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1. INTRODUCTION

1.1 Putting Aid on the Map

The following global map of aid projects for the years 1960-2010 was generated on AidData.org, a large open repository of development aid data:

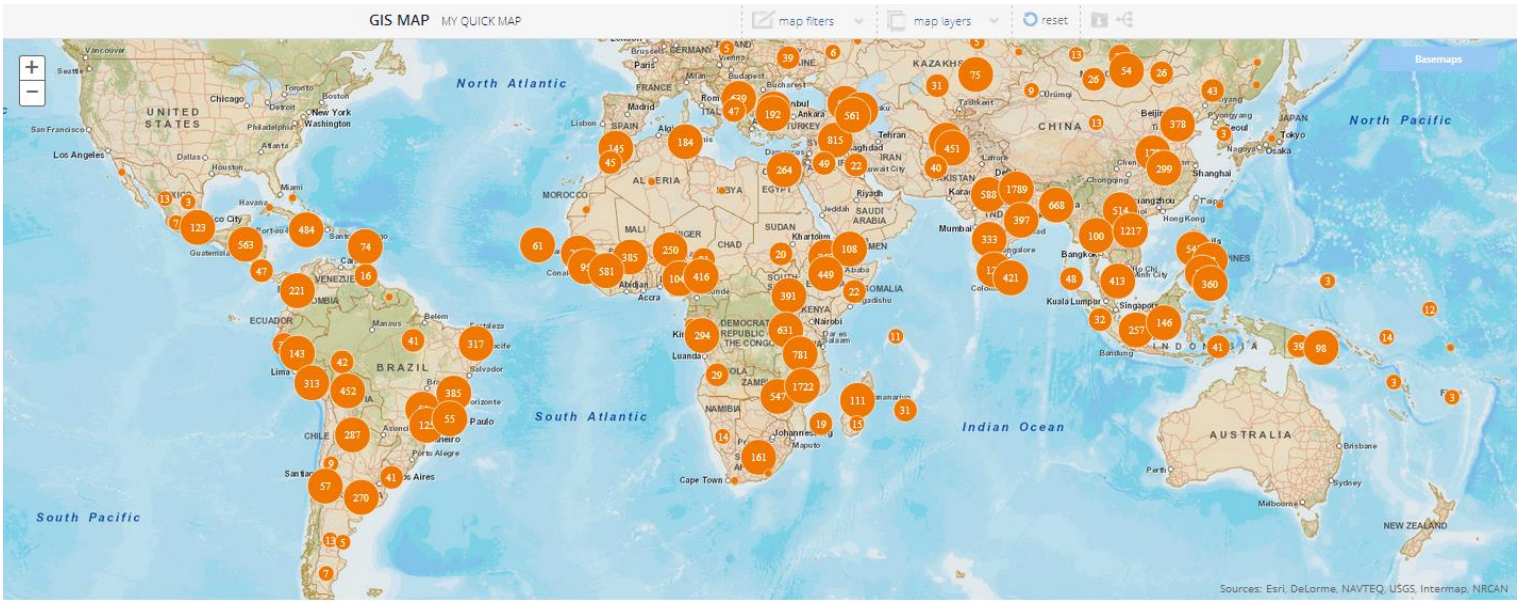

Figure 1 - Worldwide Aid Projects, 1960-2012, AidData.org, 2014

In 2013 prices, global aid flows since the 1960s have amounted to $4.7 Trillion US Dollars (Barder, 2013). A preliminary inspection reveals much of the obvious: aid is clustered in developing countries in Central and South America, along the Eastern, Western and Southern African coast line and South and South East Asia. China is a notable outlier given its sheer size, with aid averaging just 0.2% of GDP over the last decades (Easterly, 2003, 31).

Undoubtedly, many of these projects have helped alleviate humanitarian and social problems associated with fundamental scarcities. But have they helped alleviate poverty? That is a different question entirely, subject of works such as “More than Good Intentions” (Karlan & Appel, 2012) and “Poor Economics” by Abhijit Banerjee and Esther Duflo (2011), to name just two contemporary examples. From microcredit access to helicopter money, contemporary development aid discussions and debates are often centred on the quest for a “silver bullet,” to use an all but murdered metaphor, in the fight against poverty. Many of these miss the point. Poverty is most broadly associated with lack of access to the most basic goods and

services, including nutrition, a measure of healthcare and lodging. Improvements in the quantity and quality of these, in turn, are associated with improvements in income. In short, fighting poverty can be boiled down to finding a way of raising worldwide incomes, especially at the bottom of the distribution. Digging wells, building schools or nurturing entrepreneurial spirits through small-scale lending institutions improves the wellbeing of those fortunate enough to be selected for such initiatives (on average). But do such projects translate into long-term, sustainable income gains that might generate their own momentum? Or are the gains conditional on donor support, evaporating when they withdraw? Either way, what does the outcome depend on?

Context and timing are key variables in any evaluative process, allowing for a better diagnosis of the problem and a better prescription of solutions (and perhaps equally importantly, the rejection of alternatives). One of the broader contexts is found in colonial legacies, be they institutional, cultural or geographic. The dividing up of the undeveloped world among western powers was a cataclysmic event for all of the countries subjected to it. Within a very short time span, varieties of colonialism imposed state hierarchies on far flung territories that had hitherto been governed by drastically different power architectures, rules and norms (Herbst, 2000, 38).

The influence the British have had on world development is especially hard to overestimate (not that some haven't managed). Apart from musings of Empire and deep institutional legacies, such as the parliamentary system or the common law legal framework, the disproportionality of British reach is worthy of a brief moment of consideration. Overleaf is a map of countries that have *not* in some form or other been invaded by Britain over the course of history.

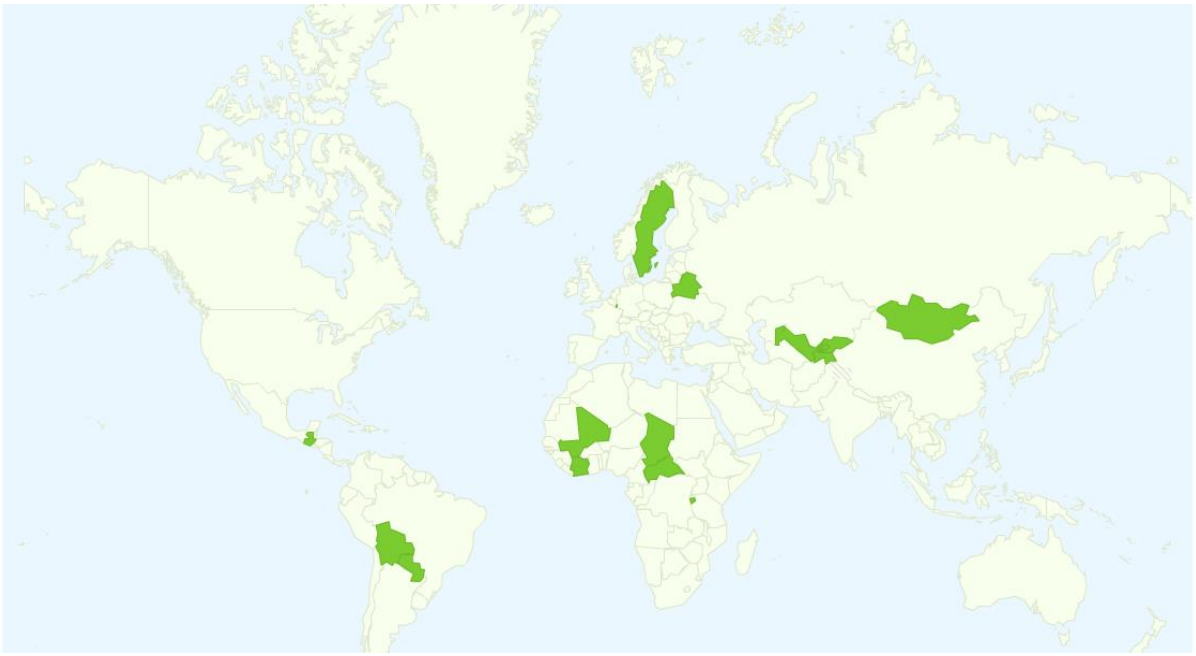

Figure 2 - Countries not invaded by Britain. Copping, 2012. My Depiction using Google's Mapping API, 2014.

A rather impressive feat for an island ranked 81st in terms of land area (The World Factbook, 2014).

Facetious mapping aside, the legacies of colonialism and colonial institutions will be taken up in more sober fashion in the following section. This paper is interested in the undercurrents of the relationship between aid transfers and per capita economic growth. First of all, it will investigate whether there is an aggregate positive link between the two. This relationship will then be subjected to a range of robustness inquiries. In the more interesting part, it will assess whether the efficacy of aid is conditional on a selection of colonial legacies. The paper's structure is as follows:

Section two features a literature review of the aid-growth relationship as well as an introduction to contemporary institutionalism, succeeded by the theoretical framework. Next, I will outline my methodology, followed by a descriptive section on the data used. Model, results and a discussion come up in sections 5, 6 and 7 respectively, closing with some thoughts and conclusions in the final parts of this thesis.

2. LITERATURE REVIEW

The principal topics of this paper, aid effectiveness, institutions and colonial legacies, have benefited from a great deal of academic attention, especially over the last few decades. This section will provide brief reviews of contemporary research, debates and controversies and conclude with a discussion about the relevance of it all for this particular thesis. Some of the more theoretical aspects are mentioned only descriptively below and will be brought up again in Section 3.

2.1 Aid Effectiveness

2.1.1 A Literary History

Leaving aside the mostly self-interested investments colonial powers poured into their far-flung territories during the 19th and 20th centuries, the history of development aid is a relatively recent one. The advent of the Cold War was instrumental in the United States' looking further than Europe to provide foreign assistance. The spectre of Communist bastions multiplying throughout the underdeveloped world proved a powerful incentive to step up aid programmes directly and indirectly (Roodman, 2004, 3).

Yet, whereas the funds marshalled into Europe proved to be a story of success and prosperity, the effect of aid in developing countries continues to be a fiercely contested debate. After more than half a century of transferring funds, personnel, know-how and equipment, the final word on why how and if any of it mattered has yet to be pronounced. This section will provide an overview of the most influential empirical studies among an increasingly vast body of work.

According to Hansen and Tarp (2000), the literature underwent three stages from the 1970s, when cross country metrics were brought in to examine aid effects, to the 2000s. From 1970-2, research focused on the link between aid and savings, founded on the Harrod-Domar model that theorised savings to be the binding constraint on growth. As such, aid-induced savings would lead to higher investment and thus growth (Keith Griffin, 1970; Weisskopf, 1972). The more realistic assumptions that substantial portions of aid are directly consumed and some investment projects have a zero or even negative returns soon shifted empirical approaches to the second generation, which spanned from the 1970s to the 1990s, this time investigating the link between aid on the one hand and investment and growth on the other.

Starting with Boone (1994), the third generation of studies, which continues to this day, added a lot more nuance by including factors accounting for the political economy of development aid. Elements such as institutional quality, political violence, geography, ethno-linguistic fractionalisation and non-linear relationships between aid and growth have become typical to include in regressions. Datasets have kept expanding and new measures and proxies accounting for issues like a country's policy environment have kept evolving. The inconclusive nature of results this diverse and sometimes controversial body of work has produced is what I turn to next.

2.1.2 Does Aid Matter?

Most of the aid efficiency work over the last one and a half decades can be considered as a response to Boone (1996). With data on 96 countries—the hitherto most complete aid-growth database—he finds no relationship between aid recipients and investment, concluding that aid has no significant impact on either investment or growth, and has no beneficial impact on the poor as evidenced by the lack of any significant effects on indicators of human development. Aid does appear to increase the size of government however.

Drawing from a panel of developing countries across six four-year periods from 1970-1993, Burnside and Dollar (2000) examine the relationship between foreign aid, GDP per capita growth and economic policies. Contrary to Boone, they find that aid has a positive effect on GDP growth in countries with a good policy environment. The lack of such an environment leads to the dissipation of aid transfers. They include several control variables inherent to the new growth literature, such as assassinations per capita, the Knack-Keefer institutional quality variable, and M2/GDP to account for financial depth and initial GDP to capture convergence (Burnside & Dollar, 2000, 850). Their economic policy indicator is a composite of three separate factors: log (1+inflation), Budget Balance/GDP and the Sachs-Warner (1995) Openness Index. It enters their equation in combination with aid as aid*policy. They also include aid^2 to account for non-linear factors. After removing five outliers, both aid*policy and aid^2 become significant, the former positive the latter negative, leading them to conclude that aid is beneficial in a good policy environment (i.e. in countries that have low inflation, do not run large budget deficits and are open to trade) but with diminishing returns (ibid, 864).

The resultant criticism of their findings quickly focused on their policy index. Hansen and Tarp (2001) modify Burnside and Dollar's equation by removing the aid*policy interaction term and adding a lagged term to the set of instruments. Their results point to the conclusion that aid is indeed beneficial and exhibits diminishing returns, but shows no dependence on the policy environment. Hansen and Tarp (2001) conclude that the specification of the growth equation that best fits the data is one that doesn't include an aid-policy interaction, and that it is both premature and counter-productive to rely on the simple policy indices proposed by Burnside and Dollar (2000).

The approach of Hansen and Tarp (2001) was further criticised however, and in particular their use of lagged aid as an instrument in their 2SLS estimation. As pointed out by Clemens et al (2011) such an approach is only valid if aid is persistent and, more importantly, if there are no direct effects of lagged on current growth. This latter assumption is unlikely to be met.

Nonetheless, Collier and Dollar (2002) return to this issue using a much simpler OLS specification, and provide further support for the original Burnside and Dollar thesis. With a longer time span and using the World Banks' Country Policy and Institutional Assessment (CPIA) to measure policy environment, their results suggest that policy does indeed matter.

Other studies have found geography, not policy to be the relevant issue to consider. Dalgaard, Hansen and Tarp (2004) find that aid is effective in promoting growth, but that climate-related circumstances affect the magnitude of promotion. This result is in line with the "geography" matters theses of the likes of Jeffrey Sachs and Jared Diamond, more on which later.

Rajan and Subramanian (2005, 2008) suggest that there is no robust evidence suggesting a positive link between aid and growth at all. Noting that cross-country aid regressions are plagued by heaps of noise, they argue that even if they exist, causal aid-growth links would be hard to establish beyond reasonable doubt. In terms of policy, they advise that the aid apparatus should be rethought altogether (Rajan & Subramanian, 2005, 19).

Clemens et al. (2011) counter the conclusions of Rajan and Subramanian (2005, 2008) by arguing that a few "straightforward" modifications to the models used in the literature make most of the divergence among their results vanish. In particular, they consider the following modifications:

1. Allowing aid to affect growth with a time lag
2. First-differencing to eliminate omitted variable bias from time-invariant unobserved traits, and
3. Considering only those portions of aid that might produce growth within a few years (Clemens et al., 2011, 6).

These modifications are meant to circumvent the use of instrumental variables, which have been shown to be weak at best and invalid at worst. Most importantly, they highlight the importance of distinguishing between different types of aid. Humanitarian aid, for instance in the form of vaccination or nutrition programmes, does not deliver noticeable results until years and decades later. Disaster relief and other forms of humanitarian assistance are often not intended to expand productive capacity in the first place (ibid.).

Their solution thus lies in adding a lagged aid term in the regression model and only considering the aid that may have a chance to affect productive capacity within that lag period, in addition to abstaining from the use of instrumental variables. Adopting this specification the authors find that aid has a positive, albeit modest, impact on future growth. They conclude that the lack of evidence found in previous studies revolves around the use of weak and invalid instruments, the use of data with a time series that is too short, and by not allowing for lagged effects of aid.

Since the literature lacks a reliable instrumental variable, the correlation or causation argument cannot be reliably settled. Clemens et al (2011) can at least conclude that aid is not associated with *less* growth, which is a start.

A more recent study by Arndt et al (2013) also finds evidence of a positive impact of aid on growth and development, finding that an important effect of aid on growth arises because aid has a positive impact on the proximate determinants of growth.

Although there seems to be some convergence toward the view that aid and growth have a meaningful and positive relationship (causation remains trickier to prove than to infer), the issue is by no means settled. Some researchers argue that heterogeneous effects of aid found in the literature are hardly surprising. Bourguignon and Sundberg (2007) for example argue that in addition to limitations with the econometric approach, and the issue of causality in particular, the motives for aid are also often highly heterogeneous, which may result in widely

differing effects. Easterly and Pfutze (2008) reach a similar conclusion arguing that the data used in much empirical research are of a low quality, which casts doubts on the observed patterns in the data.

The approach this paper takes is to attempt to find slightly less terrible data and focus on a time period with denser data coverage. If some data is better than no data it follows that more data is better than some data.

2.1.3 In Summary: Do we Reject H_0?

Views on the relationship between aid and economic growth are highly susceptible to ideological preconceptions about how the economic world should function. By itself, this can lead to significant amount of bias regarding the estimation method, sample and interpretation of results. Usually, an aggregation of results can eliminate such overt or covert prejudice. This topic, however, has produced such a polarised body of literature that choosing which side to belief often runs down to choosing which economist one likes best (See Lord et al.'s 1979 "Prior Theories on Subsequently Considered Evidence"). Nonetheless, a perhaps even more important factor lies in the usage of data from all over the world.

Given the reliance on global cross-country datasets, all the studies briefly described in the preceding sections can only claim to be establishing the average effect aid has (if any) on the average, or median, developing country's economic growth rate. With scores of nations lying either above or below the regression line, a little more nuance is surely appropriate. Dummy variables for Africa, Asia, and Latin America may point to overall regional effects, but leave the underlying structures and mechanisms that characterise them buried.

Accounting for cross-country heterogeneity necessitates a more focused approach, taking into account specific regional factors and characteristics.

Dealing with the "developing world" as a single unit is rather dubious in the first place. As William Easterly (2003) notes developing nations are incredibly heterogeneous. They include China and India, whose historical, institutional and cultural origins trace back thousands of years, but also African nations that suffered the consequences of slave trade and colonialism, and Latin American countries that have suffered from extreme inequality. A macroeconomic approach always relies to a certain extent on a generalisation and abstraction to discern

patterns and currents that may lead to the formulation of broader principles and recommendations. At the same time, delimiting the scope of study to certain areas that at least share a more discernable set of attributes provides for a more realistic framework and thus more space to draw conclusions. Before describing and justifying what this narrower framework will look like, a discussion of institutions and the rise of institutional economics is necessary. As luck would have it, that is what I turn to next.

2.2 Institutions

2.2.1 The History and Nature of the Discipline

Seminal contributions to the topic of institutional economics are those of Coase (1937, 1960). In an inquiry into the origins of the firm, Coase proposes transaction cost minimisation to show why actors don't search, negotiate, monitor and enforce contracts on their own but choose to submit to a hierarchical structure. Political institutions and the economic ones they determine are the most important factor in national and international transaction costs (Menard & Shirley, 2005, 4). The investigation into why different countries have different institutional mechanisms and how these affect incentives and the socio-political playing field is a crucial part of the field's analysis. Often grounded in rational choice or one of its sister theories, the analysis of the influence institutional constructs have in moulding private and public sphere incentives and their likewise enabling and inhibiting nature in the political or economic centres of action has yielded a diverse and expansive deliberative arena.

Although rooted in the neo-classical school with an emphasis on competition and scarcity, the so-called field of New Institutional Economics leaves behind many of its more abstract assumptions, such as perfect information, perfect rationality and the absence of transaction costs, and instead looks to understand human incentives as well as the beliefs, norms and rules that humans follow when pursuing their goals (Ménard & Shirley, 2012, 11).

Grappling with the concepts of competition, efficiency and change characterises much of the research in institutionalism, in both economics and political science. One important point is to come up with explanations of how institutions channel historical experiences into their hierarchies and modes of governance, and what outcomes these ultimately lead to (DiMaggio & Powell, 1991, 33). Diagnosing what affects whom, when and how is tricky. History matters,

as do belief systems and actors' interest in a given status quo. Information and learning, initial conditions and structural breaks need to be considered as well, all too often in intertwined ways (Keefer & Shirley, 2000, 104). Institutions matter, surely. Investigating incentives, structures and the channels that determine a country's given development path and how it might be improved on is one multifaceted part of institutional research that I will turn to next.

2.2.2 Comparative Development[1]

Before going into the empirical efforts of institutionalism, a brief definition of what they encompass is in order. Douglas North (1990, 3) defines institutions as "the humanly devised constraints that shape interaction. In consequence, they structure incentives in human exchange, whether political, social, or economic". They thus include formal rules and enforcement mechanisms as well as informal ones, which may back, supplant or contradict the former. Another way of defining them is as the social, political, legal and economic organisations that make up a society (Acemoglu & Johnson, 2005, 950).

One of the more basic difficulties of institutional theory relies on political institutions determining the level of property rights and contract enforcement. In addition to protecting such rights, governments can themselves be the biggest violators of property rights and contracts, the institutions singled out as key in reducing transaction costs (North, 1990; Weingast, 1995).

We can say that the most developed countries stand out in their protection of property and contracts. The coordination problem of keeping the political elite from acting against its short-run interests, which would lie in expropriation and rent-seeking as in part outlined by Weingast above, has thus been solved, if only in certain parts of the world (Alston & Mueller, 2005, 580). Why and how this state of affairs emerged remains disputed. Alston and Mueller (2005, 587) review the literature and present a case study of the Brazilian amazon, concluding that the development of and respect for appropriate institutions relies on the development of a set of beliefs by both the population at large and political elites that their interests will be best served in the long-run by adhering to the rule of law. The authors go on to argue that

[1] A version of Sections 2.2.2-2.2.5 and 2.3 appeared in Karabaczek (forthcoming), the author's other master thesis. These sections have been extensively edited, but similarities remain.

while this is likely to be relatively easy in stable times, difficulties are likely to arise in times of crisis.

What matters is that institutions that provide safeguards against the expropriation of private actors by the state have been strongly associated with critical junctures such as the industrial revolution happening in Britain instead of elsewhere, and the strong divergence between groups of countries that took off during the 19th and 20th centuries (North and Weingast, 1989; Knack and Keefer, 1997; Acemoglu and Robinson 2000). Before offering a brief summary of the institutional literature relevant for this thesis, two competing explanations will be given a brief mention.

2.2.3 Cultural Predetermination?

Culture, in the form of religion, norms and custom has been associated with diverging rates of development since at least Max Weber's famous 1930 thesis on the Protestant work ethic. He saw features of Protestantism, such as its adherents' view of the world, hard work and thrift as instrumental in the development of capitalism. Not that his work stands alone. In a nutshell, Véliz (1994) argues that its Anglo-Saxon heritage made North America rich and that South America is poor because of colonisation by the Portuguese and Spanish. Although attractive as a theory in certain circles, it is inconsistent with both the reversal of fortune of many countries over the last five hundred years and evidence from natural experiments such as North and South Korea and the division of Germany (Acemoglu et al., 2005, 413).

Conceptually, the link between culture and economic growth works through the different value, belief and preference systems social units hold dear. Institutions evolve through gradual processes, not insignificantly shaped by these systems, leading to institutional differences across countries (Acemoglu et al., 2005, 401). Culture on its own does not determine development. How else to explain that there were large amounts of Europeans that settled down in places like Argentina but only very few in Singapore and Hong-Kong, for instance. The home grown maturation of institutions also implies that just because they work well in one place in no way means they will do so in another. The imposition of European institutions on peoples and territories utterly unsuited for them will be taken up again shortly.

2.2.4 A Geographer's View

The most influential competing school of thought focuses on geography. Since it is responsible for a region's climate, disease environment, level of natural resources, transport costs and so on, geography is seen by Jeffrey Sachs (2001; 2014) and Jared Diamond (1997) among others as the key driver, or inhibitor, of development. Indeed, we can go back to Montesquieu, the famed 18th century French Philosopher, and find a slightly less politically correct formulation, to quote a passage from *The Spirit of the Laws:*

> The heat of the climate can be so excessive that the body there will be absolutely without strength. So, prostration will pass even to the spirit; no curiosity, no noble enterprise, no generous sentiment; inclinations will all be passive there; laziness there will be happiness […]… (Montesquieu, 1748 in Acemoglu, 2009, 133)

Context-free passages from an ancient book aside, the foremost reliance on geography comes with some cosmetic problems. Why do we still find substantial economic differences between neighbouring countries throughout the world? Sustaining the geography hypothesis becomes trickier still in light of the fact that tropical countries were on average richer than the western world in 1500, an observation also known as the reversal of fortune argument (Acemoglu et al., 2005, 413). A popular variant of the thesis focuses on the link between geography and the disease burden, which is much higher in the tropics than in temperate regions. Worse health thus leads to lower productivity and perhaps lower human capital accumulation. Yet one could reverse the argument and hypothesise that many developing countries are unhealthier than their rich counterparts because they failed to develop economically. After all, Europe in the 18th and 19th century was a cold, dark and infectious disease-ridden continent and it took economic development to gradually eradicate the ills that kept the vast majority of the population from the productive potential they have today (Acemoglu, 2009, 134).

2.2.5 Institutionalism

Keefer and Knack (1997) use an index indicating the risk of expropriation and relate it to GDP per capita using a large cross-country database. Shown as a scatter plot in Figure 3 below, their findings point to institutional factors as an important reason for the stark differences in

income levels between the West and the Rest. Hall and Jones (1999) use a similar methodology to explain the different output rates of workers across the world.

Figure 3 - Average protection against risk of expropriation 1985-95 and log GDP per capita 1995. *Handbook of Economic Growth Vol. 1A. 2005.*

Acemoglu, Johnson and Robinson (2001, 2002) mainstreamed institutionalism with their work on the colonial origins of development. The institutional invasion of the colonial world can be construed as a vast natural experiment that diminishes the (still sizable) risks of endogeneity and omitted variable bias. Instrumenting the mortality rates of colonial settler population for the current protection of property rights, Acemoglu et al. make the case that different economic institution are to root cause of modern day disparities between countries (Acemoglu et al., 2005, 419). Colonies are posited to fall into two categories. The first ones are those in which relatively large amounts of Europeans settled, the second those from which human and natural were extracted on a large scale. Territories that were comparatively disease-free, with comparatively small existing populations, such as North America, would be more likely to benefit from the (gradual) establishment of inclusive political and economic institutions. Disease-ridden areas with large original populations, on the flipside, were extracted from and subjected to institutions that restricted development and prosperity to all but an elite minority. Once political and economic institutions are accounted for in many econometric development models, variables like culture and geography lose their significance.

Nunn and Wantchekon (2011) investigate the effect of slave trade intensity on trust levels in countries affected by it. They find that those most affected by European and Indian slaving exhibit reduced degrees of modern social and familial trust. Their identification methodology leads them to conclude that slavery and the trans-Atlantic slave trade had the most pronounced impact through of informal institutions, namely cultural beliefs, values and norms.

La Porta et al (2008) look at the divergence in contemporary financial development, regulatory framework and legal institutions of nations, finding evidence of significant differences between colonies that were subjected to civil law on the one hand and common law on the other.

A number of other studies including Besley and Persson (2011), Boettke et al. (2005, 2008), Hodgson (1999), North (2005) and Ostrom (1990, 2005 have made further important contributions to this debate. An exhaustive review of the literature is, however, beyond the scope of this paper. Before I introduce the theoretical framework, the next subsection will provide an overview of the more specific literature dealing with aid, institutions and colonial legacies.

2.3 Colonial Legacies and Development

One interesting result of the study of Dalgaard et al (2004) discussed above is the outcome that aid appears to have been less effective in tropical areas than elsewhere. Dalgaard et al (2004) argue that there should be no inherent reason for aid to have lesser effects in the tropics, implying that the explanation must found elsewhere.

Perhaps the explanation was found as far back as a decade earlier. Douglas North (1994) posits that it is very difficult for one country to simply implement the formal institutional characteristics of another. Historic informal beliefs, norms and cultural values matter, both in the implementation of rules and their enforcement. He concludes that transferring Western legal and economic frameworks to the underdeveloped world may be a necessary, but far from a sufficient step for convergence (North, 1994, 366).

The study of the imposition of Western institutions and power structures on colonies has generated a number of important works in the political economy of development.

2.4 The Political Economy of Colonialism

Bates (2008) in a rather dispiriting account of African politics, uses basic game theory to investigate the poor institutional and development record in the Sub-Sahara. Political order persists, he claims (not unreasonably), when the governing elite's instruments of coercion are used to guard and generate wealth instead of extracting it, and the state's subjects come to terms with their adversity and devote time to leisure and wealth creation instead. Given such an equilibrium, political order forms a nation-state (2008, 5). In reality, economic trends and institutional heritages often incentivise elites to put short-term gains ahead of long-term wealth production in many African countries. The gains from predation can thus rapidly outweigh those from ensuring sustainable and long term development, leading to ever growing extraction from a shrinking surplus, which can eventually result in the descent into open violence and state failure (Bates, 2008, 97).

His work ties in with that of another scholar of African institutions and politics. Herbst (2000) deals with precolonial African states, specifically the stark differences in how power was projected in comparison to Europe (Herbst, 2000, 37).

The geography and demography of precolonial Africa's was very different from that of Western states during the state formation era. The scarcity of land relative to population in Europe was a key factor in the establishment of property rights, and with it the rise of the territorial state. Herbst notes that notions of power in Africa tended to revolve around people, not land. Huge swaths of territory with quite small, scattered populations meant that land per se was not that dear, helping to explain why property rights over it were not secured as rigorously as in Europe. Property rights over people, however, were systematically better defined than in the rest of the world, which, for better or worse, led to a thoroughly different institutional setup. The era of imperialism and European expansion managed to impose state models and ideologies that were radically different than the hitherto prevailing indigenous institutional constructs (Herbst, 2000, 38).

These two studies are relevant in establishing the nature of the chains of causality that link together institutions, development and the disbursement of aid monies. Using relatively simple frameworks, the authors demonstrate the weight colonialist architectures and legacies still carry in contemporary state structures.

2.5 Colonial Legacies and the Political Economy of Development and Aid

2.5.1 Indirect Rule makes for Underdevelopment

As will be brought up again shortly, solely concentrating on the period from the 1960s until today yields a rather small amount of information in terms of explaining growth outcomes. Taking into account colonial structures and institutions is one of the angles that has expanded the theoretical-empirical underpinnings of understanding cross-country differences in growth rates and outcomes.

In his 2004 paper *British Colonial Legacies and Political Development*, Matthew Lange posits that colonies subjected to greater extents of indirect rule by the British experienced worse post-colonial political development across the dimensions of governance, stability and rule of law. Lange begins with the Acemoglu, Johnson & Robinson thesis (2001, 2002), postulating that the division between extraction and settlement in colonial times shaped state institutions and thus development paths. He then attempts to add subtlety by introducing a more state-centred analysis of colonial legacies (Lange, 2004, 905). He introduces the distinction between directly and indirectly ruled colonies. The crucial distinction between the two is that direct rule involves an administrative structure in which formal rules and a centralized legal and administrative structure exists within the colony, with a chain of command linking different actors within a colony to the central structure and indirectly back to the colonising government, while indirect rule involves agreements between the colonial administration and tribal chiefs, which in turn implement the agreed upon rules.

Adding a bit of political theory, especially by the likes of Mann (1984) about a state's infrastructural and despotic powers, Lange goes back to settlement patterns but also the colonialists' ideological stance on government to explain the differences between British on the one side and French, Spanish and Portuguese territories on the other. His statistical

analysis is limited to 33 former British colonies that pass his various criteria (ibid., 908), arriving to a specification as follows:

$$Dependent_i = \alpha + \beta_1 Indrule_i + \beta_2 Settler_i + \beta_3 Precolpop_i + \beta_4 Africa_i + \beta_5 Ethnic_i + \beta_6 Plantation_i + \varepsilon_i$$ (Lange, 2004, My Adaptation)

Where the $Dependent$ Variable is a selection of governance quality indicators at the end of the 1990s, $Indrule$ the extent of indirect rule in 1955, $Settler$ the amount of European Settlers in 1955 and $Precolpop$ the pre-colonial population density. $Africa$, $Ethnic$ and $Plantation$ are control variables indicating whether a country is in Sub-Saharan Africa, is ethnically fractionalised or in a system dominated by plantations, respectively.

His results suggest a negative relationship between the dependent variable, Aggregate Governance at the end of the 1990s, and the extent of indirect rule, as measured in 1955, albeit with an N never topping 33 and just six additional independent variables. He repeats the exercise with other dependent variables, such as Bureaucratic Effectiveness, the Rule of Law and Political Stability (Ibid. 911-913) concluding that indirect rule can hinder governance by creating powerful local intermediaries and by limiting the reach of the state, which can limit the ability of the state to provide public goods. Indirect rule thus led to worse post-colonial outcomes, through the channel of fractionalising a state's ability to act coherently and as a centralised unit.

2.5.2 Direct Rule makes for Underdevelopment

Luis Angeles and Kyriakos Neanidis (2009) investigate the role of the local elite in aid effectiveness. They conclude that aid is more likely to be misdirected if the elite possesses a high degree of political and economic power and cares little for other social groups. Using a methodology derived from Acemoglu et al.'s work, they analyse the effect European settlement of colonial territories had on the attitude of local elites.

Both economists, they approach the subject through the more direct channel of aid's relationship with GDP: "Our main interest is to examine the growth impact of aid conditional upon the behaviour of the local elite" (Angeles & Neanidis, 2009, 122). Their proxy for the existence of an entrenched elite lies in the Settler Population data, which Lange also uses as

a covariate. Along with Aid, Settlers and further regressors, their key coefficient of interest is the interaction term Aid*Settlers, resulting in a base specification as follows:

$$g_{it} = \alpha + \beta_1 Aid_{it} + \beta_2 Settlers_{it} + \beta_3 (Aid * Settlers)_{it} + \sum_{j=1}^{m} \gamma_j X_{j,it} + \sum_{k=1}^{n} \delta_k D_{k,it} + u_{it}$$

where g_{it} denotes per capita GDP growth rate in country *i* at time t, Aid represents a measure of aid receipts, and Settlers is the percentage of European settlers in total population in colonial times for all aid recipient countries. $X_{j,it}$ is a vector of control variables that are commonly included in growth regressions and include the logarithm of initial income, an indicator of institutional quality, the fraction of land in the tropics, indicators of fiscal (budget balance), monetary (inflation), and trade (Sachs–Warner openness) policies, and a proxy for political instability. Finally, $D_{k,it}$ are the dummies controlling for regional differences (Sub-Saharan Africa and East Asia) (Angeles & Neanidis, 2009, 123).

A negative Aid*Settlers coefficient β_3 would thus validate their theory, which they duly arrive at after a host of robustness tests including some alternative specifications[2]. They conclude that geography, politics and history conspired to produce centralised elites harbouring economic and political power to the extent that they do not have to preoccupy themselves with the rest of the population. This occurred in places where a significant European population settled, though not as large as in "New Europe" countries such as the United States or Australia. These elites were subsequently able to subvert aid flows, either for their own economic gain or to fortify their political standing.

2.5.3 Direct and Indirect Rule make for Underdevelopment?

The results of the two sets of authors lead to some interesting questions, perhaps inconsistencies. On the one hand, a more dominant elite that would emerge from direct rule (which involved a significant number of immigrants taking over administrative structures) is blamed for misdirecting aid. On the other, when such an elite did not emerge, as was the case in indirectly ruled territories, the post-colonial political development fared worse on average. Whereas Lange investigates the effect of indirect rule on political stability, the rule of law and

[2] It is worth adding that their typical number of panel observations ranges from 417 to 449, with between 53 and 67 countries. This compares to a maximum number of observations of 33 in Matthew Lange's 2004 paper.

other institutional variables, it is not far-fetched to claim that aid efficacy would suffer through these channels as well. One could be tempted into rashness and dismiss Lange's hypothesis as the weaker one ex ante, given his number of countries that stretch the limits of statistical validity and frankly questionable selection of independent variables. Yet his reasoning process, just like Angeles and Neanidis', is attractive in a political economy sense. Rather than giving in to temptation, and with the literary background and potential contradictions in mind, the findings above make for an interesting research question, formulated in the following section.

3. RESEARCH QUESTIONS

3.1 (Under)development, Poverty and Context

As briefly mentioned in the introduction, knowing what aid can and cannot do is more than just a ponder-worthy question in general. The investigation requires an alignment with historical and institutional context. In this paper, context will be proxied by the two variables the authors above provided: a measure of the European settler population and the extent of indirect rule. The aim is to find out whether any of these can teach us something about the overall effectiveness of aid disbursements within a different aid-growth framework. The research questions boil down to what follows.

3.2 Research Questions

1. Is aid positively associated with per Capita GDP Growth over a period of 40 Years?
2. Does aid have a lower association with growth in more indirectly ruled countries?
3. Does aid have a lower association with growth in more directly ruled countries?

Given the interest in evaluating the association between aid and GDP per capita growth, the study will evaluate aid in up to 81 developing countries between the 1970s and 2010, with 5-year intervals.

4. THEORETICAL FRAMEWORK

The aim of this paper is to establish a link between the type of rule imposed by the British on their colonies and the effectiveness of foreign aid disbursement today. After a brief discussion of new growth models in general, a base model will be introduced to establish a link between aid transfers and per capita economic growth. In subsequent sections this will be expanded on to include interaction variables reflecting the degree of indirect rule the respective colonies were subjected to.

4.1 Old Growth, New Growth

No halfway thoughtful discussion of economic growth can get away with completely skipping the Solow model (or Solow-Swan model, to dish out credit where it is due). In its simplest formulation, the Solow model leaves aside the complications associated with having to consider different individuals, tastes, social roles, sectors and interactions etc. and focuses on a simple one-good abstraction of an economy with but a hint of individual decisions. (Acemoglu, 2009, 31-32). Despite its simplicity, its dynamic nature allows for an analysis of capital accumulation and technological progress, although the direct or indirect exogenous nature of most of the factors in the model reduces its potential for comparative analysis. It shows that without technological progress, sustained growth is not possible. Cross-country output differences can thus be discussed within that framework, but not the actual *growth* of countries. If technological progress is the driver of development, a closer look at the factors driving technological progress is needed (Acemoglu, 2009, 75-76).

Although extensions and variations of the Solow model soon began being churned out at swift pace, it took until the 1980s and models such as Romer (1986) and Lucas (1988) to convincingly make the case for influences beyond bland "technological improvement" to source economic growth. Such New, or Endogenous, Growth Models contend that development is in fact strongly influenced by components such as human capital, investment and so on. To put it more succinctly, they emphasise "that economic growth is an endogenous outcome of an economic system, not the result of forces that impinge from outside" in the words of Paul Romer (1994, 3).

These finally managed to make properly grounded claims on why some developing nations grow faster than others or why developed countries generally trade more with each other than with the undeveloped world (Romer, 1994, 20).

In his *Handbook of Economic Growth* chapter (2005, 1037), William Easterly reviews the growth literature, its empirics and the many shortcomings still faced by research efforts. He singles out six key variables singling out domestic policies that will in turn shape the base of this paper's growth framework. The variables are: Inflation, Budget Balance, Real Overvaluation, Black Market Premium, Financial Depth and Trade Openness. My model will thus include most of these, subject to availability and whether they make sense in the eventual model, along with including overall aggregate institutional variables and variables accounting for human capital formation and convergence, as well as a selection of interaction terms.

4.2 The Trouble with Growth Regressions

Before jumping into the discussion of how a plausible relationship between aid and growth might be theorised, it should be mentioned that a number of issues with and criticisms of growth regressions have been raised. One such criticism relates to the fact that dozens of explanatory variables have been found to be significant when included in a regression model, but the majority have found to be fragile or non-robust in the sense that their significance disappears when a different set of explanatory variables are included (Temple, 1999, 127-128).

Indeed, for there being such a vast amount of "legitimate" growth regressions out there, a surprisingly small handful will be completely the same. Summarised very generally, they nonetheless pursue two central questions:

1. What accounts for cross-country growth differences?
2. What accounts for growth differences over time? (Easterly & Levine, 2001, 180)

This is not to say that a quasi-consensus has not emerged in a number of fields. For instance, it is acknowledged that economic growth in the developing world is closely linked to the respective economic policies enacted, as argued by Sachs & Warner (1995), Easterly & Rebelo

(1993) or Fischer (1993), which in turn are heavily influenced by institutions, as outlined in Section 2 above. These findings do, however, come with some important caveats. For instance, data availability typically starts in 1960. Yet the correlation between per capita GDP in 1960 and per capita GDP in 1999 turns out to be 0.87. The majority of a country's relative performance must thus be attributed to factors that happened before the 1960s, meaning that cross-country studies focusing on the last forty to fifty years are rather ahistorical (Easterly, 2005, 1033-1034). Keeping such factors in mind, it remains that since economic aid is a concept only a little older than widespread, relatively standardised macroeconomic measurement, hope remains in the ability to formulate some general conclusions.

4.3 Theorising the Aid-Growth Relationship

One rather important missing piece in the aid-growth debate is the presence of a sound theoretical model that could lead to more convergence in terms of the specifications of the empirical frameworks. Chenery & Strout's 1966 two-gap model has been the standard reference underpinning support for aid projects for decades. The first gap lies between the level of investment required to reach a particular rate of growth and the domestic savings available, while the second gap arises due to a difference in the extent of production and foreign exchange earnings. At all times, one of these gaps is binding, with foreign aid transfers filling that gap (Easterly, 2003, 30).

The purported gap between investment needs and savings can be examined from a different perspective: how should aid transfers be split between investment and consumption? The answer to this then depends on the state of the economy. If it is held to be on its steady-state path, aid should go toward more consumption, not investment. This is because, in a stylised way, "the long run marginal product of capital is determined by structural parameters such as the discount rate and the depreciation rate, and these are invariant to the size of the transfer" (Temple, 2005, 4435). If it has yet to converge to its steady-state level, on the other hand, a given part of aid transfers should be used for investment in the capital stock so as to make for a speedier convergence and higher welfare (ibid.).

The investment-savings gap especially has wielded a persistent influence on the subsequent development literature. In its simplest of terms, the model purports that growth depends on

investment as a percentage of GDP, weighed by a factor characterises investment to be of high or of poor quality. Total investment is the sum of domestic savings plus aid transfers:

$$g = \frac{\left(\frac{I}{Y}\right)}{\mu}$$

Where

$$\frac{I}{Y} = \frac{A}{Y} + \frac{S}{Y}$$

And *I* is the necessary investment, *Y* is GDP, *g* the target growth rate, *A* aid transfers and *S* domestic savings (Easterly, 2003, 31)

Since I do not wish to dwell on it for too long, suffice it to say that it does not survive empirical testing too well. The model makes two important assumptions: Firstly, stable and linear relationship between investment and growth in the medium run and secondly that aid is largely used to finance investment, not consumption. Both are troublesome, to say the least. Easterly (2001) puts the model and assumptions to the test in two stages: does aid increase investment? Followed by does investment lead to growth? Only one country out of 88, namely Tunisia, passes both tests.

Despite the evident theoretical and empirical shortcomings, the financing gap model still retains influence, including in some notable World Bank and other IFI literature. The main reason is that the theoretical horizon lacks an appropriate contender to replace it. Given that the area of interest lies in the relationship between growth and aid, adding the aid variable to a robust economic growth framework grounded in growth empirics seems like a reasonable step to investigate whether it does indeed add explanatory power.

4.4 On Estimation Methods

The essence of empirical econometric studies lies not only in the investigation of relationships but also in their causal direction. Practically all aid-growth studies use classic Least Squares estimation along with Two Stage Least Squares and, more recently, General Method of Moments (GMM) estimation techniques. Whereas the latter two address reverse or simultaneous causality issues, they do suffer from some important shortcomings. Because they use lagged variables to instrument for the dependent variables, they need to make the

assumption that the lagged variables do not in fact enter the growth regression. Another problem is the consistent use of population size as an instrument, which implies that it is not related to economic growth. Clemens *et al* (2011) examine the instrumental variable approaches of the most influential papers and come to some troublesome conclusions. The vast majority of the instrument set's power rests on population size alone, which casts doubt on the instrumental variables approach. There are a number of theoretical reasons suggesting a relationship between population and growth, which would invalidate this variable as an instrument (Clemens et al, 2011, 596-597).

Similar concerns engulf GMM aid-growth estimations, where alternative robustness checks reveal instrumentation to be extremely weak (where it can be tested), and thus as potentially biased as a basic OLS framework (Clemens et al., 2011, 597). Nonetheless, since problems of causality attribution and endogeneity are rather pressing, GMM will also be estimated as a further robustness test.

4.5 Summing Up

Having briefly discussed the evolution of growth empirics, its ongoing issues and the link between aid and GDP per capita growth, we can turn the page to the next section, this paper's methodology.

5. METHODOLOGY

This section will discuss the reasoning behind this paper's methodology, hopefully to the reader's satisfaction.

5.1 Effects, Lagging and Decomposing

A lot of aid transfers are tied to projects that have more of a medium-run impact rather than a short-run one. Examples include investment in health and education, but also certain kinds of productivity-enhancing infrastructure spending. It therefore makes intuitive sense to look at the effect such projects, transfers and payments have a certain time *after* they happen. Not implying that this approach comes without a certain amount of trouble and uncertainty.

As highlighted by Clemens et al. (2011, 7), the aid-growth literature (one could argue the entire growth literature) is plagued with questions over what time intervals to select. Long intervals allow for the identification of long term growth effects and changes in country characteristics, but "but require cross-section estimators plagued by limited degrees of freedom, reverse causation, and simultaneity bias from omitted variables" (ibid.). Short intervals, on the other hand, reduce the bias from omitted variables that change slowly over time. Specified with country effects, estimators can be entirely cleared of omitted variable bias from time-invariant attributes. Yet, the shorter the periods, the more we can quote Barro (1996, 27) as "the model likely missspecifies the timing between growth and its determinants" and will be afflicted by measurement errors. This paper's model uses five year intervals, with aid lagged accordingly. This is a compromise between some approaches that have used rather short (three year) and rather long (7 year) intervals. As will be shown in the results part of this thesis, the five year specification works quite well.

Additionally, the panel least squares specification includes country fixed effects, which allows one to remove country-specific unobserved heterogeneity from the data. There are of course multiple issues with this approach, which will be discussed in more detail shortly.

After reviewing the literature carefully, the author came to the conclusion that this approach not only best suited his interest in the topic but also provided for the most robust methodology for this particular type of study. Further endorsement is found in Ardnt, Jones

and Tarp (2014), who combine aid data with a new growth framework that includes investment, consumption, government revenues and other such indicators thought to be associated with economic progress.

In contrast to Clemens et al. (2011), I do not disaggregate aid disbursements to reflect whether they are considered "early impact" transfers or could potentially cause some structural shifts. The reasoning behind this decision is twofold: first of all, developing country data are of poor quality in the first place; dividing them up further can only increase shortcomings that are already present. Second, transfers may work their way into income gains through a variety of channels. These may be understood in theory, but the real world has a mind of its own. Although aid may be intended for a given sector, Arndt et al (2013) suggest that such aid may have indirect effects on other sectors. One example being that aid intended to improve education outcomes, may result in health-related benefits.

Finally, since the OECD's disaggregated aid data they rely on only reaches back to 1990,[3] Clemens et al. had to assume that the fraction of aid going to certain sectors was the same in the 1970s and 1980s as it was in the 1990s and 2000s. Their approach certainly has merit, and the assumptions required aren't that far-fetched[4], though the approach does come with some plausibility concerns. Aid projects have after all evolved over the last 40 years, and what an organisation thought worthwhile in 1975 may be very different in 2005.

For these reasons, I leave the Net Aid Transfers variable intact, hoping to learn more about overall effectiveness than potentially misleading disaggregated effectiveness.

5.2 Panel Fixed Effects

Panel fixed effects estimation[5] is wildly popular in cross country studies. It can account for unobserved heterogeneity among countries, eliminating potential bias caused by omitted variables that do not change over time, even if these are correlated with the explanatory

[3] And doesn't cover all recipients until 2002

[4] To quote: "It is not easy to posit a model of donor behaviour that would lead donors who commit their aid mostly for roads – consistently over several years – to then consistently disburse aid mostly for schools, or *vice versa*" (Clemens et al., 2011, 599. Original emphasis).

[5] Random effects were strongly rejected by a Hausman test. Further, in all of the fixed effects results in the next section, the null of redundant fixed effects was dismissed at the 1% level.

ones. It thus makes panel methods more robust, albeit at the cost of higher standard errors since between-country variation is ignored (Durlauf et al. 2005, 629-630). The removal of bias on one end thus has the unwelcome effect of removing the between variation on the other.

The model takes the following form:

$$y_{i,t} = \beta' X_{i,t} + \alpha_i + \mu_t + \varepsilon_{i,t} \qquad i = 1, \dots, N \; and \; t = 1, \dots, T$$

Where *T* is the time period and *N* the selection of countries. $y_{i,t}$ is the dependent variable, β a $K \times 1$ vector and $X_{i,t}$ stands for the i, tth observation of K, the latter denoting the number of observations in the sample. α_i accounts for the country specific fixed effects, which do not change over time. μ_t in turn denotes unobserved period effects, which do not change across countries. $\varepsilon_{i,t}$ is the error term (Durlauf et al. 2005, 628).

To make sure the results are not just the product of some of the issues addressed above, GMM estimation will serve as a test of robustness.

5.3 General Method of Moments

The difference GMM estimator was showcased by Arellano and Bond (1991), who based their work on Holtz-Eakin et al's 1988 contribution (Durlauf et al. 2005, 632). The method employs first differences to remove unobservable individual-specific effects and uses lagged levels of the series two periods and earlier to deal with the resulting endogeneity that arises due to a correlation between the first differenced lagged dependent variable and the first differenced error term.

It is an attractive dynamic method to account for potential bias caused by measurement error and endogeneity, yet the lagging of variables that may have explanatory far down the line does present some problems, especially in growth regressions. According to Bond et al., (2001, 3), the use of the GMM estimator may be problematic in cases of relatively small numbers of time periods. Specifically, Blundell and Blond (1998) demonstrate that in such cases the estimator may suffer from a large downward bias. . Additionally, the first-difference estimator has been shown to have lacking finite sample properties, which occurs when the lagged variables are not highly correlated with the first-differences that follow them. The first-difference instruments would be weak in this case (ibid.). Since this paper uses five year

intervals over a timespan of only 40 years, the results need to be considered with a particular hint of caution.

With the methodology presented, along with some of the problems associated with it, we can turn to a discussion of this study's data.

6. DATA SOURCES AND VARIABLE DESCRIPTION

All datasets were downloaded from publically accessible sources and converted into a panel workfile using IHS Global Inc's Eviews Statistical Software, Versions 7 and 8.

6.1 Variables, Definitions and Sources

The base model's dataset comes from a selection of sources:

Variable Name	Definition	Data Source
GDPPCPD	GDP per capita growth at purchasing power parity	The World Bank (2013)
INFL	The log of (1 + the inflation rate)	The World Bank (2013)
M2L	Broad Money (M2), lagged one period	The World Bank (2013)
LINIGDP	The log of initial GDP per capita in each period	The World Bank (2013)
LSCH	The log of years of schooling	Barro & Lee (2013)
FCAPF	Fixed Capital Formation as a percentage of GDP	The World Bank (2013)
LPOPCH	The log of population change	Barro & Lee (2013)
SAV	The savings rate as a percentage of GDP	The World Bank (2013)
OPENK	Imports plus exports as a percentage of GDP	The Penn World Tables
P2	Institutional Variable indicating whether a country is more democratic or more autocratic	The Polity IV Project
NATGDPL	Net Aid Transfers as a percentage of GDP, lagged one period	Roodman (2013), The Center for Global Development

Figure 4 - Variable Descriptions and Sources

6.2 Descriptive Statistics

The dependent and the independent variables are summarised below, see above for data sources and variable descriptions.

	GDPPCPD	INFL1	M2L	LINIGDP	LSCH	FCAPF	LPOPCH	SAV	OPENK	P2	NATGDPL
Mean	1.881727	3.262654	38.27737	7.843464	1.558963	21.35776	0.126701	15.80321	69.29089	11.79296	6.033571
Median	1.851028	3.123700	31.25873	7.932850	1.672409	20.55329	0.131023	15.53153	57.78300	14.00000	2.670618
Maximum	10.80460	9.258040	158.9773	10.07004	2.415914	65.93127	0.444591	64.34554	420.8480	20.00000	75.73313
Minimum	-7.445575	-0.041705	5.628394	5.787603	-0.478036	3.958172	-0.268156	-77.21133	1.894000	0.200000	-0.074083
Std. Dev.	3.037569	1.133233	24.03221	0.934018	0.548162	6.949074	0.053772	15.35518	50.69401	6.154352	9.122922
Skewness	-0.049074	1.535395	1.851386	-0.080816	-1.073926	1.522781	-0.727683	-1.033216	2.715222	-0.324458	3.111070
Kurtosis	3.449937	8.836001	7.333460	2.059671	4.084536	9.683589	13.53291	9.383453	16.07169	1.628625	16.92323
Jarque-Bera	3.764362	771.9239	576.6868	16.15860	102.7633	957.5381	2006.819	799.0804	3556.371	40.85624	4128.142
Probability	0.152258	0.000000	0.000000	0.000310	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	801.6158	1389.890	16306.16	3341.316	664.1181	9098.407	53.97443	6732.169	29517.92	5023.800	2570.301
SumSq.Dev	3921.400	545.7926	245457.6	370.7657	127.7046	20523.09	1.228863	100207.2	1092200.	16097.32	35371.78
Obs	426	426	426	426	426	426	426	426	426	426	426

6.2.1 The Net Aid Transfer Variable

Usually, Net Overseas Development Assistance (Net ODA) is used in aid-growth studies, but there are some rather important differences to Net Aid Transfers, or NAT. First, where Net ODA is a capital flow concept, comparable to Net Foreign Direct Investment, NAT is a net transfers concept. That is, where Net ODA is net only of principle payments received on ODA loans, not of interest received on such loans, NAT is net of both. NAT also excludes the cancellation of certain loans. For example, a 2003 Paris Club agreement cancelled some $5 billion of the Democratic Republic of Congo's debt, and that cancellation is counted as ODA, but since it generated no additional net transfers, it is not NAT. As a result, the DRC received $5.4 billion in ODA in 2003 but only $400 million in NAT (Roodman, 2013). It is all in all it represents a more plausible conception of aid transfers that more accurately measures the funds *actually* disbursed.

In pictures, the unabridged NAT is distributed as follows:

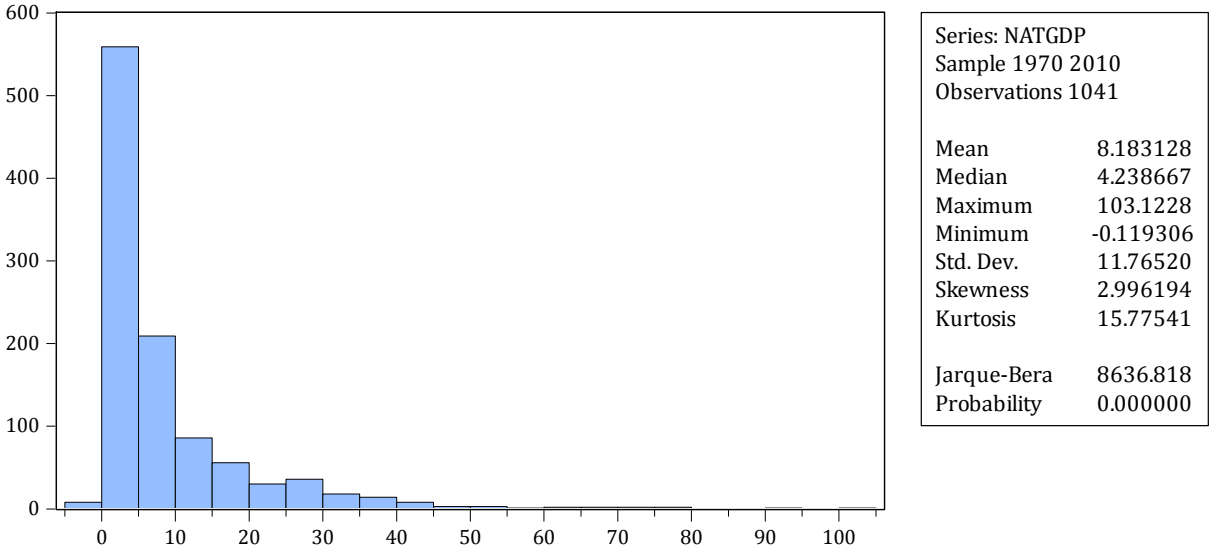

Figure 5 - NAT as a Percentage of GDP Histogram, Roodman, 2013, My Depiction

With a mean of 8.18% and a median of 4.23% of GDP. The maximum value is extremely high at 103.12% of GDP, attributable to the Solomon Islands in the early 1970s. I will discuss such outliers in more detail on the forthcoming pages. The next figure shows the median amount of Net Aid Transfers received by countries, in five year averages:

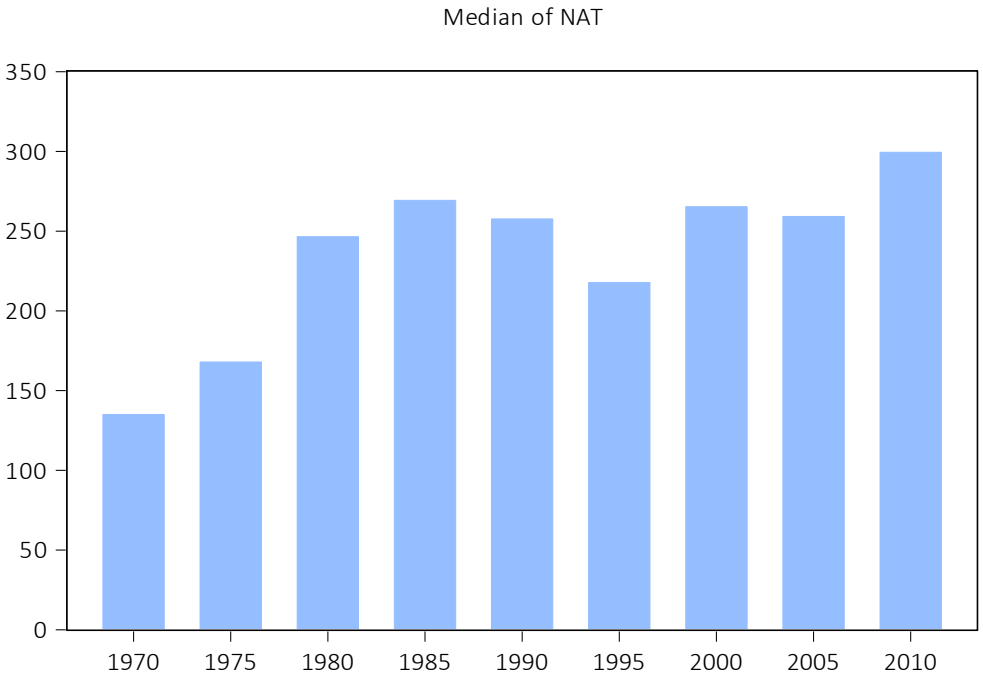

Figure 6 – Median of NAT. Roodman, 2013, My Depiction

And for better interpretation, here as a percentage of GDP:

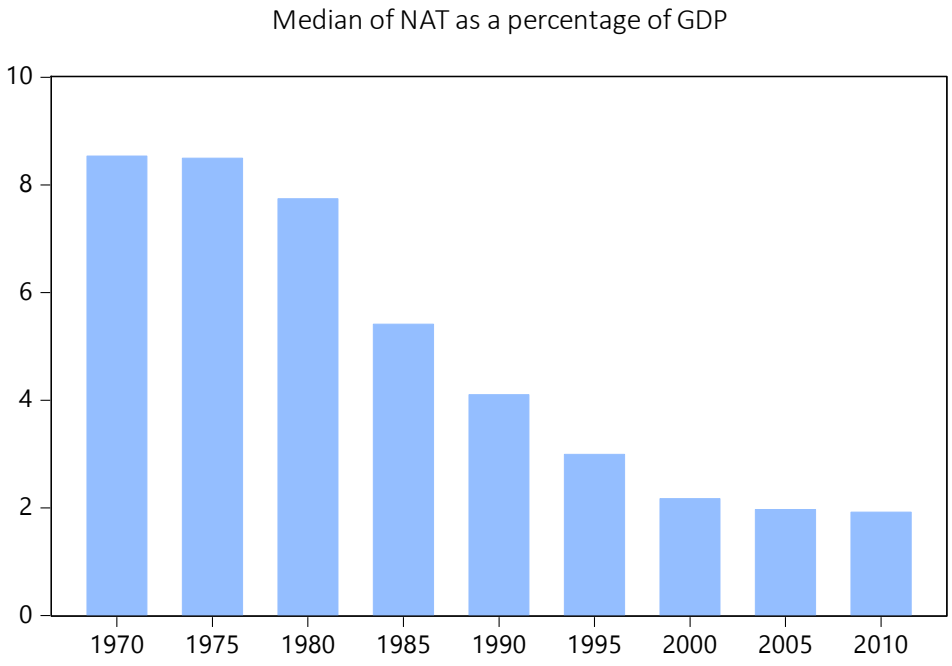

Figure 7 – Median of NAT as a percentage of GDP. Roodman, 2013, My Depiction

Even though Net Aid Transfers have not moved that much in real dollar terms since the 1980s, their proportion as a percentage of GDP has plummeted, from a median of 8.5% in the 1970s to just about 2% in the brave new millennium.

6.2.2 Growth, Institutions et al.

GDP growth per capita (GDPPCPD) is the five year period average growth per capita per year at constant prices:

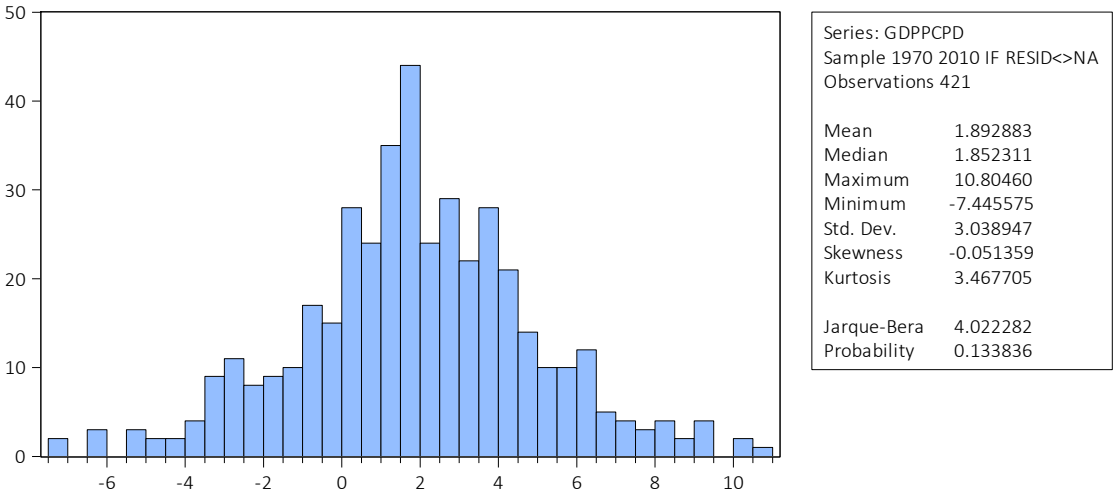

Figure 8 - GDP per Capita Growth Histogram, The World Bank, 2013, My Depiction

The range stands at -7.45% to 10.8%, resulting in a mean of 1.89% and close median at 1.85%. The largest contraction is recorded in Niger in the 1980s, not the best of times in that region of the world. The maximum five year average is attributable to China in the 2000s. Such extreme values will be discussed, but suffice it to say that they do not drive results in any of the models.

Inflation (INFL) ranges from 8.26% to -1% in my sample, with extreme values seemingly balanced out by the 5-year average but also because I did not use the Consumer Price Index as a control variable, which would have driven the maximum value to a lofty 1,667%. Instead, the mean of inflation stands at 2.2%, the median at a close 2.14%. The mean Broad Money (M2L) value rounds down to 37% of GDP, with a median of 30.7%. The range tops out at 159%, with a minimum of just 5.6%.

Imports plus exports as a percentage of GDP (OPENK) clocks in with a mean of 68.9% and a median of 57.5%, serving as a measure of openness to trade, and of the economy as a whole. The savings rate as a percentage of GDP (SAV) gives an indication of the amount available to investment. Its developing world average of 15.9% (and median of 15.7%) lies between a

maximum of 64.3% and a minimum of -77%. The latter pertains to Lesotho during the 1980s, not exactly a kind time for the country.

Fixed Capital Formation (FCAPF) as a percentage of GDP lies between 65.9% and just about 4%, arriving at a mean of 21.5% and corresponding median of 20.8%.

The logged initial GDP per capita per period (LINIGDP) serves as a measure of convergence, the logged years of schooling as a measure of human capital (there was no difference between this measure and years of secondary schooling only). The log of population change, like years of schooling calculated using the Barro & Lee 2012 dataset, is included as an additional control.

Finally, the measure for institutions is given by the Polity2 variable, adapted and rescaled from the Polity IV Project's database. The variable takes a value along a scale swinging from 0 to 20. Countries scoring between 0 and 10 points are considered autocracies or otherwise ruled by authoritarian regimes. Those in the 10-20 range are considered more and more democratic, with values close to 20 indicative of strong, inclusive representative democracies. As we can see, the 1980s-2000s have seen a shift toward more political inclusion:

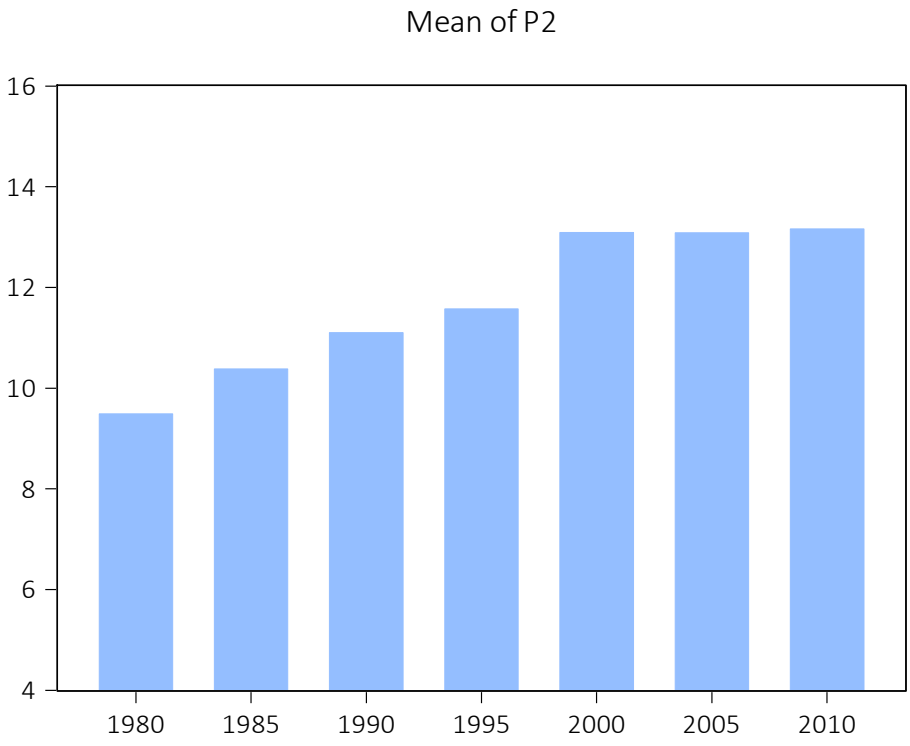

Figure 9 - Average Polity2 Score, 1980s-2000s, Polity IV Project, 2013, My Depiction

Though we also observe that over the last decade, stagnation has been the rule. Completing the descriptive circle, we have:

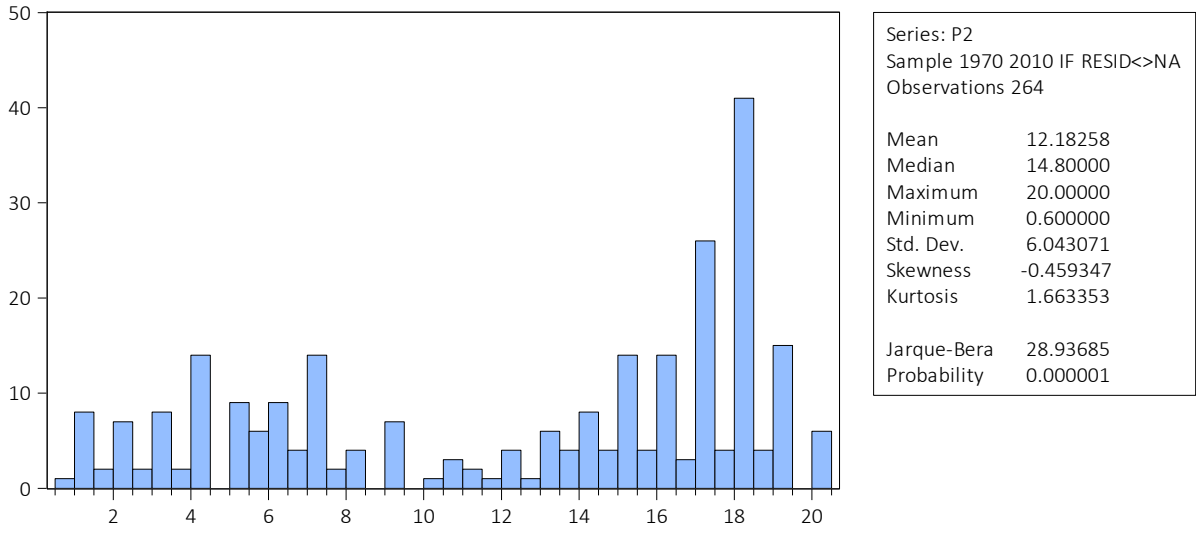

Figure 10 - Polity2 Histogram, The Polity IV Project, 2013, My Depiction

A mean of 12.2, which is vaguely democratic and a median of 14.8, which starts resembling a democracy under Western ideals, characterise the sample.

6.2.3 Extensions

The two variables that will be included in the extended regressions are the measure of indirect rule as well as that of the settler population. They thus merit a little discussion of their own.

The settler population (as a percentage of total population) looks as follows as an individual sample:

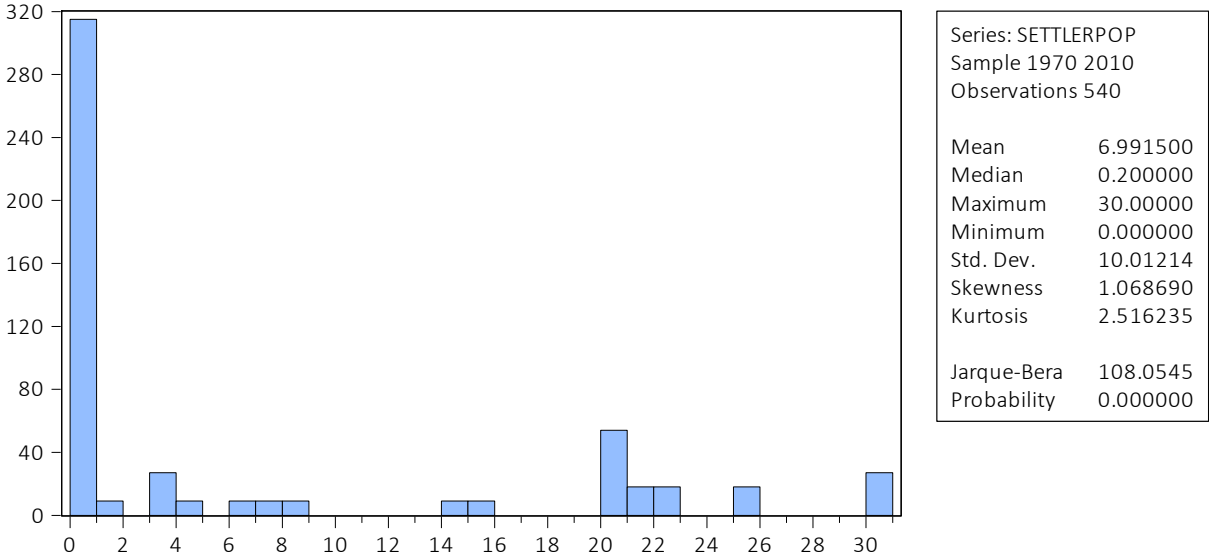

Figure 11 - Settler Population as a percentage of total population, Angeles & Nianidis, 2009, My Depiction

The majority of countries were not settled to significant extent, which of course makes sense

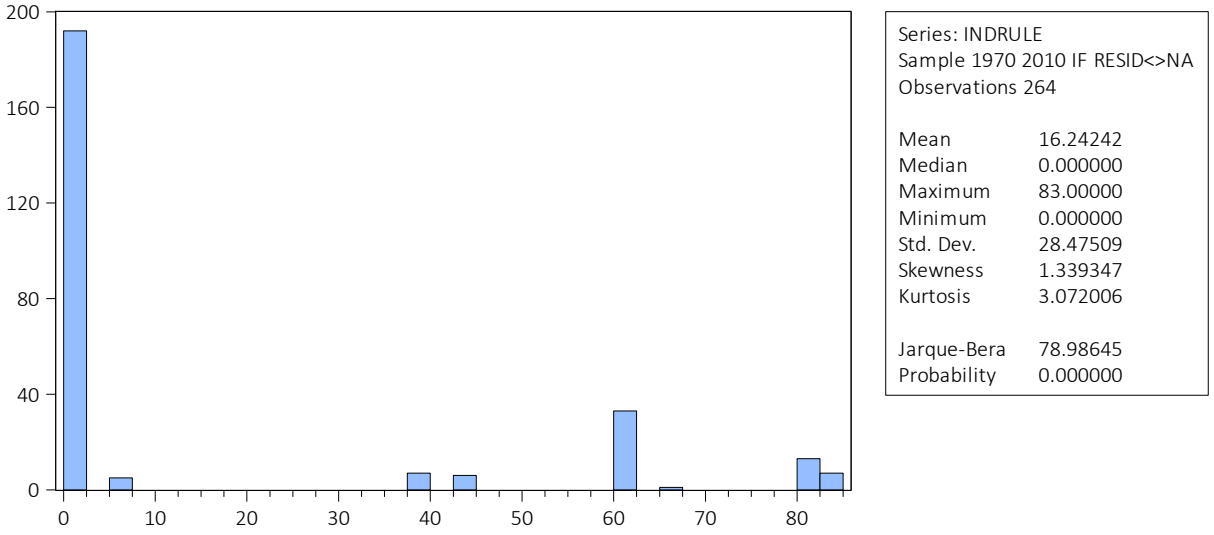

Figure 12 - Indirect Rule Histogram, Lange, 2004, My Depiction

in historical terms. Still, the mean stands at 7% due to a number of countries that were indeed quite heavily frequented, as we can see from the maximum of 30% of total population. The median duly stands at just 0.2%. In terms of the measure of independent rule, a similar picture emerges:

With a median of 0, a mean of 16.2 and a maximum of 83. A value of 0 indicates direct rule, which applied to the vast majority of colonies, a value of 1 indicates completely indirect rule.

7. THE MODEL AND RESULTS

The econometric model put together with the variables above is robust to the inclusion of further or alternative variables from different sources. The list of countries can be found in the appendix.

7.1 Regresssion Model and Results

The base regression can thus be stated as follows:

$$GDP\ per\ Capita\ Growth_{it} = \beta_0 + \beta_1 Inflation_{it} + \beta_2 M2_{it} + \beta_3 Schooling_{it} + \beta_4 Initial\ GDP_{it} + \beta_5 Fixed\ Capital\ Formation_{it} + \beta_6 Savings_{it} + \beta_7 Population\ Growth_{it} + \beta_8 Openness_{it} + \beta_9 Polity2_{it} + \beta_{10} Net\ Aid\ Transfers_{it} + \alpha_i + \mu_t + \varepsilon_{it}$$

Which will be expanded with the according extensions, including non-linear and interaction terms below.

The first set of results are presented overleaf, with a round of discussion:

Dependent Variable: GDP per Capita (PPP) Growth

Variable	OLS (1)	OLS (2)	OLS (3)	OLS (4)	GMM(1)
Constant	29.02***	27.44***	33.45***	26.00***	
GDPPCG (-1)					**-0.2*** **
Inflation	-0.452***	-0.424***	-0.529***	-.406***	**-0.5*** **
M2	0.0078	0.005	0.0044	0.006	**-0.014**
Schooling	-2.902***	-2.636***	-2.47	-2.576***	**-2.11***
Initial GDP	-3.34***	-0.322***	-3.531***	-3.103***	
Fix. Cap. Form.	0.086***	0.085***	0.043	0.079**	**0.132*** **
Savings rate	0.0754***	0.072***	0.079***	0.072***	**0.079*** **
Pop Change	-4.61	-5.04	-6.18	-5.42	
Openness	0.0162***	0.016***	0.016*	0.017***	**0.013**
Polity2	0.044*	0.045*		0.041*	
Institutions			1.49*		
NAT/GDP	0.0473**	0.128**	0.192**	0.333***	**0.184** **
(NAT/GDP)^2		-0.0015*	-0.005**	-0.0076***	**-0.002**
Obs/Countries	426/81	426/81	336/76	421/81	292/76
Adj. R^2	0.54	0.55	0.50	0.56	
AR(1) Test					0.0037
AR(2) Test					0.7337

Significance: .1 (*); .05 (**); 0.01(***). Instrumented variables are in bold lettering. In OLS (4), five outliers were removed. It should also be noted that Period Dummies were used in all GMM estimations and that they were excluded from transformation. The AR(1) and AR(2) test results are p-values for the Arellano-Bond Serial Correlation Test.

Figure 13 - Base Model Results

7.1.1 OLS (1)

The variables have the expected sign in the base regression. Inflation is negatively associated with GDP per capita growth, and significant at the 1 percent level. Lagged Broad Money M2 has a slightly positive sign, but statistically it is not significantly different from zero. Years of schooling, Initial GDP and population growth are all negative, although only former two with statistical significance. Fixed Capital Formation and the Savings Rate are both positive and get three stars of significance, as does Openness. So far, the regression results confirm the vast literature on cross-country growth empirics. The more interesting parts, institutions and aid transfers, are encouraging as well.

Our Polity2 index is arguably significant, albeit only at the 10 percent level. Net Aid Transfers as a percentage of GDP fares better, beating the 5% threshold most people hold quite dear. With 426 observations from 81 countries from the 1970s to 2010, lagged aid transfers have a positive association with GDP growth per person in a regression that seemingly captures 54% of the variation in the data.

7.1.2 OLS (2)

The second column includes the square of our NAT variable, which is significant in nearly all configurations (at the 5% or 10% level, depending on which) and negative throughout. This indicates a turning point of aid as a percentage of GDP, after which the relationship turns negative. This can be explained in a common-sense "there is such a thing as too much aid" way, but also in terms of some deeper thought. Maybe aid ends up crowding out private investment or restructures incentives in favour of short-term consumption and to the detriment of productive potential. Maybe it plays a part in causing Dutch Disease. In any case, we can come up with a very simple test to see where the relationship reaches its tipping point. In our full sample, a Wald test indicates that it is reached at around 41%, which is quite high.[6] The inclusion of the squared aid term is consistent with a number of recent approaches in the literature and, since the results above are in line with other empirics, this author opted to keep it in for the remaining regressions.

[6] The literature puts the range at around 15-30% (Clemens et al., 2011), a result we obtain when removing outliers (more on which shortly).

7.1.3 OLS (3)

The Polity2 index is more of an aggregate *political* variable, indicating where a country fall on a scale of "perfect" autocracy to "perfect," inclusive and representative democracy. Since the democracy-growth debate is far from over, it should be made sure the model's results aren't driven by an unsuitable and bias index. Here the Polity2 index is substituted by an aggregate institutional variable[7], which covers the period 1990-2010. The Net Aid Transfer coefficient increases markedly to 0.29, but the sample is reduced to 336 observations. Cutting the period to 1990 to 2010 may involve some structural shifts, such Structural Adjustment Programmes that swept through many developing countries starting in the early 1980s and more broadly the demise of the Soviet Union.

7.1.4 OLS (4)

It is time to check whether these results are primarily driven by outliers. Proceeding simply through inspection (which came to pretty much the same result as a more sophisticated approach), the obvious candidates to remove from the sample are extreme values. A country that is either recovering from a major disaster or plunging into one may not have powerful lessons to teach to "regular" developing countries. Similarly, countries that have had episodes of an Aid/GDP ratio over 50, 60 or even 80 percent do not necessarily say much about a figure whose median stands at roughly 4.2%. In general, the data is fairly clustered:

[7] Called the *World Institutional Quality Ranking (WIQR),* it is a composite measure of countries' economic, legal and political features, scaled from 0 to 1 (Kuncic, 2014, 2)

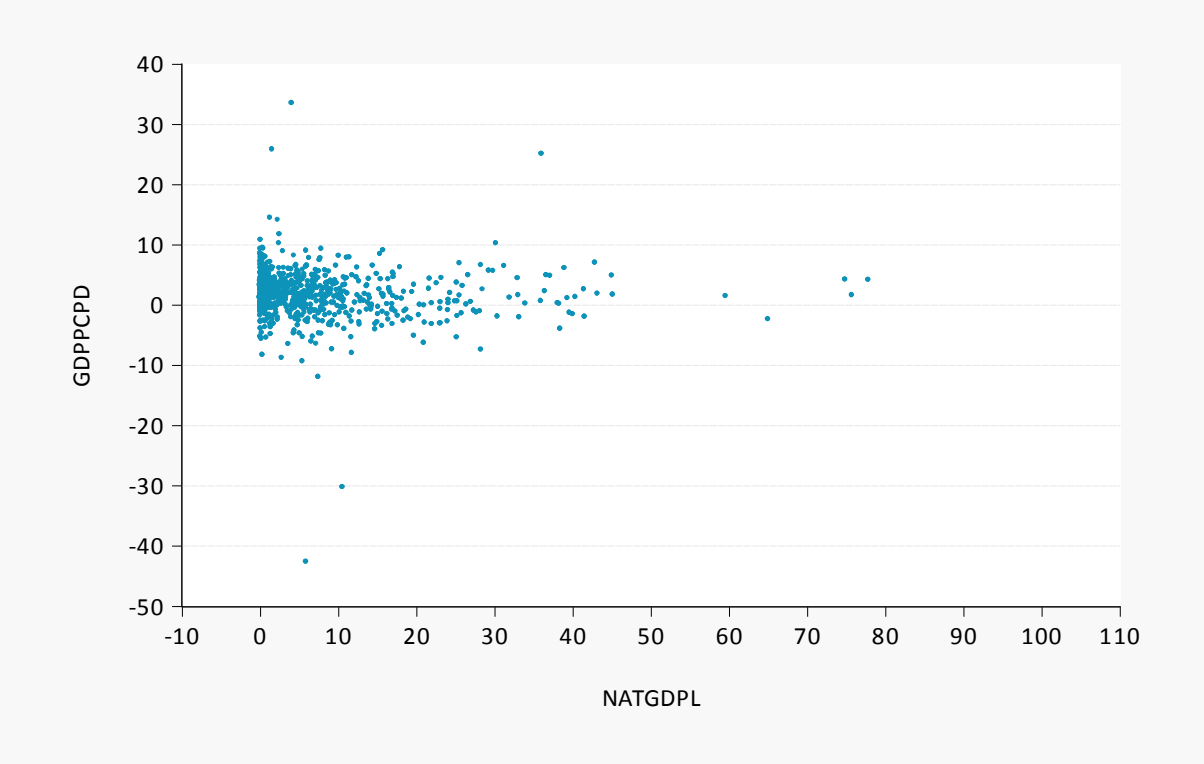

Figure 14 - GDP per Capita Growth and Net Aid Transfers, lagged.(N.B. this is the full sample. The regression sample differs) See above for source. My depiction.

By graphing the data we can look for either abnormally strong growth episodes (an average of more than 10 percent a year over five years) or deep contractions (an average of less than -10 percent a year over five years). Additionally, it shows us that some countries (e.g. Mauritania or Jordan in the 1980s had extremely high Aid to GDP ratios. In Jordan's case, for instance, the massive influx is associated with the Israel-Lebanon war in the early 1980s, which caused humanitarian and refugee aid moneys to multiply manifold over a period of a few years. In any case, whether the (admittedly arbitrary) cut-off point of Net Aid Transfers is set to 20, 30 or 40% of GDP does in fact not impact the results by more than a decimal place (This author decided to set the maximum NAT value at 40 percent of GDP[8]).

Excluding these extreme values that are highly unlikely to be sustainable brings us to the fourth column above, OLS (4). The Net Aid Transfers coefficient increases to 0.333 and turns

[8] Which leaves 97.4 percent of the sample intact.

significant at the 1% level[9]. The validity of removing outliers can be debated at will, but since we only wished to make sure they weren't driving the aggregate results, this becomes a moot point.

7.1.5 GMM

The General Method of Moments is an alternative instrumental equation method, "which has been deemed superior to 2SLS" (Angeles & Neanidis, 2009, 126). Time invariant factors are differenced away, and potential endogeneity controlled for with the lagged levels of these variables used as instruments (ibid.). Reported in column GMM (1) above, the results are more or less consistent with the standard panel least-squares model. The National Aid Transfer coefficient stands at 0.18 and remains significant at the 5% level. The results are encouraging insofar as they do not contradict the standard fixed-effects OLS framework and account for potential endogeneity. However, there is evidence of second order serial correlation, which is less encouraging.

7.1.6 Aid and Growth Summarised

The positive association of aid with GDP is fairly robust. When the Polity2 variable is replaced by a composite institutional index (unfortunately only available from 1990-2010), the coefficients do change, but actually by becoming stronger. The same applies if outliers are removed from the sample.

The GMM specification reduces the coefficient somewhat. Yet, the difference approach reduces the timespan to the late 1980s-2010 and 291 observations, while still showing a positive relationship. The GMM model itself is not terribly robust, but it corroborates the OLS fixed effects results well enough.

All in all, *ceteris paribus* (a qualification best pronounced in Latin to underplay the extreme assumptions it implies) aid transfers are associated with higher per capita economic growth in a subsequent 5-year period, a result that is statistically significant and robust with respect

[9] If we exclude NAT values higher than 20 percent of GDP, the coefficient becomes 0.322, significant at the 5% level with a p-value of 0.0169. All other coefficient remain more or less the same. The 10% threshold yields similar results

to standard errors and different configurations. The findings are also in line with some results in the literature, though as just mentioned putting too much faith in the particular magnitude of an Aid coefficient is unlikely to be a particularly productive exercise. So far, I have reasonably confidently established that lagged aid is positively associated with GDP growth, using an OLS framework and GMM estimation to check for robustness.

It is important to keep in mind that this is an average result and does not pronounce anything too meaningful about individual country experiences. These experiences do, however, tend to include one or another form of relationship with a former colonial power. This is what I proceed to introduce and discuss in the next section.

7.2 Settler Population and Indirect Rule

If we recall previous sections, we arrived at this point to find out whether a political scientist (Lange) or two economists (Angeles & Neanidis) had come to conflicting, complementary or non-reproducible conclusions. This section includes their variables of interest in the aid-growth framework developed in the above section.

7.2.1 Including a Measure of Indirect Rule

The measure of indirect rule, described in the Data section above, ends up encompassing 78 countries from 1970 to 2010. As it is an unchanging variable in a fixed effects model, it needs to be interacted with something else. Luckily, we are interested in its interaction with aid. The resulting coefficients are labelled NAT*INDRULE in the results table below. To support Lange's conclusions, the coefficient should be negative and significant.

7.2.2 Settler Population and Aid Efficacy

The Settler population variable also enters the model through an interaction with Net Aid Transfers and is labelled NAT*SPOP. In order to confirm the authors' hypothesis, the coefficient should be negative and significant, providing evidence that a higher concentration of central elites has a pronounced negative effect on the aid-growth relationship.

7.2.3 Results

Dependent Variable: GDP per Capita (PPP) Growth

Variable	OLS (5)	OLS (6)	OLS (7)	OLS (8)	OLS (9)	GMM(2)	GMM(3)
Constant	27.48***	27.42***	25.6***	24.35***	25.14***		
GDPPCG(-1)						**-0.21*** **	**-0.21*** **
Inflation	-0.423***	-0.427***	-0.358***	-0.387***	-0.37***	**-0.13**	**-0.17**
M2	0.0055	0.0052	-0.001	0.001	0.002	**-0.021**	**-0.052*** **
Schooling	-2.639***	-2.624***	-3.335**	-3.487 ***	-3.32***	**1.34**	**4.7*** **
Initial GDP	-3.227***	-3.22***	-2.836***	-2.65***	-2.78***	**-3.23*** **	**0.47**
Fix. Cap. Form.	0.0855***	0.085***	0.0733**	0.071**	0.077**	**0.038**	**-0.28**
Savings rate	0.07***	0.072***	0.085***	0.089***	0.087***	**0.06***	**0.06** **
Pop Change	-4.94	-5.04	-1.116	-1.983	-2.62	**7.85**	**13.2*** **
Openness	0.0163***	0.0164***	0.0192***	0.0199***	0.0194***	**0.023** **	**0.016**
Polity2	0.045*	0.046*	0.0235***	-0.001	0.0327	**0.047**	**0.1** **
NAT/GDP	0.132**	0.129**	0.359**	0.382***	0.375**	**1.34*** **	**1.54*** **
(NAT/GDP)²	-0.0015	-0.0015*	-0.004	-0.009	-0.009	**-0.036*** **	**-0.043*** **
*NAT*INDRULE*	-0.0002		-0.0027*			**-0.0072*** **	
*NAT*SPOP*		-0.0027			-0.011		**0.027** **
*P2*INDRULE*				0.0021***			
Obs/Countries	426/78	426/78	372/78	372/78	372/78	266/74	225/67
Adj. R²	0.54	0.54	0.58	0.56	0.57		
AR(1) Test						0.0004	0.3757
AR(2) Test						0.1455	0.4127

Significance: .1 (*); .05 (**); 0.01(***) Instrumented variables are in bold lettering. In OLS (7), (8) and (9) as well as GMM (2) and (3) a number of observations were removed to adapt the dataset to Angeles & Neanidis (2009). The AR(1) and AR(2) test results are p-values for the Arellano-Bond Serial Correlation Test.

Figure 15 - Accounting for indirect rule and settler population

The first rounds of results (OLS 5 and OLS 6) are not too encouraging for either of the authors' hypotheses and claims. Interacting their measures of indirect rule and settler population with our measure of aid transfers respectively does not yield significant results. It can be noted that both coefficients are negative, in line with their conclusions, but not statistically different from zero.

7.2.4 Tweaking & Omitting

To be fair to Angeles and Neanidis especially, the data in the model above does differ quite significantly from their measure of aid transfers. I thus apply some of more outlier restrictions for our sample to fall in line with theirs. Specifically, this involves removing any observations where GDP per capita difference is above 10% or below -10% per year by period average. Further, the cap on Net Aid Transfers as a percentage of GDP is set to 15%[10], which reduces the coverage to 82.3% of the sample. The columns OLS 7, 8 and 9 show the results. As before, I start with Lange's Indirect Rule variable.

Excluding large values of Net Aid Transfers comes a little closer to confirming Lange's hypothesis—that more indirectly ruled countries have worse governance standards, in our case through the channel of aid. The result, however, is not that different from 0 in economic terms with a coefficient of 0.0027, significant at the 10 percent level only. In the next column, OLS (8), his INDRULE variable is interacted with the Polity2 index (named P2*INDRULE). In light of his findings, we would assume the coefficient to be negative. This interaction, however, is positive and significant, offering support for a more positive (albeit complicated) relationship between governance and indirect rule. On the one hand, we thus have a negative coefficient when interacting the extent of indirect rule with lagged aid transfers, in line with his hypothesis. On the other, the interaction between indirect rule and the polity2 index suggests a positive link between indirect rule and governance standards (a finding that is not especially robust given that the actual Polity2 coefficient loses significance). Given the relatively few countries he included in his study (an N of just over 30), there is probably a lot of noise in there, swaying results one way or another.

[10] The Angeles & Neanidis sample has no instance of an average Aid/GDP ratio higher than 15%.

The GMM (2) column offers some evidence for his findings. Although we should bear in mind that the sample has been reduced to 74 countries and 266 observations, the independent rule and net aid transfer interaction is negative and significant in this configuration. The Null of no serial correlation, though, can only be rejected at the first level.

Looking at OLS(9), the Angeles and Neanidis hypothesis is not aided by omitting further variables. The coefficient is negative, but with a p-value of 0.17 not significantly different from zero. The omission of the non-linear square of Net Aid Transfers—attempted in case the NAT/GDP variable were entering the equation too many times—did not change the result.

The GMM (3) estimation lends support to their conclusions. However, the average per period GDP growth rate had to be limited to -5% and 5% as lower and upper bounds respectively, a procedure that eliminated a significant amount of variables, dropping the number of countries to 67 and observations to 225. The only justification for this procedure is once more ensuring that the data falls into closer line with theirs. Any other configuration led to highly insignificant coefficients.

To entertain the results nonetheless, a negative and significant coefficient as can be seen above suggests that areas with higher settler populations do worse in translating aid transfers into higher rates of GDP growth.

The omission of relatively high values of both GDP growth and NAT thus seems to do the trick, albeit highly inconsistently, as we have seen in our OLS regressions. Additionally, we can note that the null of no serial correlation cannot be rejected at either the first or the second level. All in all, the GMM results might give the respective authors the benefit of the doubt. They clearly do not prove or disprove anything on a noteworthy scale though.

7.2.5 In Summary

The act of omitting higher values of Net Aid Transfers in the first place is questionable. Whereas removing outliers in OLS (4) in Table 2, a few pages ago, was more of an exercise in ensuring robustness, here it served to make this dataset more comparable to Angeles & Neanidis'. Although a reasonable case can be made for focusing on lower, more common aid to GDP ratios, deleting any data because it "doesn't fit" immediately puts the validity of the

resulting conclusions in question, especially in the case of GMM (3), where further omissions occurred.

The inclusion of the indirect rule variable was interesting. When we exclude NAT/GDP values that could be construed to be unsustainable in the long run, we find some significant findings, both in line and out of line with Lange's hypothesis. Again, the sample needed tweaking for these results to shine through (and only in some instances). On the other hand, there are some interesting contradictions in the resulting coefficients of interaction given that, in a highly constricted sample, they do point to the conclusion that both centralised and decentralised regimes do worse with respect to aid efficacy.

Before turning to a more generalised discussion, a short note on the direction of causality is in order. Whereas GMM is useful in addressing endogeneity and reverse causation, this particular effort's results are rather fragile, to say the least. However, by referring to our lagging of the aid transfers variable, we can still make a good case for establishing causal direction.

The counterargument is that growth causes more aid, because, for instance, productive aid investments such as infrastructure spending tend to go to countries that are stable and have a brighter outlook. However, the fact that this paper's specification lagged the aid variable over a period of five years would require donors to be able to predict a country's growth path five years into the future in order for the argument that higher growth causes higher amounts of aid to hold. Evidence suggests that growth several years into the future is highly unpredictable (Easterly et al., 1993) and that donors make large errors in forecasting recipients growth even in the short term (Batista and Zalduendo, 2004). Although this argument falls far short of offering proof for the channel of causation, it is in this author's eyes the more plausible one. In spite of this, since the aid-growth literature still lacks a thoroughly reliable instrumental variable, the debate can be expected to continue.

8. DISCUSSION

This paper has not been able to corroborate the results of either above discussed sets of authors conclusively. It is thus doomed to finish with a few theoretical musings rather than the sweeping conclusions it hoped to produce.

In my view, Angeles & Neanidis' conception of political power and economic outcomes is theoretically more attractive. It fits narratives of de facto cum de jure power better than Lange's underdevelopment through decentralisation argument. However imperfect my handling of Angeles and Neanidis' data within a different framework might have been, the data does not suggest that a higher settler population prior to independence is consistently associated with less effective aid transfers. This could be because some of my other regressors capture the variation they attribute to settler population or down to differences in the sample of countries. It could also be a side-effect of lagging the aid variable as this paper has consistently done. Lagged aid has been positively, consistently and robustly associated with modestly higher per capita GDP growth in the subsequent period, which can attributed to significant portions of aid being used to boost medium-term human and capital development.

The channels of causation in the very varied success rates of aid are interesting to theorise over, which is why the aid-growth literature is full of interesting debates. At the same time, conclusive proof of causality remains elusive in the vast majority of cases. The same vast majority of the growth literature attempts to link or unlink aid from average GDP growth, whether by means of a panel or a cross-section study. Very few then go on to formulate a measure of distribution of said aid. What good are aid transfers that are highly effective in promoting economic growth if they end up transferring resources to the top quintile of a population, instead of the bottom quintile that would value it the most?

Fortunately, the previously mentioned 2014 publication by Arndt, Jones and Tarp attempts to come to terms with a modicum of distributional factors. Their configuration allows them to estimate the "aid-induced growth semi-elasticity of poverty (GSEP) […] given by the estimated absolute change in the poverty (headcount) rate divided by the estimated percentage change in mean income due to aid over the period" (Ardnt, Jones & Tarp, 2013, 26). Their results suggest that aid is as effective as other development driving variables in decreasing poverty in the long run (ibid. 27). At the same time, this can be reconciled with Angeles & Neanidis'

proposition that a higher concentration of exclusionary elites does in fact reduce the trickle-down potential of aid. This could happen by the simple misappropriation of transfers to benefit the elite above broader sections of the population, or by virtue of skewed incentive structures that would lead lower-quintile aid recipients to consume aid transfers rather than saving or investing them. Either (indeed, any) such channel would lower the aid-impact potential, especially where it matters most. The good news is that once such a relationship has been identified, the donor community could restructure aid incentive schemes to reflect such conditions. Surely not an easily accomplished feat, but doubtless an improvement over the alternative that aid transfers be stopped outright in such cases.

9. THOUGHTS AND CONCLUSIONS

As briefly mentioned in the literature section, the first large-scale effort in aid, the Marshall Plan, succeeded quite brilliantly. Yet as Bauer (1969) rightly added, it was largely an effort in rebuilding an order, both in institutional and economic terms, not creating one from the ground up. Moreover, as discussed by Durlauf et al (2005) amongst others the empirical growth literature suffers from the shortcoming that it is difficult to account for cultural and historical factors in the growth process, further suggesting that the empirical literature should be complemented to a greater extent with case studies.

Although the results obtained in this particular effort are not all discouraging, the tendency to solely look at periodical averages across a time series or panel of countries is perhaps not the best way forward in future. Case studies, whether on a single or comparative basis offer more potential to incorporate historical developments, institutional and cultural peculiarities and the respective incentive structures these lead to. As of now, we can reasonably say that aid is associated with a moderate boost to GDP per capita growth with a number of years of delay in some places, a relationship that persists up until a certain threshold. What exactly a country can be encouraged to do or not do by donors is a contentious question. It is straightforward to state that the properties of aid transfers should in some way be adjusted according to the different incentive structures and hierarchies in place in developing countries. How such structures are uncovered and how to tailor aid policy to hugely varied local, regional, national and transnational structures is another topic entirely. Another aspect future studies should spend more time on is the rural/urban divide in aid transfers. Since 70 percent of the world's poorest live in rural areas, accounting for this and making sure aid policies are targeted accordingly should be made a priority. This paper could offer no conclusive evidence that aid efficacy depends on the extent of indirect British colonial rule or the concentration of elites as proxied by European settler populations. This does not mean that these factors do not matter. They may enter the equation in terms of aid being misappropriated by elites while still working its way into higher GDP growth *on average*. If the first question about a country an economist might ask is "What is income per capita?" the follow up must surely be "And what is its distribution?" Lange's (2009) preferred channel of inefficiency would be the level of decentralisation, as proxied by his measure of indirect rule

That leaves the possibility that they are both right. Strong concentrations of elites on the national *or* the local level may hinder development efforts in general, and specifically through the inefficient use of aid funds. Yet knowing which type of elite predation to look out for—national or local—can conceivably make an important difference in the types of projects or investments donor governments and organisations decide to push through in a given region. Of course, this is but one of a myriad of contexts that might be relevant. To mangle Leo Tolstoy's opening line in *Anna Karenina*, one could say that Rich countries are alike; every poor country is poor in its own way[11].

[11] Credit for this gem has to go to a fellow student at the University of Chicago's Harris School of Government.

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11. APPENDIX

List of Countries:

Afghanistan	Cyprus	Kenya	Pakistan	Tunisia
Algeria	Djibouti	Kyrgyz Republic	Panama	Turkey
Angola	Dominica	Cambodia	Peru	Tuvalu
Albania	Dominican Republic	Kiribati	Philippines	Tanzania
Argentina	Ecuador	Laos	Palau	Uganda
Armenia	Egypt	Lebanon	Papua New Guinea	Ukraine
American Samoa	Eritrea	Liberia	Korea, Dem. Rep.	Uzbekistan
Azerbaijan	Ethiopia	Libya	Paraguay	Venezuela
Burundi	Fiji	St. Lucia	Romania	Vanuatu
Benin	Micronesia	Sri Lanka	Rwanda	Samoa
Burkina Faso	Gabon	Lesotho	Sudan	Yemen
Bangladesh	Georgia	Morocco	Senegal	Zambia
Bulgaria	Ghana	Moldova	Singapore	Zimbabwe
Bosnia Herzeg.	Guinea	Madagascar	Solomon Islands	
Belarus	Gambia	Mexico	Sierra Leone	
Belize	Guinea-Bissau	Marshall Islands	Somalia	
Bolivia	Grenada	Macedonia	Serbia	
Brazil	Guatemala	Mali	South Sudan	
Bhutan	Guyana	Myanmar	Sao Tome	
Botswana	Hong Kong	Mongolia	Suriname	
C.A.R.	Honduras	Mozambique	Swaziland	
China	Haiti	Mauritania	Seychelles	
Cote d'Ivoire	Hungary	Mauritius	Syria	
Cameroon	India	Malawi	Chad	
Congo	Indonesia	Malaysia	Togo	
Colombia	Iran	Namibia	Thailand	
Comoros	Iraq	Niger	Tajikistan	
Cape Verde	Jamaica	Nigeria	Turkmenistan	
Costa Rica	Jordan	Nicaragua	East Timor	
Cuba	Kazakhstan	Nepal	Tonga	

Abstract / Kurzfassung

English

Trillions of dollars have been poured into aid projects over the last five decades. The link between aid transfers and GDP per capita growth remains contentious. This thesis first explores the relationship between the two using a robust endogenous growth model with a panel fixed effects specification in around 80 developing countries over a forty year period. To allow aid transfers to make an impact, it lags that variable by one period. Adding nuance, it then investigates whether certain colonial legacies have a significant influence on the efficacy of aid disbursements. Specifically, it introduces proxies for centralised and decentralised rule in an attempt to find out whether different forms of colonialism affect contemporary aid transfers' effect on growth. The results show that the aid-growth relationship is positive, significant and robust on average. The significance of the colonial variables, however, is a lot more fragile and very dependent on somewhat peculiar specifications of the model. I conclude that there is great merit in investigating the institutional links and channels of causality that confront the aid-growth literature and that cross-country empirics may not be the best framework to do so.

Deutsch

Billionen US Dollar wurden von den 1960ern bis heute in Entwicklungsprojekte und Zusammenarbeit gesteckt. Der Zusammenhang zwischen Entwicklungshilfe und pro Kopf Wachstum bleibt jedoch umstritten. Diese Arbeit untersucht diesen Zusammenhang mittels eines robusten endogenen Wachstumsmodells in einer Reihe von Panelanalysen mit fixen Effekten. Es wird mit rund 80 Entwicklungsländern über eine Zeitspanne von 40 Jahren gearbeitet. Um die Auswirkungen von Entwicklungshilfe genauer festzustellen wird diese Variable um eine Periode verzögert. Um einen Hauch Nuance in die Debatte einzubringen wird darauffolgend untersucht, ob koloniale Erbschaften einen bedeutsamen Einfluss auf die Wirksamkeit von Hilfsgeldern haben. Es werden Proxy-Variablen für zentralisierte und dezentralisierte Regierungsstile in das Modell eingebracht um zu erkunden, ob verschiedene Formen des Kolonialismus einen Einfluss auf das kontemporäre Zusammenspiel zwischen Entwicklungshilfe und Wachstum ausüben. Die Resultate deuten auf einen positiven, statistisch bedeutsamen und robusten Zusammenhang zwischen Entwicklungsgeldern und Wachstum mit einer Verzögerungsperiode. Die Signifikanz der kolonialen Variablen ist allerdings um ein vielfaches fragiler und abhängig von eingeschränkten Modellspezifikationen. Ich ziehe den Schluss, dass großer Wert darin liegt die institutionellen Zusammenhänge und Kausalitätsrichtungen, die sich quer durch die Literatur ziehen, zu untersuchen. Länderübergreifende ökonometrische Empirie ist dafür aber wohl nicht der ideale Ansatz.

CV[12]

The author was born in Vienna, Austria

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October 2006 - July 2009	UNIVERSITY OF YORK, ENGLAND BA (Hons) - Politics, Economics and Philosophy
January - June 2006	MILITARY SERVICE 2. Gardekompanie, Vienna
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Work Experience

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August - September 2006	Riskconsult - Sicherheits- & Risiko-Managementberatung Ges.M.B.H.

Awards and Skills

Two grants for academic excellence for the years 2010/11 and 2011/12 from the University of Vienna. A Joint-Study exchange scholarship at the University of Chicago for the Winter and Spring quarters of 2013.

Fluent in speech and writing in French, English and German. Advanced Spanish. Advanced Office skills, proficient knowledge of products of the Adobe family, STATA and EViews proficiency. All around great guy.

[12] This same CV appears in Karabaczek (Forthcoming).