

**A TALE OF TWO CURSES: THE ECONOMIC, POLITICAL, AND DEVELOPMENTAL EFFECTS
OF DEPENDENCY ON FOREIGN AID AND NATURAL RESOURCES**

by

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

The Faculty of Graduate and Postdoctoral Studies

(Political Science)

THE UNIVERSITY OF BRITISH COLUMBIA
(Vancouver)

November 2013

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Abstract

This paper provides a first look at the intersection between the natural resource and foreign aid curses. In doing so, it proposes that the economic, political, and developmental effects of foreign aid and natural resources are influenced by similar factors. While to date much of the literature on the aid and resource curses have tended not to engage one another, it is shown that through a political economy model of political survival, important commonalities can be drawn out with respect to the cause and effect of both curses. Accordingly, this paper argues for the necessity of no longer studying the two phenomena in isolation, and instead presents a common theoretical model allowing for a unified approach to understanding the implications of unearned income. A preliminary quantitative analysis is also presented, which suggests at the effects of foreign aid in natural resource-dependent countries. Important implications not only for academic research, but also importantly for policy making, follow from the findings herein.

Preface

The research contained herein in its entirety was proposed, explored, and presented by the author, between April 2013 and November 2013. Desktop literature review was conducted between April 2013 and July 2013 using source material available in print and electronically through the UBC Library system. Theoretical and quantitative modeling was undertaken between July 2013 and October 2013. The thesis was presented by the author in a public defence at the Liu Institute for Global Issues in November 2013.

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Acknowledgements

Acknowledgements and thanks are owed to Peter Dauvergne, Yves Tiberghien, Beth Hirsh, and Sarah DiPoce for valuable comments, insights, and support in the development of this paper.

Introduction

Both natural resources and foreign aid have been seen as potential catalysts of development, providing substantial amounts of much needed financial resources to tackle poverty, facilitate economic growth, and solidify political reforms. Yet, in too many instances, developing countries have struggled to do better by these resources; instead of enjoying prosperity and growth, many countries have spiralled further into poverty. Zambia's first president, Kenneth Kaunda, once famously remarked on his country's economic under-development that "this is the curse of being born with a copper spoon in our mouths" (Boschini, Pettersson, and Roine 2007:25). Such realities have fed a substantial volume of research on the economic and political effects of both foreign aid and natural resources. Both areas of scholarship have evolved considerably over the last 30 years, and now offer richly detailed explanations of how either foreign aid or natural resource wealth may in fact be more of a curse than a blessing.

Interestingly, despite considerable similarities between the two phenomena, there has been little effort given to examining the possibility that the aid and natural resource curses might best be explained holistically under one theoretical paradigm. Furthermore, despite the growing focus today on the role of natural resources in developing countries, few attempts have been put forward to investigate what might happen should resource-dependent countries find themselves the beneficiaries of large flows of foreign aid. This gap in the scholarship is made all the more urgent given recent announcements by donor countries intending to allocate substantial *new* disbursements of foreign aid to assist countries struggling to manage their natural resources (CBC 2013).

In this paper, I will provide an initial 'first glance' at the effects of a simultaneous dependency on natural resources and foreign aid. In so doing, I seek to advance two related arguments. First, both natural resources and foreign aid affect the socioeconomic development of countries in similar ways, and for similar reasons; accordingly, it is desirable to study both curses through the same theoretical framework, which I will begin to develop herein. Second, in countries already economically dependent on natural resources, the effect of foreign aid is of limited added benefit, and may potentially manifest deleterious effects on socioeconomic welfare. The examination of these arguments is structured in 5 parts. In the first and second sections, I survey the literature on the aid and natural resource curses, showing how the two have evolved in parallel (but in isolation) to one another, ultimately landing on many of the same findings. The third section considers the existing scholarship that has examined both curses simultaneously; while there are a limited number of existing contributions, on the whole a unified research agenda for both curses has failed to materialize. The fourth section is the theoretical contribution of this paper, presenting a political economy model that may hold key insights into both the aid and natural resource curses at once. Complimenting this, the fifth section presents what is, to my knowledge, one of the first econometric analyses of the twin effects of natural resource dependency and substantial foreign aid flows on socioeconomic welfare. Finally, the conclusion emphasizes the urgency of additional contributions in line with the theoretical and empirical findings of this paper. This paper, as one of the first of its kind, is meant to be the launching point for a new round of scholarship on the aid and resource curses; the results are not intended to be the last word on the matter, but, rather, illustrative of where gaps exist today and where future research might fruitfully be directed.

1. *Early Thinking on the Aid and Natural Resource Curses*

Amongst the existing literature surveys on the economic effects of foreign aid or of natural resources, nearly all have focused exclusively on one or the other (Frankel 2010; Hansen and Tarp 2000; Torvik 2009). I will revisit some of the landmark observations, providing a synopsis of the co-evolution of thinking around the (economic and, later, political) effect(s) of foreign aid and natural resources. Generally, three observations stand out: (1) that the literature on the ‘aid’ and ‘natural resource’ curses have developed in parallel, but largely in isolation, to one another; (2) that scholarship on both curses has moved away from pure economic models, with greater attention on political considerations; and, (3) despite commonalities, there has been little, if any, attempt to develop a theoretical foundation for understanding the socioeconomic development effects of *simultaneous* natural resource wealth and foreign aid receipts.

With respect to foreign aid, the scholarship that initially emerged in the 1960s showed a positive effect of aid on economic growth (Hansen and Tarp 2000). The majority of research during this time was based on simplistic economic models, linking aid to growth through a savings effect (Chenery and Strout 1966). However, these early models were quickly scrutinized; Papanek famously referred to many preceding publications as being “curiously naïve,” owing to their reliance on outmoded growth models (Papanek 1972). Responding to this, research from the mid-1970s was informed by more complex theories of economic growth (Newlyn 1973). That said, irrespective of the growing sophistication of economic growth models, scholarship through to the 1980s remained confident in the positive effect of aid on growth.

Natural resources, on the other hand, have long been represented by a confounding narrative of wealth and poverty: “resource-abundant countries constitute some of the richest and some of the poorest countries in the world” (Torvik 2009:242). From the 1980s, a number of scholars had taken note of the significant variation of economic experiences between different resource-endowed countries. While some found a weakly positive correlation between resource wealth and growth, others found a slightly negative relationship (cf. Figures 1-3, below; also, Frankel 2010; Torvik 2009; Warner 2006). Contrary to expectations that natural resources would fuel economic development, no study was able to definitively conclude that natural resources were universally beneficial for economic growth. Similar results have been noted for the inconsistent, if not slightly negative, effect of natural resources on various measures of human development (Warner 2006:11). Describing the confounding nature of these results, Torvik observed, “the most interesting aspect of resource-abundant countries is not their average performance, but their huge variation” (2009:242).

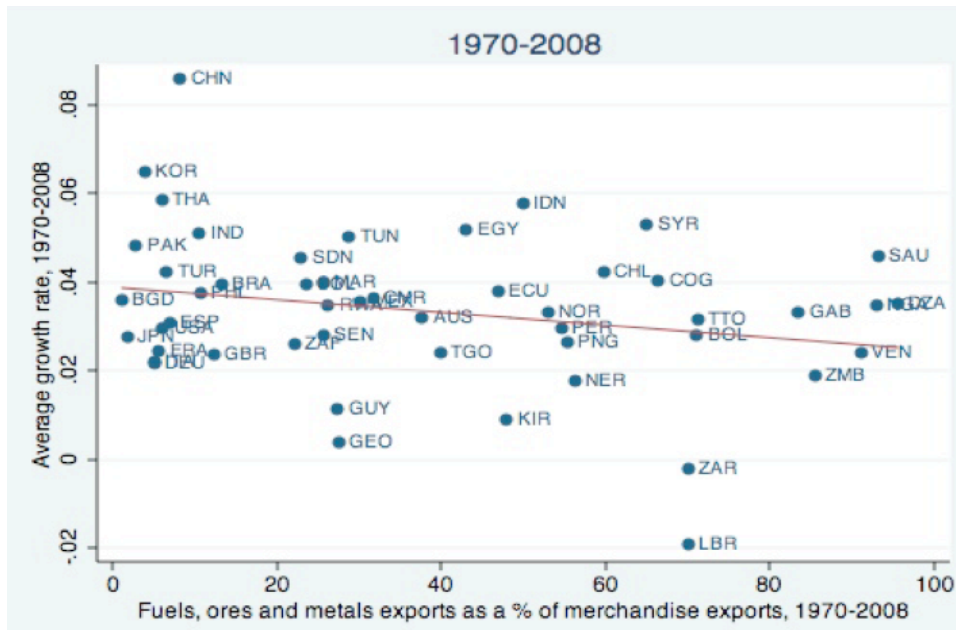


Figure 1. Natural resource exports and economic growth. From Frankl, 2010.

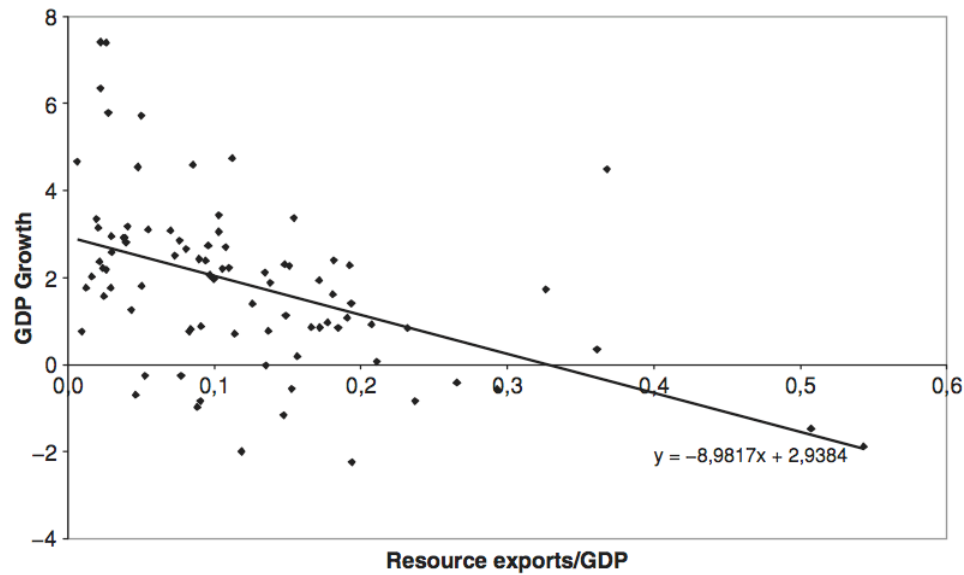


Figure 2. Natural resource exports and GDP growth. From Torvik, 2009.

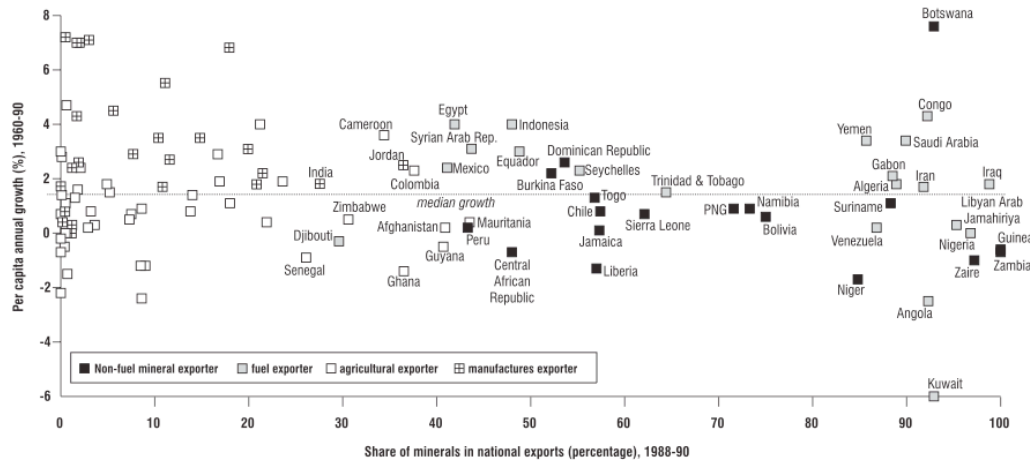


Figure 3. Natural resource exports and per capita economic growth. From Warner, 2009.

From the outset, much of the literature on the natural resources curse was interested in explaining not *whether*, but *why* natural resources can lead to economic decline. For natural resources and foreign aid alike, all signs pointed to the influence of macroeconomic policies. In the natural resources literature of the 1980s and 1990s, this entailed a vigorous discussion on the ‘Dutch disease’ (Gylfason, Herbertsson, and Zoega 1999; Krugman 1987; Mehlum, Moene, and Torvik 2006b; Morrison 2010:54; Sachs and Warner 1995, 1999; van Wijnbergen 1984). Similarly, in the foreign aid literature of the 1990s, research focused on the interaction between foreign aid and macroeconomic policy (Burnside and Dollar 1997, 2000; Durbarray, Gemmell, and Greenaway 1998; Hadjimichael 1995). The most influential - Burnside and Dollar - marked a new nexus between scholarship and policy; an article in the *Economist* interpreting the Burnside-Dollar findings suggested, “rich countries should be much more ruthless about how they allocate their largesse, whether earmarked or not (...) But mainstream aid should be directed only to countries with sound economic management” (Hansen and Tarp 2000).

The distinctive focus on macroeconomic effects within research on both curses began to change by the late 1990s, first with a number of papers critiquing the ‘fragility’ of the modeling presented in Burnside and Dollar (Collier and Hoeffler 1998; Dollar and Pritchett 1998; Easterly, Levine, and Roodman 2003; Hansen and Tarp 2000; Stiglitz 2003). Similarly, in the natural resources literature, the inability to explain why some countries were able to overcome Dutch disease-like conditions called into question the models presented by Sachs and Warner and their contemporaries (Boschini, Pettersson, and Roine 2003).

Paying greater attention to the specificities of developing countries in which the resource and aid curses were most pernicious, explanations turned to the issue of how rents were captured and utilized. This drove a large body of research on rent seeking behavior and patronage politics (Bhattacharyya and Hodler 2010; Mehlum et al. 2006b; Tornell and Lane 1999; Torvik 2002, 2009). Yet, despite valuable contributions, the literature on rent seeking behaviour fell short in a few respects. As with the Dutch disease literature, rent-seeking models posited a monotone effect, unable to explain how some countries managed this wealth beneficially while others do not. Equally, these models were not able to account for *negative* economic growth/decline accompanying resource wealth or aid; rather, they generally accounted only for *suboptimal yet positive* growth (Torvik 2009). All the same, the rent-seeking literature did mark an important re-focusing on political variables, including incentives and elite interests. This was likely informed by advances in the wider disciplines of international relations, development, and comparative politics, which saw greater emphasis on new political economy models matched with more robust econometric approaches.

In summary, thirty years of research suggested that both foreign aid and resource wealth *should* have positive impacts on growth; yet, this has proven inconsistent in reality. More common has been a “pattern of temporary success that too often deteriorates to the original level of mediocre performance” (Brautigam 2000:6). Much of the research through to the late-1990s has been generalized as “a long and inconclusive literature that was hampered by limited data availability, debates about the mechanisms through which aid would affect growth, and disagreements over econometric specification” (2003:1). Increasingly attention has turned to the political economy of foreign aid and of natural resources (Smith 2008:993). Reflecting this, Hansen and Tarp aptly conclude that “in sum, the unresolved issue in assessing aid effectiveness is not whether aid works, but how and whether we can make the different kinds of aid instruments at hand work better in varying country circumstances” (Hansen and Tarp 2000).

2. *Explaining Between-Country Variation: a Turn Toward Political Considerations*

By the end of the 1990s, the spotlight had shifted to the importance of ‘good governance’ (Keefer and Knack 2002; Mauro 1995; Rodrik, Subramanian, and Trebbi 2002).¹ Kofi Annan remarked during this period that, “good governance is perhaps the single most important factor in eradicating poverty and promoting development” (UNDP 2002; also, Knack 2001:311). While the relationship between governance and growth remains subject of much debate, it is generally understood that good governance is “crucial for the sustained and rapid growth in per capita incomes of poor countries” (Knack 2001:311). Good governance is also almost certainly a requisite of democratization and socioeconomic development; as Brautigam observed, “the influence of high quality public institutions may exceed the impact of good economic policies in explaining development performance” (Brautigam 2000:6).

That revenue from aid or natural resources might have a relationship with the quality of governance is almost intuitive. Indeed, as Brautigam posits, “although we know that norms, informal rules, and other institutions do not change quickly, ten years of aid dependence is likely to deeply affect the operations of a government, and the incentive structure” (Brautigam 2000:15). A political economy perspective presents governance as a non-excludable public good, subject to the accompanying problems of collective action (Bräutigam and Knack 2004; Brautigam 2000). The most comprehensive explanation of this is by Brautigam:

“Providing these public goods [that is, governance] involves solving significant collective action problems: reducing corruption and patronage-based procurement, terminating ineffective public sector employees, instituting meritocratic recruitment, shifting scarce social sector funding from more vocal to more needy recipients, implementing an effective and fair tax system, etc.” (2000:7).

Accordingly, a range of actors – political elites, government bureaucracies, interest groups, and/or managers in aid agencies (or natural resources firms) – all have an interest in shifting the rules of distribution. Proponents of aid have latched on to this, suggesting aid could “facilitate the survival of reform-minded governments” (Knack 2001). Similarly, the possibility of aid having a ‘corrective’ effect on governance has been the logic behind arguments for aid conditionality to encourage reform.

Yet providing public goods involves risk, trade-offs, and sacrifice, “in particular from those who stand to lose the private goods provided by the current system” (Brautigam 2000:7). Accordingly, it is believed that aid dependency will create “incentives and informal rules,” which ultimately “make it more difficult to overcome the collective action problems involved in building a more capable and responsive state” (Brautigam 2000:8). It is no surprise that a substantial volume of research has pointed to the pernicious effects of aid or natural resources on quality of governance. For example, increased levels of natural resources have led to more authoritarian political regimes (Ross 2001) as well as greater corruption and less government accountability (Leite and Weidmann 1999). In the foreign aid literature, Knack (2001) found that when aid rises by 25 percentage (as a share of GNP), the ICRG index (a widely used quality-of-governance measure) will fall by about 3 percent; this decrease in quality of governance is estimated to lead to a 1 percent drop in economic growth (Knack 2001). Similarly, Brautigam (2000) observed that a 35 percent increase in aid (as a share of government expenditure) reduces the ICRG index by 1 point.

A number of papers have provided excellent surveys on the variety of mechanisms linking aid or natural resource dependencies to economic outcomes through political-economy

¹ Good governance in this sense is understood as “the form of institutions that establish a predictable, impartial, and consistently enforced set of rules for investors” (Knack 2001:311).

characteristics (Brautigam 2000; Frankel 2010; Torvik 2009). Some of the more widely developed channels between aid/natural resources, governance, and economic outcomes, include: increased corruption and cronyism (Knack, 2001; Aslaksen, 2006); moral hazard and reduced pressure for reform (Brautigam 2000:24; Knack, 2001; Aslaksen, 2009); distorted labour markets and weakened bureaucratic capacities; and, (related), a multiplicity of donor agencies, each with different priorities and processes, and/or highly volatile commodity prices, leading to incoherence and instability in national budgets (cf. Knack, 2001:5; Brautigam, 2000:38-42). On this latter point, anecdotes are not difficult to find. For example, in the 1980s, officials in Malawi were managing nearly 200 projects funded by 50 different donors; meanwhile, in the 1990s, Kenya and Tanzania each had nearly 2000 donor funded projects. The burden of trying to manage these different projects and relationships with so many donors has led to what some observers described as “institutional destruction” as “these coordination tasks ... strain administrative capacity” (Brautigam 2000:25).

The challenge with many of the mechanisms described above is the vagueness of causation in their underlying theories. With respect to foreign aid, Knack cautions that existing “theory is ambiguous with respect to aid’s impact on the quality of governance” (Knack 2001). Responding to this theoretical and methodological uncertainty, a number of papers have pointed to the nature more broadly of political institutions (rather than the narrow focus on quality of governance). This marked a major shift in the methodological approach, away from cause-and-effect correlations toward the *interaction* between key variables.

3. *A 'Striking' 'Historic Coincidence' - Yet Still Worlds Apart*

Surprisingly, despite considerable co-evolution of theories, models, and findings, some scholars have described the prospect of directly comparing the aid and resource curses as “initially seem[ing] strange” (Morrison 2010:53). This is interesting, given the almost certainty that the two curses will co-exist: a number of the most natural resource dependent countries happen to also be some of the poorest, and are recipients of substantial aid flows. Confirming this, one paper notes, “twenty one countries in the sub-Saharan African region (over half) are already sizable oil, gas or mineral exporters. Yet many of the same countries are failing to progress, or progressing too slowly, to meet multiple development goals (including the MDGs) and are thus potential recipients of the increased aid” (Warner 2006:65).

The idea fifty years ago that either natural resources or foreign aid could be the ‘big push’ catalyst for growth and development have given way to decades of evidence on the aid and resource curses from countries that have seen the deleterious effects of both these ‘windfalls’ (on the ‘big push’, Sachs and Warner 1999). Individually, the same three mechanisms – Dutch disease/macroeconomic policy, revenue volatility, and political deterioration – have been identified as being operative in both curses (cf. Morrison 2010:58-59). Yet, despite the similarities, few scholars have taken note of the possible overlap between the twin curses of natural resources and foreign aid. Morrison calls attention to this, noting how “the literature analyzing the effects of aid describes very similar effects as those in the ‘resource curse’ literature, though this body of work tends to get much less attention” (2010:53).

A handful of scholars have taken first tentative steps in the middle ground between the two curses. Both Brautigam (2000) and Therkildsen (2002), for example, compare foreign aid to other ‘non-earned’ revenue sources, noting similarities with an abundance of natural resources which lead to rentier states. Related to this, Knack draws comparisons on rent seeking effects from foreign aid and from natural resources such as coffee and oil (2001:314). Meanwhile, Morrison (2010) draws attention to the way in which considerations such as Dutch disease and political deterioration are implied in both the aid and resource curse literature. Finally, one of the most detailed comparisons comes from an ODI/UNDP paper, which draws heavily from the literature on the ‘aid curse’ to offer possible prescriptions for managing rents from natural resource exports (Warner 2006:63–67). However, the ODI/UNDP observations are largely hypothetical, lacking any detailed explanation of the logic behind the prescriptions and failing to offer much conclusive evidence to support their assumptions.

On balance, it is apparent that in recent years, the theories, models, and empirical observations underlying of each developed in parallel. The similarities between the two bodies of scholarship have been described as “striking” and as “a new, and potentially historic, coincidence” (Morrison 2010:58; Warner 2006:65). There is a clear imperative for better understanding how a twin dependency on foreign aid and natural resources might affect a country’s economic and political development. Yet it is possible that part of the reason this question has received so little attention is that a model does not exist which can comfortably incorporate both the effects of foreign aid and natural resource dependence on political and economic change. Or does it?

4. Toward a Meta Model: Institutions, Incentives, and the Curse of 'Unearned Income'

A decade ago, Bruno de Mesquita and colleagues (2003) presented a model on the political economy of the rise and fall of politicians in office, drawing emphasis to the preferences of political elites and the role of institutions. The Bueno des Mesquita et al (hereafter 'BDM') model of selectorate politics has become one of the most influential political economy models addressing elite behavior, incentives, and principal-agent relations (Bueno de Mesquita and Smith 2009a, 2010; Bueno de Mesquita et al. 2003; Dunning 2005; Smith 2008; Wright 2008). The BDM model represented an important turn away from a focus on macro-level economic factors, toward a political economy model oriented at the micro level; in other words, a shift from a focus on systemic forces toward the role and behavior of actors within the system. The influence of the BDM model quickly spread, particularly into the area of development studies.

I would argue – and intend to show – that the BDM model is one of the only political economy paradigms that offers promise for addressing the various critiques examined thus far. Though initially presented as a means for explaining political elite(s)' response to the risk of being unseated, the BDM model in fact captures all the behaviours familiar to the resource and aid curse literature (Smith 2008). The central axiom of the BDM model speaks to the preferences of political elites: all leaders are self-interested, desire political (and personal) survival, and ultimately wish to maximize control over government revenue and/or policy (Bueno de Mesquita and Smith 2009b:171). Three sources of threats challenge a leader's tenure in office: (1) rival elites; (2) domestic mass movements; and, (3) foreign enemies (Bueno de Mesquita and Smith 2009b:171). It is the milieu of political institutions and the nature of government finance that set the 'rules of the game,' shapes political and economic constraints, and determines resources available to leaders. Based on these institutional and resource arrangements, leaders (attempt to) craft the optimal distribution of public and private goods, so as to lengthen their tenure in office. The fulcrum on which these interactions balance is the nature of the 'winning coalition'; that is, the number of supporters (either other elites or members of the citizenry) required to ensure survival in office.

Though skeptics may get caught up in the 'game'-like nature of the BDM model, fundamentally it is an examination of public policy, agent-principal relationships, institutional design, and government revenue. In other words, the BDM model above all else explains how "governments allocate resources and how resources and political institutions interact to influence policy choices" (Bueno de Mesquita and Smith 2009b:171). It can be employed to interpret conditions across a tremendous cross-section of countries, without becoming snagged on discrete characteristics such as the oft-cited democracy vs. autocracy divide. It is for precisely this reason that it has great potential for incorporating, together, both the aid and resource curses. Furthermore, the influential nature of the BDM model across the fields of comparative politics and development studies means that many particular niche insights into the resource and aid curse are easily reconciled with the fundamental tenets and axioms of BDM. Accordingly, I intend use the structure of the BDM model to present a unifying theory of the aid and resource curses. The central pillars of this 'meta' theory are: (1) the nature and role of institutions; (2) elite incentives and preferences; and, (3) the impact of different forms of government income.

(a) Institutions

Building from initial insights in the 'good governance' literature, institutional context is understood to effect political and economic outcomes through an interaction with the dependency on foreign aid or natural resources. On this, Ahmed observes, "domestic political institutions (and the incentives they generate for governments) *mediate the impact* of aid and remittance inflows on the quality of governance and the endurance of governments in autocracies" (emphasis added, Ahmed 2012:164). Similarly, with respect to natural resources, "the overall impact of resource booms on the economy depends critically on institutions since these can determine the extent to

which political incentives map into policy outcomes” (Robinson, Torvik, and Verdier 2006). Robinson et al present one of the first formal political economy models on the relationship between institutions and natural resources, finding that, “low quality institutions invite bad policy choices since they allow politicians to engage in inefficient redistribution in order to influence the outcomes of elections. High quality institutions make such political strategies infeasible or relatively unattractive” (Robinson et al. 2006).

In a similar approach, Mehlum et al (2006) show that formal and informal institutions (such as property rights and corruption) create different incentives that shape the actions of private agents. With ‘grabber friendly’ institutions, “natural resources may stimulate predation, rent-seeking, and other destructive and/or non-productive activities, in turn creating negative externalities for the rest of the economy” (in Torvik, 2009). In one econometric study, Torvik found the top 20 percent of countries, in terms of quality of institutions, had “no resource curse” and instead a resource dependency had positive effects on economic growth (Torvik 2009). On the other hand, in countries with the worst possible quality of institutions, “resource abundance is very damaging to growth” (Torvik 2009; similar to Mehlum et al 2002; Robinson et al 2002; Boschini et al 2003).

One of the most substantial areas of debate with respect to institutions deals with whether they are endogenous (*influenced by* the aid/resources curse) or exogenous (*ex ante* to the curse, themselves *conditioning* the effects of foreign aid or natural resources). In line with early thinking on the impact of quality of governance, a number of influential papers subscribed to the latter perspective, establishing a relationship between initial institutional context and the subsequent effects of the aid/resource curse: institutions “*mediate* the impact of unearned foreign income” (emphasis added, Ahmed 2012; also, Boschini et al. 2003; Brunnschweiler 2008). This interpretation tends toward defining institutions according to discrete variables, such as: property rights and corruption (Brunnschweiler 2008; Mehlum, Moene, and Torvik 2006a; Mehlum et al. 2006b), factors related to investment, openness, and corruption (Papyrakis and Gerlagh 2004), or categorical measures such as ‘rule-based,’ ‘outcome-related,’ ‘property rights,’ and ‘contracting’ institutions (Boschini, Pettersson, and Roine 2011).

Two problems emerge from the exogenous approach to institutions. First, it goes against the intuitive understanding that dramatic changes in the economic conditions of a country - e.g. from increase natural resource or foreign aid rents - should likely have *some* sort of effect on the political institutions of that country. Second, while attempts at parsimony are useful for econometric tests, there is clear disagreement amongst scholars as to *which* institutions matter, and how to best define and/or measure them. Accordingly, the exogenous approach to institutions is, though valuable, only half the truth. On the reverse, this is not to suggest that the early interpretations of exogeneity were fully accurate either: many of the findings in early seminal papers positing that initial natural resource levels would determine institutional outcomes have been repeatedly refuted (Boschini et al. 2007:16).

A new and more robust ‘third way’ has emerged, with greater consideration to the *interactive relationship* between institutions, resource/aid rents, and economic/political outcomes. While extant political institutions often predate the onset of natural resources or foreign aid dependency, the influx of substantial new revenue streams will have such a distortory effect on the economy as to necessarily have some implication on institutions. For example, when public income is derived from natural resources, political elites will have an incentive to block institutional development in order to maximize their control over distribution of these rents (Acemoglu and Robinson 2006). Such a model of institutions is presented in detail in Andersen (2012).

For the aid curse, very similar modeling is shown in Knack (2001). With incentives and elite behaviour subject to examination in more detail below, the key point here is that institutions are not static; they both influence and are influenced by other structural factors in the political

economy (Acemoglu and Robinson 2006; Andersen 2012; Knack 2001). This is complimentary to the BDM model: “in addition to determining the mix of goods leaders use, institutions determine how much policy leaders produce and how easy it is for them to survive” (Bueno de Mesquita and Smith 2010:937).

A key distinction in the BDM model is that political institutions refer broadly to all the factors that come together to determine the necessary size of the winning coalition and the composition of the overall selectorate (cf. Bueno de Mesquita and Smith 2010:937). This contrasts other conceptualizations of ‘institutions’ that focus on discrete categorizations, such as ‘corruption’ or ‘rule of law.’ In the BDM model, a small coalition system generates institutions that favour a focus on the distribution of private goods, to be used “as discretionary resources by the leader or doled out as private benefits for the leader’s supporters” (Smith 2008:781). The opposite holds for large coalition systems, which engender institutions that encourage the provision of public goods.

A key advantage of the BDM conceptualization of institutions is that it “allows comparison across all regimes, rather than between categorizations” (Bueno de Mesquita and Smith 2010:937). The BDM model understands institutions as a spectrum along which different sizes of selectorate and winning coalition can be placed. This is commensurate with a number of influential papers that, taking a ‘systems’ approach to institutions, have observed differences in how public goods are distributed: democracies (as opposed to autocracies) and parliamentary systems (as opposed to presidential systems) are likely to spend more on the provision of broadly targeted public goods (Acemoglu and Robinson 2006; Ahmed 2012; Persson, Roland, and Tabellini 2000). The broader point here speaks to the importance of focusing not on individual features – like property rights, risk of expropriation, or rule of law – or on dichotomous categorizations (e.g., ‘democracy-or-autocracy’) but instead on the broader political institutional environment, as in the BDM model. The BDM model is amongst the first to draw these various observations on institutions into a “unified theoretical approach” (Bueno de Mesquita and Smith 2009b:170).

(b) Incentives

Importantly, the preferences of political elites interact with the above-described political institutions to shape an incentive structure that has conditioning effects on elite behaviour. A new wave of political science literature has recognized that “political leaders are not the guardians of the state; they are self-interested actors who implement policies to secure their survival in office, not to promote societal welfare” (Smith 2008:792). Equally, recall the central axiom of the BDM model, that “political leaders are motivated first to gain and retain political power and, conditional on meeting that goal, to maximize their discretionary control over government revenue” (Bueno de Mesquita and Smith 2009b:171).

The introduction of rent-seeking models into scholarship on the aid and resource curses carried an implicit belief that political leaders had very short time horizons, and that they steeply discounted the future. Olson’s (1993) ‘roving bandit’ describes a leader who seeks to maximize consumption of all available resources in the present period, with deleterious macroeconomic effects in the next period. While there is no shortage of examples of leaders making off with their countries’ wealth, this in fact rarely happens overnight. Rather, in the near term, many authoritarian leaders actually supplied considerable amounts of goods and services to their people (Wright 2008). Short time horizons are not universal, even for dictators. Accordingly, the range of potential time horizons dramatically affects a leader’s incentives (Yuichi Kono and Montinola 2009).

The BDM model explains such time horizons in terms of incentive structures for elites, as shaped by political institutions (formal and informal). Both the literature on leader time horizons and the BDM model acknowledge that “incumbent political leaders want to reduce the size of their coalition— they want to purge members—if they can” (Brautigam 2000; Bueno de Mesquita and Smith 2009b:183; Wright 2008). However, “those outside the winning coalition prefer increases in

the inclusiveness of political institutions because of the public goods focus it induces” (Smith 2008:792).

Accordingly, incentive structures alter the distribution of public goods to be provided. As described earlier, the provision of such public goods often leads to collective action and free rider problems, moral hazard, and a tragedy of the commons (cf. Bräutigam and Knack 2004). Whereas long time horizons encourage investment in public goods, short time horizons (indicative of challengers to the regime) encourage the diversion of public funds to three private uses: repression, pay offs, and personal aggrandizement (Wright 2008). Put differently, “unstable autocrats who face short time horizons have an incentive to use aid money to pay for repression or buy off potential threats to the regime in a time of crisis (...) The short time horizon these autocrats face forces them to raid any available revenue, including foreign aid, in an effort to repress or pay off challengers to the regime” (Wright 2008:975). Even for dictators, two aid (or resource) curse scenarios are equally possible, according to incentive structures: “Autocrats who face short time horizons would likely use foreign assistance for personal consumption, whereas those who face long time horizons should invest aid in public goods that grow the economy so the autocratic regime can take from a larger pie in the future” (Wright 2008:974). Precisely the same point is made in the BDM model; in terms of public policy, “leaders choose between a public goods or a private rewards policy focus depending upon how many supporters they need to survive in office (the winning coalition size)” (in Smith, 2008:780; for detailed discussion on public and private goods, cf. Bueno de Mesquita and Smith 2009b:172).

In summary, the incentive structures and preferences of leaders are determined by the (a) desire to remain in office, (b) the time horizon of the leader (not always short, even for dictators), and (c) the necessary mixture of public and private goods to be provided (conditions set by the nature of political institutions, e.g. the structure of the selectorate and winning coalition).

(c) The curse of ‘unearned income’

The analysis thus far has focused on the way in which the BDM model of political survival provides a unified theory of institutions, incentives, and elite preferences. Yet, what is it precisely about foreign aid or natural resources that cause such pernicious economic outcomes? Why do countries which *already* had such poor institutional quality and weak economic performance find themselves so much worse off after the discovery of significant oil or mineral deposits, or following a large influx of foreign aid? To answer this, we must look in large part to the nature of government revenue, with important insights from the BDM model converging with observations elsewhere in the literature (e.g. Morrison 2010).

Simply put, governments obtain revenues either through “taxation on productive economic activities [or through] resources *derived independent of the citizens’* willingness to engage in the economy” (emphasis added, Smith 2008:781). The latter are often described as unearned income (or, elsewhere labeled nontax revenue, sovereign rents, or ‘free’ or ‘slack’ resources), which are defined as “income generated from outside a country’s border that can change (either directly or indirectly) a government’s revenue base” (Ahmed 2012:165). Similarly, Bueno de Mesquita and Smith describe unearned government income as absolving “the government [of the need] to provide conditions, such as high levels of public goods, that are conducive to economic activity by residents in order to generate revenue” (2009:172). Though slight differences apply, aid and natural resources are the most substantial forms of such unearned income; both “are paid by foreign actors; (...) are often substantial and accrue directly to the state; and only few people in the recipient government are involved in generating them, while many are involved in using and distributing them” (Therkildsen 2001:2; Beblawi 1987 in Morrison 2010).

Unearned income often induces discretionary spending practices by governments, with less corollary requirement for public accountability. It is known with rentier states that oil (and foreign aid) have harmful effects on government accountability through the government’s reduced reliance

on taxation (Ahmed 2012; Morrison 2010; Ross 2004a, 2004b; Therkildsen 2002). As Brautigam notes, “when the flow of revenue does not depend on the taxes raised from citizens and businesses, there is less incentive to be accountable to them” (Brautigam 2000:25). Equally, the BDM model addresses the effects of government revenue on public accountability, noting, “leaders who rely on taxing productive economic activity to generate the resources needed to reward their coalition find suppressing public goods to be unattractive. However, leaders with access to abundant, essentially labor-free resources ... such as natural resource rents or foreign aid can suppress [public] goods with little if any damage to their revenue” (Bueno de Mesquita and Smith 2010:937). The implication, then, is the importance not (only) of a country’s total wealth, but the source of that wealth: “if leaders need to tax productive economic activities to generate revenues, then the prospects for democratization are much stronger than if leaders gather resources without having to generate policies that encourage people to work” (Bueno de Mesquita and Smith 2010:949).

Related to the lack of accountability surrounding unearned incomes is the fungibility (or, elsewhere labeled as ‘appropriability’ or ‘lootability’) of rents from natural resources and/or foreign aid. Fungibility and the concomitant lack of accountability permits actors to “engage in certain behavior that would not be possible in the absence of these funds” (Ahmed 2012:149). This is particularly observed in the foreign aid literature; given the considerable sums of money at stake - between 1960 and 1990, foreign aid contributions topped roughly US\$1.7 trillion - and the relatively lackluster results, there is concern that “development assistance earmarked for critical social and economic sectors is being used directly or indirectly to fund unproductive expenditures” (Devarajan and Swaroop 1998:2). Case studies have shown that “that external assistance intended for development purposes merely substitutes for spending that governments (...) would have undertaken anyway; the funds freed by aid are spent on non-development activities and administrative services in particular” (Devarajan and Swaroop 2000:10). This is an area of research gaining traction in the natural resources literature as well (Boschini et al. 2007). Generally speaking (and in line with the BDM model), institutions are more decisive when the government’s revenue stream is more fungible (and less accountable) (Boschini et al. 2007:4; Bueno de Mesquita and Smith 2010:939).

That unearned income may have ‘amplifying’ effects on institutions is reflected in a growing number of papers on the topic of foreign aid and natural resources, many of which resonate closely with the BDM model (e.g. Dunning 2008 in Morrison 2010; Morrison 2009; Wright 2008). Dutta et al (2013) present a groundbreaking paper, in which they argue that foreign aid “neither causes democracies to become more dictatorial nor causes dictatorships to become more democratic. *It only amplifies recipients’ existing political-institutional orientations*” (emphasis added, Dutta et al 2013). The BDM model accepts the proposition of such an amplification effect, noting that where mass public mobilization is likely (either through elections or revolution), additional volumes of free resources in large coalition systems encourage leaders to expand the supply of public goods. The opposite (a contraction of public goods) holds in small coalition (e.g. more autocratic) institutional contexts (cf. Smith 2008).

Supporting the amplification effect of unearned income on institutions, recent studies have found unearned income to be associated with lower likelihood of regime transition (Morrison 2009), an increase in corruption where extant institutional quality is weak (Bhattacharyya and Hodler 2010), and a negative effect on growth where institutional capacity is low (Boschini et al 2007 in Morrison 2010). Andersen shows how elites strategically “invest in de facto political power in order to gain favorable economic institutions” (Andersen 2012). Moreover, this “investment in de facto political power also indirectly increases the probability of non-democratic de jure political institutions in the next period,” and, therefore, to the “*persistence of political institutions*” (emphasis added, Andersen 2012). Described earlier, Wright shows that free resources (unearned income) tend to be turned into public goods where leaders have long time horizons (more stable regimes),

but equally tend to be diverted toward malfeasance when time horizons are short (regimes are less stable) (Wright 2008; Yuichi Kono and Montinola 2009).

(d) Summary: Insights from a meta theory

Although scholarship to date has paid little attention to the similarities between the natural resource and foreign aid curses, it is reasonable to suggest that the BDM model of political survival represents a unifying ‘meta’ theory capable of bringing together many influential contributions on each of the curses. The central tenets of the BDM model are increasingly reflected in the logic structures of most of the recent literature on the aid and natural resource curses (Ahmed 2012; Smith 2008; Torvik 2009). In short, while the pursuit of political survival is logical at the micro level, it often results in pernicious effects for macroeconomics and public welfare, owing to the distribution of public and private goods it induces.

The BDM model explains how strategies of elite / regime survival have direct implications for macroeconomic performance, political liberalization, and potential socioeconomic welfare gains. The political institutions of a country influence and determine the policies required by a leader to survive in office, and equally for the strategies of opponents to challenge the incumbency; the model shows that “incumbents are most likely to survive when they are beholden to only a *small coalition* of supporters and when they have *access to resources – such as oil and aid* – that do not require significant economic participation by the citizens” (emphasis added, Bueno de Mesquita and Smith 2010:936). As with many other influential papers on the aid and resource curse, the BDM model posits the nature of government revenue to be central to understanding the public policy choices made by political elites. Under certain institutional contexts (specifically, large winning coalition settings, e.g. more pluralistic systems), political elites are likely to transform “the resource bonanza associated with the discovery of a readily exploitable *natural resource* or an influx of *foreign aid* into economic development and improvements in societal welfare” (Smith 2008:781). However, in other institutional settings, elites are likely to divert substantial parts of the rents from natural resources and/or foreign aid toward personal and cohort survival, with “insidious effects on political and economic development” (Bueno de Mesquita and Smith 2010:949). Accordingly, it is “institutions and the level of free resources [that] determine which policy best enhances the leader’s prospects for survival” (Smith 2008:782); equally, I would suggest that together these variables determine the manifestation of the resource and/or aid curses.

The distortionary effect of unearned government income on the allocation of public and private goods leads to suboptimal macroeconomic effects (e.g. Boschini, Pettersson, and Roine 2003). An increase of unearned income revenues worth 10% of GDP will, in the institutional context of a small winning coalition, reduce the chance of a leader being deposed by 20-50% (Bueno de Mesquita and Smith 2010; see also, Brautigam 2000; Smith 2008; Ahmed 2012; Besley and Persson 2009). In Ahmed (2012), unearned income is expanded to include remittance flows; the findings hold, with similar effects on regime survival. In particular, Ahmed notes that “the combination of aid and remittance inflows received in more autocratic polities reduces the likelihood that governments will be ousted from power, experience incidents of major political discontent, and undergo regime collapse” (Ahmed 2012:148).

Finally, observations from the BDM model are largely in line with the institutional ‘amplification’ and ‘persistence’ effects presented in Andersen (2012) and Dutta et al (2013). The negative interaction between institutions and nature of government revenue appears greater in the context of small winning coalitions and ‘free’ resources; in other words, the more democratic a country, the less negative effect aid or natural resources appear to have. Further keeping with the amplification effect, it is noted that unearned income in a country with a large winning coalition size may “accelerate the expansion of coalition size” or, in other words, support political liberalization (Bueno de Mesquita and Smith 2010:946).

5. *Testing the Model: the Effects of Simultaneous Resource and Aid Dependency*

Having discussed the theoretical foundations for a model that can encompass the twin curses of natural resource and foreign aid dependencies, I next turn to exploring the implications of the aid and resource curse co-existing simultaneously. The purpose is more to be illustrative than definitive; it is outside the scope of this paper to provide a far-reaching quantitative analysis, and, instead, what are presented are preliminary interpretations. I focus on one possible relationship involving foreign aid and natural resources that has received surprisingly little attention: the socioeconomic welfare effects in a country that has an economy largely dependent on the natural resources sector and which is also the recipient of significant foreign aid.

While the BDM model gives some sense that both curses operate according to a familiar logic, it remains undetermined what the formal modeling of this relationship might look like. Recent world events may have offered an answer: greater attention in the last decade on the potential bonanza of natural resources for many developing countries has simultaneously provided great optimism as well as a renewed concern about the resources curse. Following this, many developed countries have pledged a new round of aid to their Southern peers to manage the dependency on natural resources. Accordingly, it seems appropriate to propose an econometric model that examines the lagged effects of increased foreign aid flows to already-resource-dependent countries. Other relationships are possible: for example, the discovery of substantial natural resources in an already heavily aid-dependent country. In keeping with the scope of this paper, however, I focus only on the first model, leaving alternate model specifications for others to analyze. With this in mind, the following research question and hypotheses are proposed:

Q: What are the effects of a country's dependency on natural resources and foreign aid on socioeconomic welfare?

H₁: In countries already largely dependent on natural resources, there is a *critical threshold*, inside which foreign aid positively affects socioeconomic development.

H₀: In countries already largely dependent on natural resources, foreign aid has *no effect* on socioeconomic development.

(a) Data and Measurement

Dependent variable. To measure the country-level socioeconomic welfare effect of aid and resource dependency, I take as the dependent variable the change in maternal mortality between 2005 and 2010 (variable: *mortality*). Previously, I had anticipated using change in Human Development Index score; however it quickly became apparent that the use of an aggregate index was potentially leading to over specification in the model, causing positive or negative changes to be missed. For the purposes of an initial investigation, I believe maternal mortality rates to be a more effective measure of the most basic elements of socioeconomic welfare (furthermore, this approach has been used throughout the international development literature). Results are reported in the positive; a + sign indicates a decline (improvement) in maternal mortality. I include only those countries with a population over 1 million in 2010, resulting in a sample size of 151 countries (Annex A).

Independent variables. The independent variables relate to dependency on natural resources (*natres*), dependency on foreign aid (*aid*), and the operational mechanism through which the curse(s) are manifest: institutions (*agg_instit*).

(1) Foreign aid. To measure foreign aid (*aid*), I use a measure of official development assistance disbursements (reported in hundreds of millions of \$ US). Furthermore, I use an averaged figure, over the period 2007-2010, to account for any potential volatility in aid flows between years. In model 2 (discussed below), I use three categories of aid volume: low (<US\$50m/p.a.; '*aidlow*'), medium (\$50m-480m/p.a., '*aidmed*'), and high (> \$480m/p.a., '*aidhigh*').

(2) Natural resources. To account for 'natural resource dependency' (*natres*) I use a measure of the value of mineral and fuel exports as a share of total exports. The logic behind this is briefly as follows. The econometric literature on natural resource wealth has confused a number of conceptualizations with subtle yet important differences. First, only certain types of resources exhibit pernicious effects. This is largely related to the fungibility or appropriability of the resource; for example, *ceteris paribus*, agricultural products are less appropriable than minerals or oil (Boschini et al. 2003). In keeping with this, I therefore focus on 'point-source', sub-surface resources: minerals and oil/gas (Boschini et al. 2007; Isham et al. 2005; Mehlum et al. 2006b; Rajan and Subramanian 2005; Torvik 2009). Furthermore, it is with resource *dependency* (as opposed to '*abundance*') that one observes the effects of the resource curse (Brunnschweiler 2008). Related to this, few papers measuring levels of natural resources acknowledge the difference in meaning behind 'production' and 'exports' (Boschini et al [2003] are an exception). Hence, I focus on 'dependency' as measured through earnings from natural resources as a share of overall exports. Finally, to account for volatility in commodity prices and gaps in data, I average these figures over the period 2000-2008.

(3) Institutions. Finally, recall that both curses are largely seen as the interaction between dependency on unearned income and the institutional context. In measuring 'institutions', I depart from many earlier methodologies, which often focused on discrete variables such as corruption or rule of law (e.g. Boschini et al 2003). In large part, these earlier approaches have been refuted (cf. Wright 2008:979). Instead, recall that in the BDM model, the salient political institutions are the size of the winning coalition and of the selectorate; this encapsulates a mix of regime type and inherent systemic stability. To proxy for this, I use the POLITY index to describe institutional variables (similar to Bueno de Mesquita et al in their 2003 model). As well, I include the 'Underlying Vulnerability' index, which is modelled off the Political Instability Task Force dataset with the addition of a number of social, economic, and political indicators for regime vulnerability.² I present two aggregate indices (*agg_instit08* and *agg_instit10*), which reflects the aggregate of the POLITY and Underlying Vulnerability measures, averaged over the periods 2000-2008 and 2007-2010. I believe this approach toward institutions to be an acceptable reflection of both the nature and stability of institutions in each country, generally in line with the BDM model's intended understanding of institutions. Given that all leaders desire survival, this gives a sense of de jure and de facto institutional constraints, which might influence natural resource and foreign aid revenues. The logic behind the different date ranges is intended to model the interactive nature of institutions vis-à-vis the aid/resource curses. The first period of dates correspond to the interactive effect of institutions with natural resources; the second period of dates correspond to the interactive effect of institutions with foreign aid flows.

Controls. In keeping with convention, I include a handful of controls to account for the extraneous influence of other factors. In the first model (models [1a-d]), I include as controls: GDP (*gdp*); human capital, measured as % of adult population that is literate (*literacy*); and, country population (*population*). In the second model (models [2a-c]), I include only *gdp* and *population*; I drop *literacy* as a control in the second model as I found it to be statistically less helpful and less

² After reversing the direction of scores in the Underlying Vulnerability index and re-scaling them from the original 0 to +10 to a new -5 to +5 scale, I then add together the new Underlying Vulnerability scores and POLITY scores to create an aggregate index to proxy for institutional context.

logical to the model. Unlike some studies on the curses, I do not use instrumental variables to address for possible endogeneity. This is in keeping with critique identified in Wright (2008), Torvik (2009), and elsewhere.

(b) Model Specification, Results and Interpretation

Initial Observations. For natural resources, half the countries in my 151-country sample derived less than one-quarter of their export earnings from natural resources. However, nearly 40 countries – which range in political, economic, and social context from as far afield as Australia and Norway to Iran and Libya – derive two-thirds of total exports from natural resources. On foreign aid dependency, half of the countries received more than US\$150m per year, and the top quartile (nearly 40 countries) received US\$450m or more per year in foreign aid. Clearly, for both foreign aid and natural resources, there is a substantial group of countries dependent on large sums of external ‘unearned’ income.

Formal Model. I present the results of two models (Tables 1 and 2). In the first, I explore the effects of natural resources and foreign aid, individually, on maternal mortality rates. Given the dearth of previous research on the socioeconomic welfare effects of the two curses, this first step is important to confirm that the effects of different forms of unearned income on outcomes extend beyond macroeconomic growth and political variables.

$$\Delta \text{maternal mortality}_{natres} = \text{natural resources} + \text{institutions}_{2008} + [\text{natural resources} * \text{institutions}_{2008}] + [\text{controls: literacy, gdp, population}] \quad (1a)$$

$$\Delta \text{maternal mortality}_{aid} = \text{aid} + \text{institutions}_{2010} + [\text{aid} * \text{institutions}_{2010}] + [\text{controls: literacy, gdp, population}] \quad (1b)$$

Second, I investigate the effect of different levels of foreign aid on maternal mortality, in resource-dependent countries. The interest here is in the effect of different volumes of aid flows, in a country that has a pre-existing dependency on natural resources. Formally:

$$\Delta \text{maternal mortality} = \text{natural resources}_{2008} + \text{institutions}_{2008} + \text{population} + \text{gdp} + [\text{low aid}_{2010}, \text{medium aid}_{2010}, \text{high aid}_{2010}] \quad (2)$$

Table 1. OLS results, change in maternal mortality or GDP growth – full (151 country) sample.

	(1a)	(1b)	(1c)	(1d)
	Effect on maternal mortality		... Δ GDP growth	
natres	-100.72 (0.01)	---	-2.18 (0.53)	---
aid	---	1.28 (0.47)	---	0.24 (0.11)
agg_instit08 (or) agg_instit10	-4.19 (0.00~)	-2.21 (0.00~)	0.11 (0.14)	0.10 (0.05)
natres * agg_instit08	4.46 (0.01)	---	0.08 (0.57)	---
aid * agg_instit10	---	0.06 (0.59)	---	-0.02 (0.01)

Results. In my econometric modelling, simple OLS regressions present intuitive preliminary results (Table 1). Foreign aid has a positive, albeit small, effect on maternal mortality (column B);

however, the interactive effect of institutions does not reach statistical significance. The opposite results arise for natural resources (column A), which have a negative baseline effect, with a positive interaction with institutions.

These results are intuitively in line with what we would expect to see, and accord with observations elsewhere in the literature. For aid to be effective in reducing maternal mortality, the government (and the nature of political institutions) need not necessarily be part of the causal path. Often aid agencies have been known to circumvent governments through project-based approaches. Indeed, as Brautigam observed, “as aid dependence increases, donors increasingly ignore rules that exist for aid to be channeled through the government, and instead provide their aid off-budget and with little input from the bureaucracy in its programming” (Brautigam 2000:24).

On the other hand, the effect of natural resource revenues on reducing maternal mortality requires government involvement (and therefore implicate institutional context), since it is governments, not third-party agencies, which translate natural resource revenues into public (or private) goods. The negative baseline coefficient shows that natural resources initially have a negative effect on socioeconomic development, but this effect becomes positive at high levels of institutional quality, as indicated by the positive interaction. As we know, depending on institutional considerations, natural resource rents channelled through the government may be diverted away from public goods provision (e.g. addressing maternal mortality) toward either private, patronage goods, or to ‘white elephant’ projects. Across all specifications, there is little change in effect when controls for population size, GDP, and literacy are introduced.

Table 2. Regression results, categorical by volume of foreign aid.

	(a) Effect on maternal mortality		(c) ... Δ GDP growth
	Full Sample, n=151	Nat. Res. Dep., n=60	n = 60
natres	5.84 (0.64)	30.65 (0.29)	-2.18 (0.43)
<u>aidlow</u>	-32.28 (0.003)	-37.92 (0.08)	3.67 (0.07)
aidmed	---	---	---
<u>aidhigh</u>	40.94 (0.00~)	26.68 (0.17)	-1.48 (0.41)
agg_instit08	-0.78 (0.23)	1.12 (0.30)	0.19 (0.07)

My second set of results pertains to the effect of different volumes of foreign aid in resource-dependent countries. I reduce the sample to those countries that derive >40% of export earnings from mineral wealth. This subset consists of 60 natural resource-dependent countries.

Moving from the full sample to only those countries dependent on natural resource exports leads to interesting changes in the effect of foreign aid on maternal mortality. In short, the effects of being a low aid recipient country are more negative for resource dependent states; on the other hand, there is much less added benefit to being a high aid recipient in resource dependent countries. This effect persists, to a lesser degree, even with five influential outlier states (Iraq, Yemen, South Africa, Zimbabwe, and Angola) removed (not shown). This result clearly shows that foreign aid has an effect on socioeconomic welfare that differs in natural resource dependent countries from those less dependent; accordingly, the null hypothesis (H_0) can be rejected.

As for the principal hypothesis, the results are not as immediately apparent, though I would suggest they lean in favour of supporting the argument that there is a threshold between which foreign aid is most *optimal* to supporting socioeconomic development. First, we see that for the 151-country sample there is a penalty of -32 maternal deaths per 100,000 births when a country

drops from medium aid volume to low aid volume (ref. col. A); that is, a country has 32 *more* maternal deaths per 100,000 births. However, for natural resource dependent countries, this penalty increases to nearly -38 maternal deaths (col. B; a difference between the two samples of 15%). Accordingly, receiving a medium volume of aid, as opposed to a low volume, is all the more important in a natural resource dependent country. Second, similarly observe the effects of moving from being a medium volume aid recipient to a high volume recipient. For countries in the full sample, the effect of receiving more than US\$480m/year in aid is a reduction of maternal mortality by nearly 41 deaths per 100,000 births (col. A), as compared to being a medium volume aid recipient. However, for resource dependent countries, this effect is only a reduction of 27 deaths per 100,000 births (col. B; a difference between the two samples of 35%). Again, being a *medium volume* aid recipient appears *more optimal* for resource dependent countries, whereas being either a low, or especially a high, volume aid recipient is more optimal for less resource dependent countries. While not conclusive, this suggests there may be a 'threshold' effect, in line with the primary hypothesis (H_1) presented earlier.

While the scope of this paper is limited to offering a preliminary analysis, I do undertake a few simple robustness checks (beyond the aforementioned inclusion of control variables) to verify that the model has been correctly specified and the general accuracy of the econometric results. In terms of general OLS assumptions, the models passed most conventional hurdles; p-values reported in brackets below each result were mostly significant to conventional levels ($p < 0.1$). In terms of goodness of fit, each had acceptable R^2 and F-statistic values. Furthermore, in moving across samples – from 151 countries to 60, then with the removal of 5 influential outlier countries, the results persist.

(c) Interpretation and Discussion

Returning to the central focus of this paper – the twin curses of foreign aid and natural resources – these findings may support the existence of, and interaction between, the two curses. To check the robustness of this assertion, I substitute changes in GDP growth, in place of maternal mortality, as the dependent variable; this is intended to show the breadth of effect that different volumes of aid have in resource-dependent countries. The effects mirror what is observed for maternal mortality. In short, we see that in resource dependent countries, low volumes of foreign aid may have a positive effect on GDP growth rates, while high volumes of foreign aid have a harmful effect on GDP growth (Table 1c,d and Table 2c).³ This is line with much earlier research on the macroeconomic effects of foreign aid. When interpreted alongside the maternal mortality data, I believe this suggests that, above a certain level, unearned income is diverted toward malfeasance, with deleterious economic and social welfare effects.

Aid, though a form of unearned income and certainly quite fungible in many instances, is less appropriable than rents from the export of natural resources. With the latter, most of the rents end up passing through government coffers, whereas aid money can often be channelled around the government. Across the full sample, aid is achieving its intended effect of reducing maternal mortality rates; hence, we see the large effect of moving from low to medium to high volumes of aid (a total change of +73.22 in Table 2, col. A). Likewise, in a resource rich country, aid plays a critical role for supporting public goods (e.g. improving maternal health) *up to a certain point*. Supporting these findings, in a comparison oil booms and added aid flows, Collier discovered that certain aid modalities had significant added value for economic growth, unlike oil booms (Collier 2006).

However, the aid curse is at work in resource rich countries too. In these countries, beyond a certain point, the added impact of aid drops off quickly; comparing col. A and B, the drop from

³ Supporting my finding, a study by Wright (2008) observed that in unstable regimes an increase in aid equivalent to 1.5% of GNI led to a 2% decrease in growth.

40.94 to 26.68 on the variable 'aidhigh' may suggest the fungibility of aid in resource-rich countries. Similarly, Collier (2006) also found that aid was subject to fast diminishing returns. Equally, if there were any doubt that aid was a curse in resource-dependent countries (and not, as the counter-argument may go, that it is simply the natural resource curse accounting for 100% of the malfeasance), the results in Table 2 col. C convincingly shows that beyond a certain threshold, aid also takes on a negative economic effect. This is supported in earlier findings by Djankov et al (2008), who discovered the aid curse to have larger observed effects than the curse of oil.

In summary then, together I believe the two models, reported in Tables 1 and 2, demonstrate two key (albeit tentative) findings: (1) that between certain levels, aid has an important effect on improving socioeconomic welfare; and, (2) above a particular level, excess amounts of aid in resource-rich countries lead to the simultaneous existence of an aid and resource curse, with suboptimal effects on human development.

That being said, it should be repeated that these are preliminary results and not intended to reflect an exhaustive econometric analysis; that would simply be far beyond the remit and scope of this paper. Note that throughout this analysis my intent has not been to interpret the size of effect, but rather, as a first perspective on the data, to simply query the direction of effect and statistical significance. The preliminary results do raise a cautionary flag, suggesting that considerable additional attention is warranted in order to better understand the relationship between foreign aid and socioeconomic development in resource-rich countries. These initial results appear to suggest that countries which are underdeveloped yet rich in natural resources may be able to harness these natural endowments toward improvements in socioeconomic welfare, so long as foreign aid income remains below a certain threshold.

Conclusion: Policy Implications

This paper has presented a first look at the co-existence and interaction between the natural resource and foreign aid curses. While the existing areas of research on both curses have individually developed into theoretically and empirically rich bodies of scholarship, there has been surprisingly little effort to link the two. Yet, in reality, it is rarely possible to separate the effects of dependency on natural resources and on foreign aid; many developing countries now find themselves endowed with both. Accordingly, I have set out to present an initial contribution to this relatively novel research agenda, by offering a theoretical framework built off the foundations of a widely respected political economy model of elite behaviour, followed by a preliminary quantitative analysis of the likely effects of foreign aid flows into a natural resource-dependent country. Together, the theory and empirics suggest that the two curses do indeed operate accordingly a familiar logic, largely influenced by institutional context and the nature of government income. In resource-rich countries, additional receipts of foreign aid, while beneficial at first, ultimately have a deleterious effect.

These findings have policy implications that extend beyond academia. Until now, the policies suggested for addressing these curses have differed according to whether one was discussing natural resources or foreign aid. Morrison provides a very insightful comment on this, noting how,

“the general thrust of the natural resource literature has been to take the money out of the hands of the government, or at least attempt to change the way the government uses it. In the aid community, by contrast, the movement has been toward ensuring governments have ‘ownership’ over the way they spend the resources” (2010).

With respect to managing national natural resource wealth, many of the approaches being championed by the international community – including policy conditionality and project-based assistance – mirror the unsuccessful directions of foreign aid policy in the 1980s and 1990s. In the last 3 to 5 years, the stakes for addressing the overlap of foreign aid and natural resource wealth have become much larger. Improved terms of trade, driven by growing demand from emerging markets, means many developing countries are receiving substantial windfall revenues from their natural resources (Warner 2006). Many developed countries have responded by pledging substantial new foreign aid allotments to countries struggling to turn their resource wealth into the engine for socioeconomic development. This is happening despite a serious lack of evidence-based research on the likely impact of these new aid flows in resource-dependent countries. Few donors have acknowledged that aid may be harmful to the policy environment, as tentatively drawn out from the findings here; in some instances, it has actually been shown to have been beneficial to *reduce* aid flows at critical moments (cf. Bueno de Mesquita and Smith 2010:946). While we have increasingly rich understandings of which aid policies (e.g. Smith 2008:791; Knack 2001) and which policies toward natural resource wealth (e.g. Boschini 2006; Morrison 2010:63) might work, the lack of deliberate attention on both revenue streams simultaneously has hampered any attempt to provide useful policy guidance for countries struggling with both concurrently.

This paper has sought to provide an important first step toward addressing this. By placing different forms of unearned income – be they rents from foreign aid or from natural resources – under ‘one roof,’ the theoretical model presented herein gives some renewed indication of the importance of institutions, leader incentives, and the fungibility of certain forms of government revenue. Unlike some of the more narrowly prescribed policy directions given for improving the effectiveness of foreign aid (and, more recently, for addressing natural resources wealth), these early findings suggest the need to consider institutions from a political economy perspective that

pays careful attention to the factors driving regime stability and leader survival, and particularly on the nature of each country's 'winning coalition.' From here, we are encouraged to think about policies that may lead to more pluralistic (though not necessarily democratic) institutions that would incentivize leaders toward the provision of public, rather than private, goods.

Finally, it should be repeated that the conclusions presented here represent only the first in what needs to be a rigorous and deliberate research agenda for studying the simultaneous receipt of large foreign aid flows, in natural resource dependent countries. A research agenda is required that comprehensively marries together the development of a robust theoretical model (likely building from the foundational work of Bueno de Mesquita et al), tested through rigorous econometric modelling and analyzed and confirmed with a series of detailed multi-country qualitative case studies. The initial findings presented herein hint at the fruitfulness of such a turn in direction for research on the 'curse' of natural resources and foreign aid.

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Appendix A. Sample Countries

Afghanistan	Georgia	Netherlands
Albania	Germany	New Zealand
Algeria	Ghana	Nicaragua
Angola	Greece	Niger
Argentina	Guatemala	Nigeria
Armenia	Guinea	Norway
Australia	Guinea-Bissau	Oman
Austria	Haiti	Pakistan
Azerbaijan	Honduras	Panama
Bahrain	Hong Kong SAR, China	Papua New Guinea
Bangladesh	Hungary	Paraguay
Belarus	India	Peru
Belgium	Indonesia	Philippines
Benin	Iran, Islamic Rep.	Poland
Bolivia	Iraq	Portugal
Botswana	Ireland	Qatar
Brazil	Israel	Romania
Bulgaria	Italy	Russian Federation
Burkina Faso	Jamaica	Rwanda
Burundi	Japan	Saudi Arabia
Cambodia	Jordan	Senegal
Cameroon	Kazakhstan	Serbia
Canada	Kenya	Sierra Leone
Central African Republic	Korea, Rep.	Singapore
Chad	Kuwait	Slovak Republic
Chile	Kyrgyz Republic	Slovenia
China	Lao PDR	South Africa
Colombia	Latvia	Spain
Congo, Dem. Rep.	Lebanon	Sri Lanka
Congo, Rep.	Lesotho	Sudan
Costa Rica	Liberia	Swaziland
Cote d'Ivoire	Libya	Sweden
Croatia	Lithuania	Switzerland
Cuba	Macedonia, FYR	Syrian Arab Republic
Cyprus	Madagascar	Tajikistan
Czech Republic	Malawi	Tanzania
Denmark	Malaysia	Thailand
Dominican Republic	Mali	Timor-Leste
Ecuador	Mauritania	Togo
Egypt, Arab Rep.	Mauritius	Trinidad and Tobago
El Salvador	Mexico	Tunisia
Eritrea	Moldova	Turkey
Estonia	Mongolia	Turkmenistan
Ethiopia	Morocco	Uganda
Finland	Mozambique	Ukraine
France	Myanmar	United Arab Emirates
Gabon	Namibia	United Kingdom
Gambia, The	Nepal	United States

Uruguay
Uzbekistan
Venezuela, RB

Vietnam
Yemen, Rep.
Zambia

Zimbabwe

Appendix B. Data Sources

Variable	Source
agg_instit08	Polity project & Economist Intelligence Unit (Underlying Vulnerability index)
agg_instit10	Ibid
aid	OECD
gdp	WB
GDP growth	WB
literacy	UNESCO
maternal mortality	WB
natres	UNCTAD
population	WB