked for considerably longer than ACCF. The bilateral adaptation-related climate change financing (ACCF) data in this paper are, as mentioned in the section above, sourced from the OECD DAC's climate-related aid (CRA) statistics (OECD, 2015a). The OECD (2015) has been tracking ACCF since 2010, with data being available until 2013. For the dependent variable then, the period 2010 – 2013 is used. For the independent variables however data is included from 2009 with the view that these variables are lagged for the regression (Hout, 2007). This is based on the idea that donors will make their decisions based on the previous year's indicators. This choice signifies another departure from the methodology used in Clist (2011).

ii. Selection of Donors

Clist (2011) does not consider all donors in the model, but rather focuses on seven key donors namely France, Germany, Japan, Netherlands, Sweden, United Kingdom (UK) and United States of America (USA). Clist (2011) justifies this decision by noting that these donors provide 67% of the world's ODA. Clist (2011) further notes that Sweden was included to represent Nordic donors, but does not provide further explanation for this decision.

In applying the '4P' framework, this paper follows Clist in selecting the afore-mentioned seven donors. A slight departure however is that Canada is included as a donor instead of the USA. This decision was made because in the period under consideration the USA did not provide any ACCF to SSA.

Furthermore, while Canada is typically considered a more altruistic donor than the USA, the countries share the same proximity characteristics; neither have colonised any country in SSA, they share the same dominant religion, and they are at similar distances from SSA (Brown et al., 2015, ARDA, 2015, and Mayer & Zignango, 2011).

Similarly to ODA, these seven donors (including Canada) provided the bulk of ACCF to SSA between 2010 and 2013. OECD (2015) data shows that Canada, France, Germany, Japan, Netherlands, Sweden and UK provided 75.03% of ACCF commitments to SSA between 2010 and 2013. Of the seven donors, France's contribution of 31.89% was the highest, followed by Japan at 22.87%. Germany at 8.22%, UK at 3.86%, Sweden at 3.80%, Netherlands at 2.39%, and Canada at 1.99% (OECD, 2015a).

iii. Selection of Recipients

Clist (2011) focuses on all recipient countries in the first round regression, and only on recipients that received ODA in the periods under consideration in the second round. This paper, on the other hand, looks at the 48 countries of SSA. The introduction and literature review of this paper note that SSA is selected as the region of interest because of its high level of vulnerability to climate change, combined with an overall lower adaptive capacity. The selection of the 48 countries is based on the World Bank's regional classifications (World Bank, 2015a).

iv. The Dependent Variable

Clist (2011) draws on OECD ODA data as a logged percentage of the donor's total ODA budget to a given recipient in a given year. This indicator is logged to normalise the distribution. Furthermore, Clist (2011) notes the figure represents commitments rather than disbursements as the former is put forward as a better proxy for donor intentions.

In focusing on ACCF rather than ODA, this paper draws on the OECD's data on climate-related aid, also known as the OECD's 'Rio Markers' (OECD, 2015a). OECD data is selected on the basis that it is the most comprehensive ACCF data available. The Rio Markers are named after the three conventions that came out of the 1992 Earth Summit in Rio de Janeiro, Brazil (OECD, 2011). These conventions relate to biological diversity, desertification, and climate change (OECD, 2011). The OECD tracks all three conventions, but for the purposes of this paper only data related to the adaptation-related climate change activities is considered; where an adaptation-related activity is defined as an activity that "…intends to reduce the vulnerability of human or natural systems to the

impacts of climate change and climate-related risks, by maintaining or increasing adaptive capacity and resilience. This encompasses a range of activities from information and knowledge generation, to capacity development, planning and the implementation of climate change adaptation actions." (OECD, 2011:4).

In tracking ACCF OECD (2011) assigns a score of '0', '1', or '2' to the project. Here, '0' refers to adaptation not being targeted, '1' refers to adaptation being a significant objective, and '2' refers to adaptation being a 'principle objective'. OECD (2011) further notes that where fields are left blank, no data is available. For the purposes of this paper only projects where adaptation is a principle objective are considered[1]. The rationale behind this is that because these projects would not have gone ahead without the adaptation element, they are a better reflection of donor behaviours towards ACCF. It is important to note that this decision has a considerable impact on the number of data points that can be analysed. Table 1 below shows that only looking at principle objectives reduces the number of projects to 1,217 and the total value to US$2.5 billion (OECD, 2015). This is further reduced by this paper only considering seven donors. Here the number falls to 632 and the value to US$1.9 billion. The limited size of the data must be kept in mind when interpreting the results of this paper. While this decision limits the size of the data set, the focus on principle objective will provide a more realistic model.

Table 1: Adaptation-Related Projects, by Objective, 2010 – 2013 (Total)

Objectives	All Donors		Seven Donors	
	No. of Projects	Value of Projects	No. of Projects	Value of Projects
Principle Objective	1,217	US$2.5 billion	632	US$1.9 billion
Significant Objective	3,996	US$5.8 billion	1,526	US$2.9 billion
Not Targeted	9,435	US$12.8 billion	4,437	US$7.3 billion
Total	14,648	US$21.1 billion	6,595	US$12.1 billion

Source: Calculations based on OECD, 2015

In addition the afore-mentioned limitations, Nakhooda et al. (2013) note that Rio Marker data is not always consistent across donors as a result of differing reporting practices. The Rio Markers are nevertheless used in this paper because they provide the most comprehensive ACCF data.

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[1] At the SSA level there were originally 18,689 projects (US$23.675). For adaptation, 4,041 of these were blank; 9,435 noted that adaptation was not targeted; 3,996 noted that adaptation was a significant objective, and 1,217 were a principle objective.

The ACCF variable used in this analysis is summarized in Table 2 below and represents the value of ACCF flows from each donor to each recipient, aggregated using data from 2010, 2011, 2012 and 2013. ACCF data is logged in order to normalise the distribution.

Table 2: ACCF Variable, Summarised

Variable	Form	Obs.	Mean	Std. Dev.	Min	Max
ACCF	Untransformed	336	1.419	6.350	0	85.122
	Logged	139	-0.441	2.550	-10.819	4.386

Source: Calculations based on data from OECD (2015)

v. Independent Variables

Poverty and Vulnerability

Turning to the independent variables, Clist (2011) uses logged GDP per capita to represent poverty and sources the data from the World Bank[2]. Clist (2011) notes that the indicator is logged to normalise distribution and that the indicator is selected because while it may not be the best indicator for poverty it is the most comprehensive and arguably the most widely used. Finally, poverty is included as a representation of recipient need where it is expected that higher levels of poverty will result in more ODA (Clist, 2011).

Table 3 below summarizes the GDP per capita (poverty) variable in the ACCF model. This paper includes poverty, using the same measures as Clist, in its model. However, rather than representing recipient need, GDP per capita is taken to be indicative of adaptive capacity which is defined as "…the ability to cope with the impacts of climate change. In many cases a country's ability to cope is related to its level of development. Generally, the more developed a country is, the more resources it has at its disposal with which to adapt to climate change; this includes financial, technical and human resources (OECD, 2011: 15).

Table 3: Poverty Variable, Summarised

Variable	Form	Obs.	Mean	Std. Dev.	Min	Max
Poverty	Untransformed	322	1,834.286	3,006.023	151.527	13,446.650
	Logged	322	6.712	1.138	5.021	9.503

Source: OECD, 2015

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[2] Defined as: "GDP per capita is gross domestic product divided by mid-year population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current US Dollars. (World Bank, 2015b).

In line with the literature on climate change financing policies, it is expected that countries with lower adaptive capacities would receive more ACCF. Therefore a decrease in GDP per capita is expected to result in an increase in ACCF as shown in the hypothesis 1A below.

Equation 3: Hypothesis 1A, GDP per Capita (Adaptive Capacity)

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots H_0 = 0; \; H_{1A} < 0$$

In addition to GDP per capita, this paper includes vulnerability as a measure of recipient need, as summarized in Table 4 below. The indicator used to represent exposure is the ND GAIN (2014a) exposure score. The ND GAIN index is an overall score that combines the vulnerability and readiness indices (ND-GAIN, 2014a). The vulnerability index is composed of sensitivity scores, exposure scores and adaptive capacity scores which are based on indicators related to food, water, health, ecosystems services, human habitat and infrastructure[3] (ND-GAIN, 2014a).

On the other hand, the readiness index looks at economic, governance and social issues (ND-GAIN, 2014a). Of the many variables that ND GAIN publishes the exposure variable is the most appropriate to this research in that it is the only vulnerability variable that is isolated, "the degree to which a system is exposed to significant climate change from a biophysical experience. It is a component of vulnerability independent of socio economic context. Exposure indicators are projected impacts for the coming decades and are therefore invariant overtime in ND-GAIN" (ND-GAIN, 2014a). The nature of the exposure variable is therefore less likely to correlate with other variables in the model.

Table 4: Vulnerability Variable, Summarised

Variable	Form	Obs.	Mean	Std. Dev.	Min	Max
Exposure	Untransformed	329	0.544	0.055	0.462	0.693

Source: Calculations based on data from OECD (2015)

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[3] Food indicators u used for exposure: "projected change in agricultural cereal yield" and "projected population growth" (ND-GAIN, 2014a). Food indicators used for sensitivity: "food import dependency" and "rural population" (ND-GAIN, 2014a). Food indicators used for capacity: "agricultural capacity (fertiliser, irrigation, pesticide, tractor use)" and "child malnutrition" (ND-GAIN, 2014a). Water indicators used for exposure: "projected change in annual groundwater runoff" and "projected change of annual groundwater recharge" (ND-GAIN, 2014a). Water indicators used for sensitivity: "fresh water withdrawal rate" and "water dependency ratio" (ND-GAIN, 2014a). Water indicators used for capacity: "access to reliable drinking water" and "dam capacity" (ND-GAIN, 2014a). Health indicators used for exposure: "projected change of malaria hazard" and "projected change in deaths from climate change induced diseases" (ND-GAIN, 2014a). Health indicators used for sensitivity: "slum population" and "dependency on external resources for health services" (ND-GAIN, 2014a). Health Indicators used for capacity: "medical staff (physicians, nurses and midwives)" and "access to improved sanitation facilities" (ND-GAIN, 2014a). Ecosystem Service indicators used for exposure: "projected change of biome distribution" and "projected change in marine biodiversity" (ND-GAIN, 2014a). Ecosystem Service indicators used for sensitivity: "dependency on natural capital" and "ecological footprint" (ND-GAIN, 2014a). Ecosystem Service indicators used for capacity: "projected biomes" and "engagement in international environmental conventions" (ND-GAIN, 2014a). Human Habitat indicators used for exposure: "projected change of heatwave hazard" and "projected change of flood hazard" (ND-GAIN, 2014a). Human Habitat indicators used for sensitivity: "urban concentration" and "age dependency ratio" (ND-GAIN, 2014a). Human Habitat indicators used for capacity: "quality of trade and transport related infrastructure" and "paved roads" (ND-GAIN, 2014a). Infrastructure indicators used for exposure: "projected change of hydropower generation capacity" and "projection of sea level rise impacts" (ND-GAIN, 2014a). Infrastructure indicators used for sensitivity: "dependency on imported energy" and "population living under 5m sea level" (ND-GAIN, 2014a). Infrastructure indicators used for capacity: "electricity access" and "disaster preparedness" (ND-GAIN, 2014a).

In line with climate change policies and treaties it is expected that higher levels of exposure will elicit higher levels of ACCF. In ND GAIN's exposure score, countries with higher scores are considered more vulnerable. Therefore increases in exposure are expected to result in increases in ACCF as outlined in hypothesis 1B below.

Equation 4: Hypothesis 1B, Exposure (Vulnerability)

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. H_0 = 0; H_{1B} > 0$$

It is important to note that in addition to ND GAIN, other climate change indicators include German Watch's "Climate Risk Index" and David Wheeler's "Climate Change Vulnerability Index". The "Climate Risk Index" looks at the magnitude of losses related to extreme weather (German Watch, 2015a). Wheeler (2011) on the other hand, looks at climate drivers which are disaggregated into extreme weather, sea level rise and agricultural productivity loss. Of these, ND GAIN was ultimately selected over the "Cimate Risk Index" because it is more detailed and it allows the option of isolating exposure from other factors. Turning to Wheeler, ND GAIN was considered preferable because while both provide disaggregated data ND-GAIN represents 15 years' of data while Wheeler is limited to 1 year, 2010.

Population

Clist (2011) logs total population figures to normalise the distribution of the indicator. Clist (2011) furthermore notes that population is included as an additional variable to GDP per capita in order to check whether there is a bias in the model towards countries with bigger populations such as China and India. This bias is expected because countries with larger populations have lower levels of development, Clist (2011) therefore hypothesises that larger populations will receive more ODA.

Like Clist, this paper uses logged total population figures from the World Bank's World Development Indicators[4], as summarised in Table 5 below (World Bank, 2015b).

Table 5: Population Variable, Summarised

Variable	Form	Obs.	Mean	Std. Dev.	Min	Max
Population	Untransformed	336	18,515,341.421	2.75e+07	88,203	164,346,169.200
	Logged	336	15.800	1.569	11.387	18.903

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[4] Where population is defined as: "Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship – except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. The values shown are midyear estimates." (World Bank, 2015b)

Drawing on the argument outlined by Clist which is noted above, it is expected that countries in sub-Saharan Africa with larger populations will receive more ACCF. Hypothesis 2 therefore notes that the relationship between population and ACCF will be greater than zero, as outlined below.

Equation 5: Hypothesis 2, Population

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots H_0 = 0; \; H_2 > 0$$

Policy

Policy is considered an important variable in that it is seen as "… the ability of a recipient to turn a given amount of aid into a desirable outcome in the mind of the donor" (Clist, 2011: 1725). In order to represent policy, Clist (2011) focuses on indicators related to governance and institutions and therefore uses the Freedom House Freedom Index and the Political Terror Scale (PTS). Clist (2011) claims that improvements in the Freedom Index and PTS will result in more ODA.

In applying Clist's framework this paper includes policy as a variable, but changes the indicators used to represent it. First, this paper excludes PTS as this is seen as more relevant to the USA which is excluded from this model for the afore-mentioned reasons. Second, the Freedom Index is replaced by the Polity IV overall Polity2 score. The argument made in favour of using Polity IV over Freedom House is that the latter index emphasises elements most closely related to a 'western' liberal democracy which may not give a realistic view of governance and institutions in countries that do not fit this model (Norris, 2003). This is not to say that Polity IV is not without its limitations, but rather that in this context it is considered a more realistic indicator.

Polity IV's Polity2 score is composed of its 'democracy' and 'autocracy' scores where the emphasis is political participation of the citizenry, constraints on the chief executive and the competitiveness of executive recruitment (Marshall et al., 2013). A higher score is taken to mean higher levels of democracy (Marshall et al., 2013). The Polity2 indictor is summarised in the table below.

Table 6: Policy Variable, Summarised

Variable	Form	Obs.	Mean	Std. Dev.	Min	Max
Policy	Untransformed	322	2.233437	4.983847	-9	10

Source: Calculations based on data from OECD, 2015a

In line with the idea that there is enhanced policy selectivity amongst donors, it is expected that a higher Polity2 score will result in more ACCF (Clist, 2011). Hypothesis 3, below, therefore shows that the relationship between policy and ACCF will be positive.

Equation 6: Hypothesis 3, Policy (Polity2)

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots H_0 = 0; H_3 > 0$$

Proximity

Clist (2011) includes this variable by arguing that proximity factors potentially enhance efficiency in that closer proximity indicates lower cultural and language barriers. Specifically, in constructing a proximity index, Clist (2011) initially includes distance, religion, colony and language. Through initial regressions distance is excluded from the index because it showed a negative relationship while the remaining indicators showed positive relationships (Clist, 2011). Furthermore trade, in the form of general exports and arms exports is not included in the proximity index because as Clist (2011) notes, its relationship to ODA is unpredictable. Overall Clist (2011) argues that the relationship between proximity variables and ODA is expected to be positive.

In determining the relationship of the proximity variables to ACCF, this paper takes a slight departure from Clist (2011) by not constructing a proximity index. Instead, in order to ascertain the explanatory power of each variable, the proximity variables are listed separately. Furthermore instead of looking at donor exports to recipients, this paper takes the viewpoint of the recipient and therefore analyses recipient imports from donors. Finally, an additional variable is added to the proximity namely ODA per capita. The purpose of this variable is ascertain whether, in providing ACCF, donors fund countries that they are already giving ODA to. The proximity variables used in attempting to explain ACCF variance are summarised in Table 7 below and considered in more detail in the paragraphs that follow.

Table 7: Proximity Variables, Summarised

Variable	Form	Obs.	Mean	Std. Dev.	Min	Max
Distance	Untransformed	336	7.886	3.025	3.795	15.270

Religion	Untransformed	336	Dummy	Dummy	0	1
Colony	Untransformed	336	Dummy	Dummy	0	1
Language	Untransformed	336	Dummy	Dummy	0	1
ODA	Untransformed	336	4.167	12.526	-0.004	147.982
	Logged	316	0.092	1.862	-7.402	4.997
Imports	Untransformed	329	2.589	3.848	0	30.410
	Logged	328	.173	1.367	-6.093	3.417

Source: Calculations based on data from ARDA, 2015, Mayer & Zignago, 2011, UNCTAD, 2015, OECD QWIDS, 2015, and Joshua Project, 2015 (ARDA, 2015)

In constructing data for the distance indicator, this paper, like Clist (2011), draws on the work done by Mayer and Zignago (2011) for CEPII[5]. The distance variable represents the distance between the donor and recipient and where 1,000km is equal to one unit (Clist, 2011). Furthermore, CEPII data does not include South Sudan, but given the location and shared history with Sudan, Sudan data is used as a proxy for South Sudan. In line with Clist's (2011) note that closer proximity is likely to improve efficiency gains, it is expected that closer countries will receive more ACCF. Hypothesis 4A below notes that there will be a negative relationship between ACCF and distance because, as noted, less distance implies a closer relationship.

Equation 7: Hypothesis 4A, Distance

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots H_0 = 0; H_{4A} < 0$$

As with Clist (2011) the colony variable was sourced from CEPII where it is reported as a dummy variable where '1' represents a historical colonial relationship between donor and recipient, and '0' represents no colonial history (Mayer & Zignago, 2011). Again, Sudan is used as a proxy for South Sudan and a closer relationship is expected to increase ACCF (Clist, 2011). In line with this, Hypothesis 4B shows that the relationship between ACCF and colony is expected to be positive.

Equation 8: Hypothesis 4B, Colony

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots H_0 = 0; H_{4B} > 0$$

Similarly the language indicator is a dummy where '1' denotes that the donor and recipient share an official language and '0' denotes that they do not (Mayer & Zignago, 2011)[6]. Here, a slight departure is that while Clist (2011) considers the percentage of people in the donor and recipient countries that speak the same language where '1' indicates that at least 9% of the recipient and donor populations

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[5] CEPII uses the great circle distance formula to calculate distance between countries (Mayer & Zignago, 2011).
[6] CEPII is used for all countries except for South Sudan where the source is the Joshua Project (Joshua Project, 2015).

speak the same language. This paper elects to look at official languages as a clearer indicator of historical ties. As with the other proximity variables, a closer relationship is expected to elicit higher ACCF. Hypothesis 4C below therefore shows that a positive relationship between ACCF and language is expected.

Equation 9: Hypothesis 4C, Language

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots H_0 = 0; \; H_{4C} > 0$$

Turning to religion, this variable was constructed based on data from ARDA (2015) where a score of '1' was allocated if donor and recipient shared a major religion[7] [8]. As above, here closer proximity through shared religion is expected to have a positive relationship with ACCF (Clist, 2011). This expectation of a positive relationship is summarised in Hypothesis 4D below.

Equation 10: Hypothesis 4D, Religion

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots H_0 = 0; \; H_{4D} > 0$$

The trade variable is taken to be the share of total imports that a recipient receives from a donor and this is calculated based on UNCTAD (2015) data. In order to normalise the distribution, this data is logged. As above, it is expected that a closer trade relationship will have a positive effect on ACCF. This expectation is outlined in Hypothesis 4E below which shows that a positive relationship is expected.

Equation 11: Hypothesis 4E, Imports

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots H_0 = 0; \; H_{4E} > 0$$

Finally, ODA data was sourced from OECD QWIDS (2015) and divided by the recipient country's population to calculate ODA per capita. In order to normalise the distribution, ODA per capita was logged. It is expected that the greater the existing ODA relationship between donor and recipient, the greater ACCF will be. Therefore a positive relationship is expected, as summarised in Hypothesis 4F below.

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[7] In this paper, a religion is considered widespread in a country where more than 30% of the population follows the religion in question.
[8] A different source was used for South Sudan, namely the Joshua Project (2015)

Equation 12: Hypothesis 4F, ODA per Capita

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\ H_0 = 0;\ H_{4F} > 0$$

Chapter 3 : Results and Analysis

3.1. Results

In conducting the regression analysis, an initial regression was run to check the relationship between each independent variable and the dependent variable. In addition to showing the strength of the relationship, these initial regressions formed a basis from which to later check which variables are unduly influenced by the addition of other variables. Once this was completed, beginning with exposure each variable was added one at a time, checking for problems of correlation and multicolinearity at each stage. Furthermore all regressions were run as robust regressions in order to correct for potential problems associated with heteroscedasticity and influencers.

This process culminated in a regression using GDP per capita, exposure, population, polity2, distance, language, colony, religion, imports and ODA per capita – in line with the framework put forward by Clist (2011), but with the inclusion of vulnerability and ODA per capita. Table 8 below gives the correlation matrix for the afore-mentioned variables. On the whole, correlation does not appear to be a problem. Possible exceptions however are the relationships between imports and colony, and language and colony which have a correlation coefficient of 0.5759 and 0.5682 respectively. In order to assess whether these cause multicolinearity in the overall model, a Belsley-Kuh-Welsch Test was run. When analysing the output of this test, figures that are above 30 indicate that multicolinearity is a moderate to severe problem (Williams, 2015). The Belsley-Kuh-Welsch test on this model returned a value of 28.44 indicating that multicolinearity is neither a moderate nor severe concern.

Table 8: Correlation Matrix

	ACCF	Exposure	Language	Distance	Religion	Colony	Polity2	Population	ODA	GDP	Imports
ACCF	1.000										
Exposure	-0.022	1.000									
Language	-0.255	-0.054	1.000								
Distance	-0.058	0.060	-0.136	1.000							
Religion	-0.112	0.031	0.194	-0.293	1.000						
Colony	-0.057	0.099	0.568	-0.362	0.114	1.000					
Polity2	0.232	-0.144	-0.048	0.121	-0.029	-0.028	1.000				
Population	-0.016	-0.332	0.020	-0.106	0.246	-0.117	-0.129	1.000			
ODA	0.276	0.048	0.164	-0.116	-0.108	0.356	0.195	-0.440	1.000		
GDP	-0.021	-0.011	-0.012	0.103	0.138	0.045	0.301	-0.297	0.056	1.000	
Imports	0.188	0.009	0.163	-0.444	-0.042	0.576	0.030	-0.014	0.375	0.163	1.000

Table 9 below gives the final regression output. The R-Squared value for the model is given as 0.2405 indicating that 24.05% of the variation in ACCF is explained by changes in the independent variables.

Furthermore the overall P-Value for the model is 0.0020 indicating that R-Squared is significantly different from zero, at the 95% level. While the results of the regression are more extensively covered in the analysis chapter of this paper, as an introduction, a brief summary is provided in the paragraphs below.

Table 9: Final Regression Output

Linear Regression				Number of Obs. =		132
				F (10, 121) =		3.00
				Prob > F =		0.002
				R-Squared =		0.241
				Root MSE =		2.358

ACCF	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf. Interval]	
GDP per Capita	-0.199	0.255	-0.78	0.437	-0.703	0.306
Exposure	1.804	4.803	0.38	0.708	-7.705	11.313
Population	0.300	0.270	1.11	0.268	-0.234	0.834
Polity2	0.115	0.049	2.35	0.021	0.018	0.212
Distance	-0.030	0.067	-0.45	0.657	-0.163	0.103
Language	-1.483	0.673	-2.20	0.030	-2.816	-0.150
Colony	-0.586	0.783	-0.75	0.456	-2.135	0.964
Religion	-0.210	0.469	-0.45	0.656	-1.139	-0.719
Imports	0.368	0.309	1.19	0.268	-0.234	0.834
ODA	0.519	0.192	2.70	0.008	0.138	0.899
_cons	-5.003	6.379	-0.78	0.434	-17.631	7.625

Beginning with the relationship between GDP per Capita and ACCF, the table above shows an inverse relationship. This relationship is however not significant and the paper therefore fails to reject the null hypothesis for Hypothesis 1A ($H_0 = 0; H_{1A} > 0$). Turning to exposure, as anticipated exposure has a positive relationship with ACCF. However, as with GDP per capita, this relationship is not significant and this paper therefore fails to reject the null hypothesis for Hypothesis 1B ($H_0 = 0; H_{1B} > 0$).

Turning to population, while showing a positive relationship to ACCF, the relationship between population and ACCF is not statistically significant. As a result we fail to reject the null hypothesis for Hypothesis 2 ($H_0 = 0; H_2 > 0$).

The relationship between polity2 and ACCF is positive as expected as well as statistically significant at the 95% level. For Hypothesis 3 ($H_0 = 0; H_3 > 0$) therefore, we reject the null hypothesis.

Of the proximity variables, distance, language, colony and religion all show negative relationships with ACCF. With the exception of distance where donors were expected to give more to closer countries, a positive relationship to ACCF was expected for these proximity variables. However, the relationships between ACCF and distance, colony and religion are not significant. We therefore fail to reject the null hypotheses for Hypothesis 4A ($H_0 = 0$; $H_{4a} < 0$), 4B ($H_0 = 0$; $H_{4B} > 0$) and 4D ($H_0 = 0$; $H_{4D} > 0$). Conversely, while in an unexpected direction, the relationship between language and ACCF is statistically significant at the 95% level. We therefore reject the null hypothesis for Hypotheses 4C ($H_0 = 0$; $H_{4C} > 0$). Turning to the remaining proximity indicators, trade and ODA per capita, both variables show a positive relationship with ACCF. Of these two variable however, only ODA per capita shows a statistically significant relationship at the 95% level. We therefore fail to reject the null hypothesis for Hypothesis 4E ($H_0 = 0$; $H_{4E} > 0$) and reject the null hypothesis for Hypothesis 4F ($H_0 = 0$; $H_{4F} > 0$).

3.2. Analysis

Drawing on the results outlined above, this paper finds the following responses to its research questions. As noted, the central research question for this paper asks what the key determining factors are for the receipt of ACCF in SSA countries. The results of this paper show that based on the amended 4P model, language, an existing aid relationship and policy are key determinants for the receipt of ACCF in SSA countries.

The sub-research question for this paper examines the extent to which environmental, economic, historical and political factors play a role in determining ACCF flows to SSA countries. In linking this question to the amended 4P model, environmental factors are represented by the exposure variable; economic factors by GDP per capita; historical factors by the proximity variables; and political factors by the policy variable, as measured by polity2. Therefore the answer to the sub-research question, based on the amended 4P model, is that historical and political factors appear to play a role in ACCF allocation to SSA countries.

An important caveat to note in the analysis that follows is that the amended 4P model only explains 24.1% of the variance in ACCF flows to SSA countries. There are therefore clearly other factors at play which have not been included within the scope of the 4P model. The implication of this is that future research would need to expand or amend the model. Furthermore, as noted above, ACCF data is only available from 2010. Expanding the time span of the dependent variable is therefore not

possible at this juncture. Instead, the data set could be expanded to include more recipient countries or more donors in order to ascertain if the findings of this paper hold for an expanded set of countries. In summary, the findings should be seen in the context of there being a limited number of observations. Nevertheless, the model does produce some interesting results. The paragraphs that follow serve to provide a more in-depth analysis of these findings, beginning with a closer look at the funding provided by the seven donors to SSA countries.

3.2.1. ACCF Flows to SSA Countries from the Seven Donors

Figure 8 below shows the ACCF flows to the top ten recipients of ACCF in the years under consideration[9]. Together, these recipients represent almost 75% of the average annual inflow of ACCF for the region of SSA. As Figure 8 below shows, a large portion of ACCF went to South Africa, Kenya and Cape Verde.

Figure 8: ACCF by Recipient and Donor, Average 2010 - 2013, US$ Millions
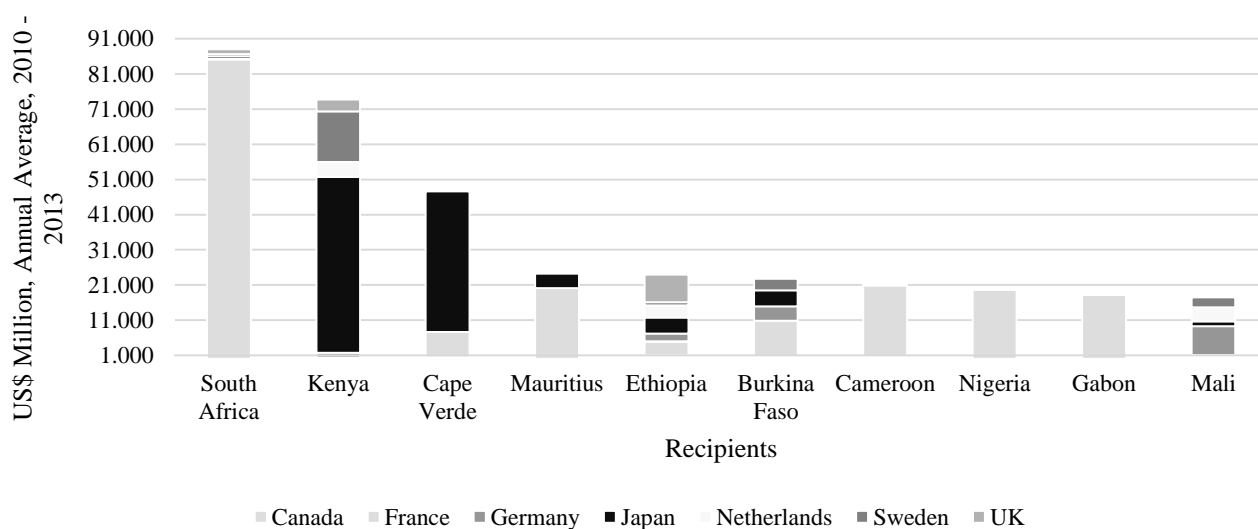
Source: Graph based on data from OECD, 2015a

Figure 8 above also shows that South Africa, Mauritius, Burkina Faso, Cameroon, Nigeria and Gabon received the bulk of their ACCF from France; while Kenya and Cape Verde received the bulk of their ACCF from Japan. Furthermore, the largest share of ACCF to Ethiopia came from the UK and to Mali, from Germany. These numbers are driven by a few big projects. For example, France loaned

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[9] The figures given here are based on the unlogged versions of the ACCF variable used in the model. The unlogged versions are used to provide a description of donor behaviour in SSA in the period under consideration, but were transformed in order to normalise the distribution for the purposes of the regression.

US$69.894 million for a water and sanitation project in 2010; and US$269.31 million for an urban development project in 2013, in South Africa (OECD, 2015a). Similarly, Kenya received a US$125.73 million loan from Japan in 2010 for an agricultural water services project; and US$51.71 as a grant from Sweden for an agricultural project (OECD, 2015a). Cape Verde's financing in the period is dominated by a US$138.64 million loan from Japan in 2013 for a water supply project (OECD, 2015a). France also provided water supply project loans to Burkina Faso (US$39.83 million) in 2013; Cameroon (US$79.47 million) in 2010; Nigeria (US$78.60 million) in 2012; Gabon (US$72.48 million) in 2010 (OECD, 2015a). The size of loans are typically larger than those of grants, as shown in OECD (2015a) data.

Looking at the above from the perspective of the donor, in the period under consideration Canada provided 2.43% of average annual financing, while France provided 42.77%, Germany 10.95%, Japan 30.46%, the Netherlands 3.43%, Sweden 5.06%, and the UK 4.91% (OECD, 2015a). Therefore in the period under consideration Japan and France contributed more than 70% of total annual average funds provided. Of the countries therefore there were overall more observations for Japan and France than there were for the other five donors. In addition to the size of the ACCF flows to SSA countries, an important contextual consideration for the analysis is the type of funding received from the seven donors. This is outlined in turn in the paragraphs that follow.

i. ACCF Flows by Type of Financing

Between 2010 and 2013 an average of US$210.16 million was provided annually by the seven donors in the form of grants (OECD, 2015a). For loans this figure was US$266.35 million (OECD, 2015a). Therefore based on these annual averages, 44.10% of annual ACCF was in the form of grants and 55.90% was in the form of loans. When all DAC donors are considered this ratio changes to 58.06% in the form of grants and 41.94% in the form of loans (OECD, 2015a). This skewness towards grants in ACCF is in line with global trends. The ratio related to the seven donors is therefore slightly anomalous. This could be slightly problematic in interpreting this research in that, as noted above, ACCF was selected over MCCF for analysis on the basis that the latter predominantly consisted of loans, and the main determinant would most likely be the ability to repay the principal and interest portion of such a loan. Although this caveat is noteworthy, when analysing the aggregate amounts across all countries, the proportion of grants is not heavily skewed. On this basis, the results are still considered important.

3.2.2. Historical Factors: Language and an Existing Aid Relationship

i. Language

As per the model output, a one unit increase in the language score results in a 1.483 decrease in ACCF. If the model comprised of only two variables, ACCF and language, language would explain 6.07% of the variance in ACCF. This relationship is unexpected, given that the literature suggests that countries with the same language have closer aid ties (Clist, 2011). Clist (2011), for example, notes that for France in particular, language is an important determining factor for aid flows.

However, contrary to this conclusion, the bulk of France's ACCF went to Anglophone countries as per Figure 9 below[10]. This was followed by Francophone countries, and thereafter, by countries in which both English and French are official languages. In fact, English-speaking countries form the bulk of recipient countries for all donors, with the exception of Germany, where the bulk of funding has gone to French speaking countries.

Figure 9: ACCF Allocation by Language
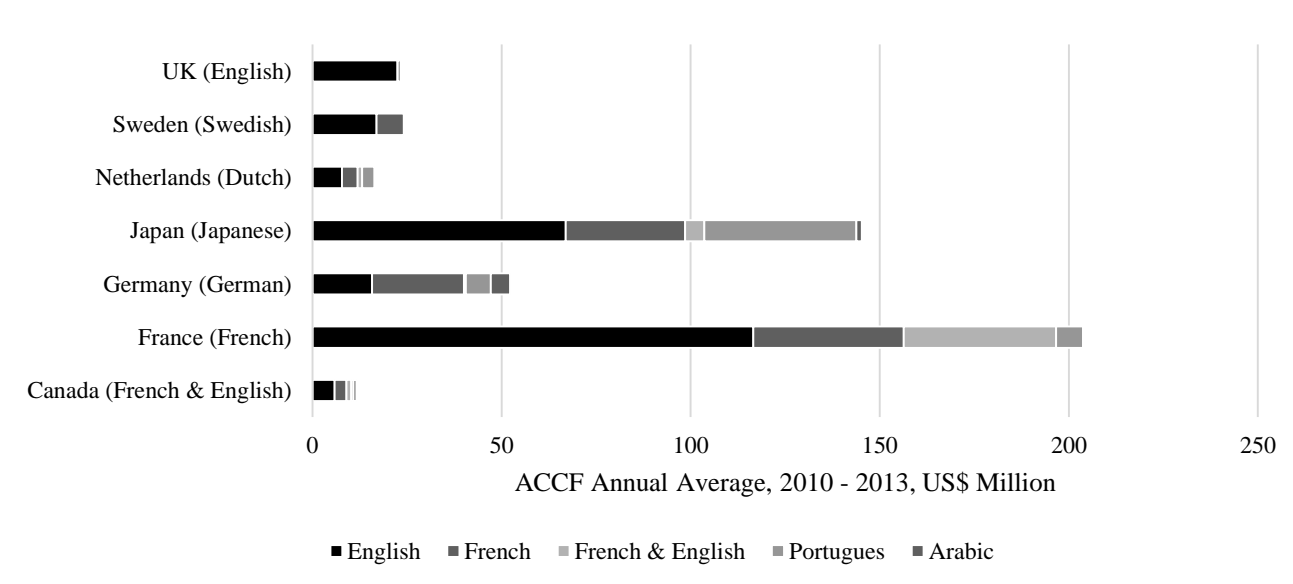
Source: Graph based on data from OECD, 2015a, and Mayer & Zignago, 2011

However, as there are no SSA countries which have any official linguistic links to Dutch, German, Swedish or Japanese, it becomes apparent that this language-recipient relationship is conditional. It is postulated that the result is driven by France, which instead of routing financing to Francophone

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[10] The figures given here are based on the unlogged versions of the ACCF variable used in the model. The unlogged versions are used to provide a description of donor behaviour in SSA in the period under consideration, but were transformed in order to normalise the distribution for the purposes of the regression.

countries, has instead provided the largest allocation to English speaking countries. Clist (2011) notes that while France tended to provide ODA to Francophone countries, language as an indicator in general can appear contradictory.

Other authors who have drawn conclusions along similar lines include (Anderson, 2012) who notes that in analysing 23 DAC countries that the variable for language is signed opposite to what is expected and significant in some cases. Finally, another possible explanation for the results could be attributed to the fairly limited nature of the data.

ii. Existing Aid Relationship

In addition to language, a significant result from the regression was that of a positive relationship between donor flows of ODA and donor flows ACCF, as measured by ODA per capita and as shown in Figure 10 below.

Figure 10: ACCF Allocation by ODA per Capita, Annual Average 2010 - 2013
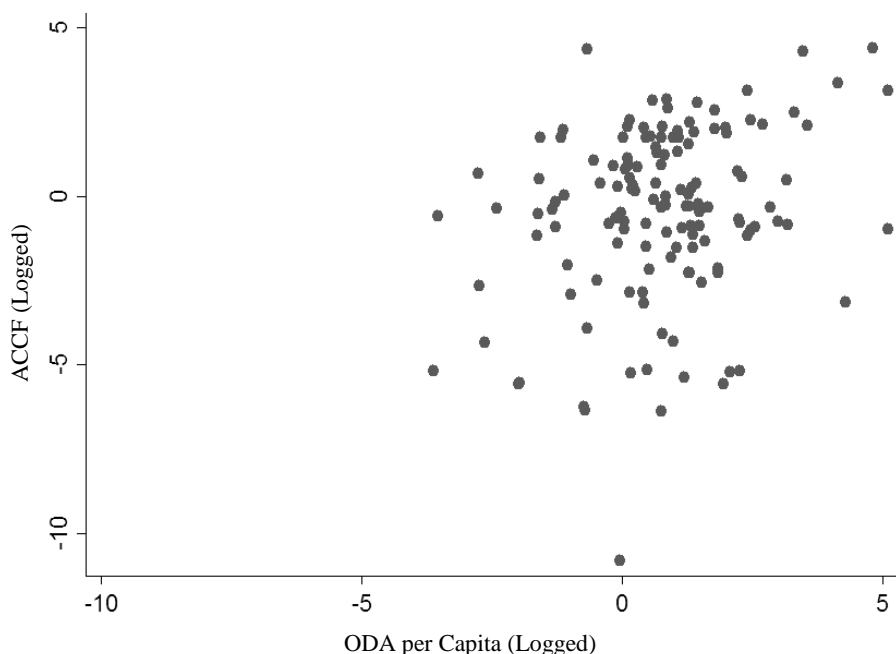
Source: Graph based on data from OECD, 2015a and OECD QWIDS, 2015

As outlined in the regression output in the results section above, a 1 unit increase in ODA per capita results in a 0.519 unit increase in ACCF with a significance level of 0.008%. When regressed by itself, an existing aid relationship explains almost 7% of the variance in the model.
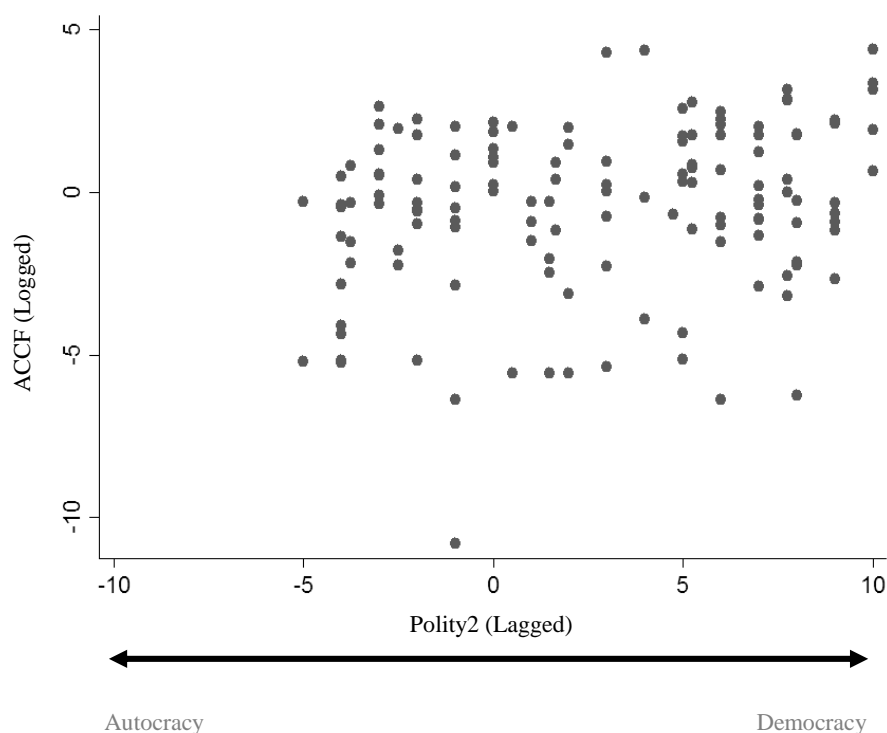
The positive correlation between ACCF and an existing aid relationship is indicative of closer proximity between donor and recipient, and is therefore not particularly surprising. The closer countries are, the lower the transactions costs are (Clist, 2011). For example, an existing aid relationship implies that the donor has an existing understanding of the country, its processes and its institutions. Furthermore, this result makes intuitive sense because the donor would already have established finance channels to the recipient and established relationships with organisations present in the recipient country. Furthermore, Anderson (2012) notes that the provision of financing to countries where there is an existing relationships is more efficient and that it, in addition, is potentially cost saving in that donor countries can establish economies of scale in the recipient country activities.

While this finding makes sense from a donor perspective it is fairly problematic from a vulnerability perspective in that it implies that donors are carrying out ACCF in line with their ODA priorities, but not necessarily in line with the level of vulnerability in the recipient country. This is echoed in findings on the determinants of receiving ODA where need has not been found to be central (Barrett, 2014; Clist, 2011; Fuchs et al., 2014 and Hoeffler & Outram, 2011). This has furthermore, been a consistent criticism of donor behaviour. With ACCF only being 4 years old for DAC countries, the 'business-as-usual', or rather 'aid-as-usual' approach irrespective of the type of aid, is potentially problematic.

3.2.3. Political Factor: Policy

Finally, turning to the policy variable in the model. As noted there is a positive relationship between policy and ACCF flows to SSA countries. A 1 unit increase in the polity2 variable will result in a 0.115 increase in ACCF; a result which is significant at the 95% level. When regressed without other independent variables, ACCF explains 5.16% of variance in the model. This relationship is summarised in Figure 11 below.

Figure 11: ACCF Allocation by Average Polity2 Score, 2009 - 2013

As noted in the methodology section above, the polity2 score is a combination of Polity IV's democracy and autocracy scores where negative scores imply autocratic tendencies and positive scores imply democratic tendencies (Marshall, Gurr, & Jaggers, 2013). When calculating whether a country leans towards autocracy or democracy, Polity IV considers political participation of a country's citizens, constraints on the chief executive and the competitiveness of executive recruitment (Marshall, Gurr, & Jaggers, 2013). Based on this and the results of the amended 4P model then, a country is more likely to receive ACCF if it leans towards democracy which in this sense implies a political system that characterised by openness, a merit-based civil service, and checks and balances. This relationship is outlined in Figure 12 below.

While this result is in line with the hypothesis that there is a positive relationship between policy and ACCF, policy selectivity has not been a consistent or key finding in aid literature. Clist (2011), for example, finds that policy sensitivity was not an important consideration for the seven donors in the 4P model. This was with the exception of Sweden and the Netherlands who showed higher policy selectivity in the later years of the analysis (Clist, 2011). Nevertheless this finding is indicative of

donor countries favouring more transparent systems, the potential benefit of which is that donors are better able to monitor their funding.

As noted by Carter (2014), the greater amount of institutional democracy a country has, the better absorptive capacity there is for financing. Following this, financing would arguably be better spent on the objectives for which it was intended. Figure 12 underscores this theory. Taking a closer look at the channels used by the seven donors for ACCF to SSA countries between 2010 and 2013, Figure 12 shows that the majority of ACCF is directed through the public sector and recipient governments. As such donors are more reliant on the institutional quality of the recipient country than they would be if the bulk of their ACCF funding was directed through multilateral institutions and NGOs.

Figure 12: ACCF Inflows to SSA from the Seven Donors, by Channel Type, 2010 – 2013, % of Total[11]
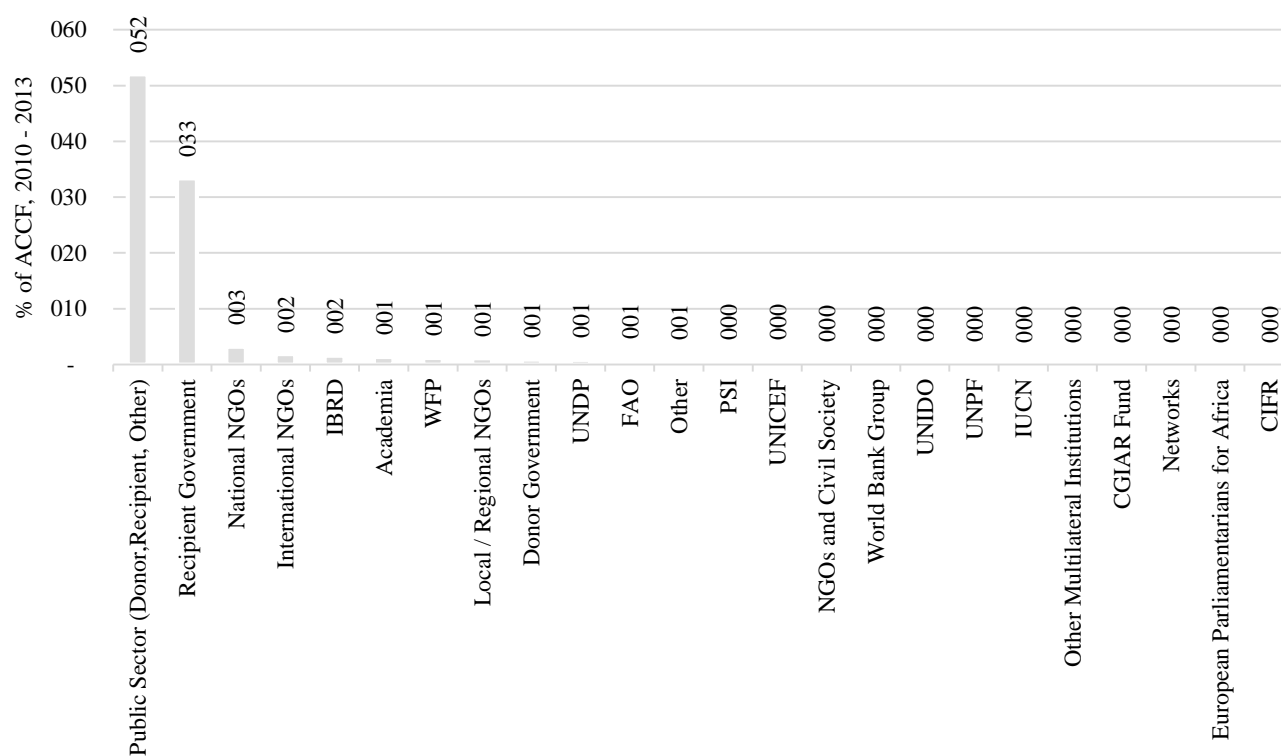
Source: OECD, 2015a

Chapter 4 : Conclusions and Recommendations

4.1. Conclusions

The above analysis has taken a closer look at the statistically significant findings of the amended 4P model. The key issues emerging from these findings can be summarised as being related to the importance of historical and political factors; to the negative relationship between language and ACCF; to the positive relationship between ACCF, and policy and an existing aid relationship; to an 'aid-as-usual' approach to ACCF, and finally to technical considerations and future research. These findings are noted in turn in the paragraphs that follow.

4.1.1. The Importance of Historical and Political Factors

In addressing the central research question, this section shows that, based on results from the amended 4P model, language, an existing aid relationship, and policy are significantly correlated with ACCF. In addressing the sub-research question, this section shows that the aforementioned determining factors can be categorised as historical (language and an existing aid relationship) and political (policy).

4.1.2. A Negative Relationship between Language and ACCF Allocation

The negative relationship between ACCF and language is difficult to explain and slightly anomalous given that the donor is often found to be most strongly influenced by historical ties. Our results however indicate that France largely provided ACCF to Anglophone countries in the period under consideration. This finding warrants further research.

4.1.3. A Positive Relationship between ACCF and, an Existing Aid Relationship and Policy

The relationship between an existing aid relationship and policy, with ACCF is positive, as anticipated. Both of these variables have implications for the transaction costs of ACCF funding. The former potentially lowers transaction costs in that the donor has already established recipient relationships and channels of finance. The latter implies less opacity in funding, and higher absorptive capacities which arguably result in more efficient allocation.

4.1.4. An 'Aid-as-Usual' Approach to ACCF

While, as noted above, donors providing ACCF to countries that are more democratic and where there is an existing aid relationship potentially reduces transaction costs, it does very little in the way of targeting countries that are most vulnerable to climate change. Furthermore, a key concern is that in providing ACCF to existing aid partners, donors are taking an 'aid-as-usual' approach to ACCF funding and not correcting for the potential flaws in existing aid allocation practices.

4.1.5. Technical Considerations and Future Research

In interpreting the data it is important to bear in mind that this model only explains 24.1% of the variance in ACCF flows to SSA. There is therefore the need to conduct more research that will, amongst other elements, aim to expand the countries in the data set, and explore additional potential variables that could be related to ACCF allocation practices. Furthermore, this paper has raised technical issues surrounding the definition of CCF and the uneven reporting practices of donors.

4.2. Recommendations

In addressing the concerns raised in this paper, this section puts forward recommendations related to donor allocation practices and international climate governance. Related to the former, these recommendations apply to the incorporation of existing aid effectiveness principles into ACCF allocation. Related to the latter, these recommendations apply to the need for better defined ACCF targets; and a need to rethink 'new and additional' financing.

4.2.1. Donor Allocation Practices

i. The Incorporation of Aid Effectiveness Principles

The OECD's 2005 Paris Declaration advocated for five key principles for aid allocation (OECD, 2015b). These principles are ownership, alignment, harmonisation, results, and mutual accountability. Ownership relates to the use of recipient country strategies and recipient country institutions (OECD, 2015b). Alignment relates to the use of aid to bolster recipient country plans and institutions (OECD, 2015b). Harmonisation relates to increased coordination among donor countries in order to avoid duplication of effort (OECD, 2015b). Results relate to an emphasis on monitored and measured results; and finally, mutual accountability relates to both the recipient and donor being accountable for the use of aid (OECD, 2015b). Following the Paris Declaration, 2008's Accra Agenda built on the above five

principles of aid effectiveness by emphasising the importance of recipient country ownership and delivering results; as well as noting the importance of inclusive partnerships and capacity development (OECD, 2015b).

The OECD's principles on aid effectiveness are based on decades of experience and should apply to ACCF allocations. Of particular importance, currently, are the principles of ownership, mutual accountability, and results. Nakhooda et al. (2013) for example note that, related to the ownership principle, CCF allocations have not, thus far, been centred on local contexts or capacities. Niang et al. (2014) add to this by noting that in both ACCF and MCCF the approach has been at the project level, impeding the development of recipient capacity. The Sabin Center for Climate Change Law (2015) notes that the majority of countries in SSA have developed national adaptation plans within the UNFCCC framework. These plans should be used as a starting to point to ensuring ACCF allocation is in line with recipient country priorities. In addition to increasing ownership this process would better mutual accountability.

Related to the principle of results, the current system of CCF tracking is inadequate in terms of not only monitoring results, but in defining the results that are to be monitored. Work therefore needs to be done on streamlining reporting processes and better targeting, and defining, the desired results. This recommendation is not however restricted to donor allocation practices, but must be extended to the UNFCCC, as outlined below.

4.2.2. International Climate Governance
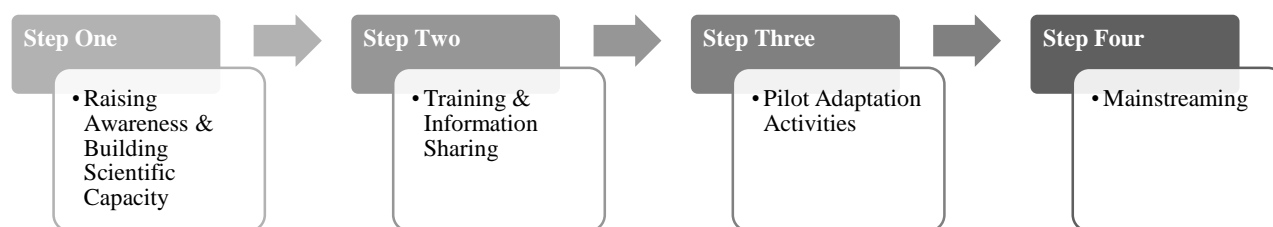
i. The Need for Better Defined Targets

In guiding ACCF allocation practices, it is essential that the UNFCCC outline better-defined targets and objectives. Brunner and Enting (2014) for example note that while the UNFCCC emphasises inputs in the form of monetary requirements, it does not focus on outputs and outcomes. In defining outputs and outcomes, the UNFCCC and its signatories will be better able to direct their financing efforts.

ii. Rethinking 'New and Additional'

A key tenement of the UNFCCC is the requirement for 'new and additional' financing. While this approach seeks to ensure that donors amend their aid allocation behaviour for ACCF, the analysis above shows that this may not be practical. In addition to the challenge of the 'aid-as-usual' approach

of donors, the 'new and additional' financing requirement is challenging in that it aims to separate two components that are inextricably linked – development and climate change. Ayers and Huq (2009) for example note that climate change and development activities overlap in the sectors of agriculture, technology, irrigation and infrastructure. Rather than separating development assistance and ACCF it is perhaps advisable that the focus be on climate resilient development, defined as "…development which is based on an assessment of the impacts of climate change and which has integrated climate change adaptation measures into its policies, plans and activities" (OECD, 2011: 16). Ayers and Huq (2009) refer to this as 'mainstreaming' and propose four steps to accomplish this, as shown in Figure 13 below.

Figure 13: Mainstreaming Climate Change in Development

Step One	Step Two	Step Three	Step Four
• Raising Awareness & Building Scientific Capacity	• Training & Information Sharing	• Pilot Adaptation Activities	• Mainstreaming

Source: Ayers and Huq, 2009

The first step relates to raising awareness on climate change and ensuring that it is supported by scientific research (Ayers & Huq, 2009). The second step relates to providing training and information to planners, researchers, communities , policy makers and civil society; while the third step relates to establishing pilot adaptation and mitigation programmes based on the knowledge garnered in step one and disbursed in step two (Ayers and Huq, 2009). Finally, step four requires that the lessons from the pilot programmes be built into policy and planning, thereby mainstreaming climate change considerations into development.

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