

Master's thesis

NTNU
Norwegian University of
Science and Technology
Faculty of Social Sciences and
Technology Management
Department of Sociology and Political Science

Daniel Storholthe Kristiansen

Economic and Institutional Performance in Mozambique

Implications for the Coming Resource Boom

Master's Thesis in Political Science

Trondheim/Drammen, autumn 2013

With special thanks
to Professor Jonathon W. Moses for his absolute commitment to his students and his lecturing, and for diligently advising me through the various stages of my thesis. Always a prompt response without hesitation – through *over one hundred* e-mails and no less than three different project attempts. I finally finished one of them!

Til Orakeltjenesten Dragvoll
med takk for fem år blant fantastiske kollegaer og venner.

ECONOMIC AND INSTITUTIONAL PERFORMANCE IN MOZAMBIQUE: IMPLICATIONS FOR THE COMING RESOURCE BOOM

Daniel Storholthe Kristiansen

ABSTRACT

The resource curse literature predicts how both aid and natural resources leads to real appreciation, hurting competitiveness and disfavoring the producing sector, which is bad news for a nation at the outset of its industrial buildup. Furthermore, a resource boom might lead to undesired behavior undermining national institutions – bearing implications of a “double resource curse”. Mozambique is an aid-dependent nation now facing the outbreak of a resource boom, as recent natural gas discoveries bring potential for transforming one of the world’s poorest countries to one of the world’s largest natural gas exporters within decades. The literature provides us with expectations of such successful transformation being dependent on both sound economic and institutional development.

This study aims to uncover whether there are symptoms of Dutch Disease in the Mozambican economy, by tracking real appreciation through calculating effective exchange rate indices for the time period of 2002-2012 as well as analyzing sectoral development over the same time span. In continuation, we track institutional development in Mozambique with time-series data of institutional indicators developed by the World Bank. We find that institutions are weak and we observe signs of deterioration coupled with massive gas discoveries in recent years. The national economy is growing, and we cannot find signs of large shifts in sector development. However, the real exchange rate has appreciated in recent years. While the cause of this is not explained by our deployed literature, we find it interesting that fluctuations in foreign direct investments shows signs of correlation with the real exchange rate. The impact of FDI on developing economies will serve a potent variable for further research within resource curse frameworks.

Contents

I. Introduction	1
Objective	2
Structure of the study	4
Hypotheses.....	5
Main findings	7
II. Theory.....	7
Dutch Disease Theory	9
Institutional development theory	13
Occupied government resources.....	15
Reducing incentives	15
Aid amplifies, rather than change trajectory of development.....	17
Rent seeking and natural resources	18
Expectations	22
III. Analysis	25
Dutch Disease analysis.....	25
Aid dependency.....	25
Real exchange rate.....	27
Analysis of the real exchange rate in Mozambique	28
Foreign direct investments (FDI).....	38
Sector analysis.....	40
No Dutch Disease in Mozambique	43
Institutional development analysis	45
Natural resource wealth	45
Weakened bargaining power	47
Institutional performance	49
Aid impact uncertain, natural resource impact interesting.....	53
IV. Conclusions: Implications for the coming resource boom	55

Literature

Appendices

Figures

Figure 1: Aid flows and share of GDP.....	26
Figure 2: Bilateral Nominal XR indices; main trading partners	31
Figure 3: Bilateral Real XR indices; main trading partners.....	32
Figure 4: Real Effective XR & Nominal Effective Exchange Rate.....	33
Figure 5: REER & NEER, 2002-2012 (index, yearly averaged)	34
Figure 6: REER/NEER ratio.....	36
Figure 7: FDI, ODA and REER development	38
Figure 8: FDI, ODA and REER development	38
Figure 9: Sector output as % of GDP value added (minus FISIM)	40
Figure 10: Sector growth index, output in constant 2003 prices	42
Figure 11: Natural gas reserves	46
Figure 12: Worldwide Governance Indicators	52

Tables

Table 1: Expected effects of aid dependency and natural resource boom (pre-extraction) on the real exchange rate and institutional quality ..	5
Table 2: Aid to Mozambique, total 2002-2011	25
Table 3: Selected sectors share in GDP	41
Table 4: Main donors, 5-year average (2006-2011) disbursement to Mozambique in \$ millions.	47
Table 5: Aid dependency and institutional performance.....	50

I. Introduction

Is it possible that both aid and natural resource abundance – each thought to contribute solely positively toward economic growth – hamper, or even distort development in developing countries? According to the traditional natural resource curse literature – paired with research debates on “aid-curses” in more recent years – this might very well be true. The resource curse effects of the Dutch Disease, originating from the experience of declining growth in the wake of natural resource exploitation in the Netherlands, expects natural resources to weaken competitiveness and leaving producing sectors at a loss, with worries for the lasting effects of a temporary resource boom. As this paper will argue, the Dutch Disease effects of “non-earned”, external revenues from natural resource exploitation could very well be applied to aid inflows, with the same expected outcome from the Dutch Disease literature.

While traditionally occupied with economic mechanisms, in more recent years the resource curse literature has had a growing focus on the institutional impact of both natural resource abundant and aid abundant scenarios, both generating less than optimal expectations but through different processes and with different outcomes. Institutional development is expected to be hampered in the case of aid. In the case of natural resource abundance, weak institutions are prone to deteriorate further.

The implications of these assumptions does not bode well for Mozambique – having been a major recipient of foreign aid for several decades - recently finding itself in the spotlights on the international stage due to discoveries of massive natural gas deposits, possibly positioning the poor sub-Saharan developing country as one of the world’s most important gas exporters perhaps already within a decade. If aid has caused a Dutch Disease in the economy, competitiveness in the tradable sectors is already weakened before the setoff of a natural resource boom. At the same time, the possible hampering of institutional development from aid dependency is not preparing the developing economy for a coming natural resource boom in an optimal way – as weak institutions are expected to be unable to manage and transform the wealth potential in natural resources into real benefits for its population. As civil war tormented the country only decades ago, institutions are not expected to be strong. The possible deteriorating effect of aid on institutions, followed by the expected hurtful effects resource wealth might induce on such

weak institutions with losing growth potential through rent-seeking, results in a possible “double resource curse”, as both aid and natural resources might induce the classic Dutch Disease symptoms, and they could possibly have equally negative impacts – in different ways – on the quality and development of national institutions.

Objective

This study investigates the state of the Mozambican economy and the institutional development over the last ten years, from 2002-2012. It aims to uncover whether there are any symptoms of Dutch Disease in the Mozambican economy from large aid inflows, through macroeconomic analyses of sector development, trade performances and the development of the real exchange rate; the channel through which the Dutch Disease is theorized to weaken competitiveness and leads to a contraction of the tradable sectors. Secondly, it aims to track the institutional development, which is mapped out through the use of aggregated indicators of a range of institutional parameters. Aid is theorized to have a dampening effect on institutional development, both by more direct practical effects (such as tying up government officials in management of aid projects) and on a more fundamental level as it reduces the incentives of pushing through societal reforms necessary for democratic development, an argument based on the democratic reforms in Europe arguably stemming from the demand for government accountability to their tax payers. At last, results from the macroeconomic performance analysis along with the institutional development trends will enable us to draw out some expectations for the coming resource boom – how well the literature predicts Mozambique to be able to transform resource wealth potential into reality, institutional improvements being a premise.

Comprehending the roots, causes and implications of the development of a national economy and its relevant institutions, including international perspectives, cannot be fully done within the framework of a master’s thesis. This paper will not try to demonstrate causation. It does, however, humbly aim to contribute to the research debate, by testing assumptions from the existing literature on an economy where both the amount of aid has been, and the natural resource potential will be, among the world’s largest. The results

might at a minimum give grounds for further, in-depth research within one of the selected variables. It might also provide a starting point and a foundation for the future evaluation of the impact of the coming natural resource boom in Mozambique.

Overall, this paper seeks to contribute to the research debate by providing new and updated data on the state of the Mozambican economy. Given the lack of available and updated data, necessary for testing the deployed literature, this paper provides new analyses of the real exchange rate index in Mozambique, along with tracking sector development and export performance. The economic performance and institutional development is then analyzed in light of the aid and resource curse literatures. Sector data and development is collected from the Mozambican national institute of statistics by studying annual economic reports. Unfortunately there is no satisfactory employment data available. Where primary sources are unavailable, I have turned to the use of reputable data banks. I have collected data on bilateral nominal exchange rates for a selection of Mozambique's main trading partners, covering a ten year period spanning from 2002-2012. In order to complete the real exchange rate analysis, including weighted exchange rates, I have collected individual gross domestic product deflators for each trading partner over the same period of time. Trade data in terms of import/export totals are collected for each trading partner in relation to Mozambique. The real exchange rate analysis is carried out in line with procedures described in the paper. Aid data and natural resource data has been collected to be included in the analyses, along with institutional development indicators. As a result of this data collection (and generation), the working database of this paper is included in the appendix for evaluation and for further use.

Little research has been done on the potential presence of aid- or natural resource-induced challenges in Mozambique. Hans Falck (2000) carried out research on the presence of aid-related Dutch Disease in the Mozambican economy during the 90s – which yielded somewhat inconclusive findings with respect to Dutch Disease. Falck found fluctuation in aid to be reflected in the real exchange rate. He found, however, no signs of the relative sector development expected in a Dutch Disease scenario. As this paper builds on – he suggests that a new study of the Dutch Disease effect is undertaken if aid continues to remain significant.

Aurélio Bucuane and Peter Mulder (2007) undertook a study for the ministry of planning and development in Mozambique, discussing whether natural resource exploitation (and by this time, the massive gas deposits had yet to be discovered) would be a blessing or a curse for Mozambique. Both economic and institutional development is considered. The risk of real appreciation is considered small based on foreseen natural resource exports and a (then) recent minor depreciating trend. Bucuane and Mulder found the risk of a deteriorating effect on institutions is considerably higher. They describe a weak institutional framework and a lack of transparency in conducting planning of ongoing mega-projects, and do not ascribe much optimism to the development of institutions in light of oncoming natural resource exploitation.

This study adds to these earlier works – as the contribution of new analyses extends Falck’s (2000) research by including institutional variables as well as a more extensive calculation of the real exchange rate index through including a much wider range of trade partners to the calculations – in addition to bringing development data up to date in Mozambique. The expectations of Bucuane and Mulder (2007) for the impact of a resource boom are operationalized and tested – although the effects of the coming resource boom will materialize in the future, this study gives a basis and a framework for conducting such tests and provides preliminary data in the outset of a resource boom.

Structure of the study

The interrelated literature and expectations to interconnected variables leads to a mixed presentation of the study. Rather than diligently describing the dependent variables and subsequently testing each independent variable, I have grouped the different theories and analyses by the dependent variables. The study is centered around two main dependent variables, which share independent variables but with different expected effects.

The dependent variables – real exchange rate (and sectoral growth) and institutional development, are expected to be affected differently by aid dependence and natural resource discoveries. In Chapter 2, the theory of Dutch Disease is laid out and linked to theories on aid inflows. Natural resource discoveries, pre-extraction, do not generate revenues and are hence

not expected to affect economic variables. Then, we move on to describe theories regarding the institutional impact by both aid inflows and natural resource discoveries.

The analyses are carried out by the same logic of order in Chapter 3, first investigating the presence of Dutch Disease in Mozambique, before testing for institutional impact of first aid and subsequently recent gas discoveries.

Hypotheses

Building on the existing literature, we can generate expectations of how aid and resource abundance might affect both economic and institutional performance. While significant aid inflows might appreciate the real exchange rate and thus induce Dutch Disease, it might also hamper the institutional growth, as the incentives for development are lost through depending on non-earned external revenue. Natural resource wealth is also expected to lead to real exchange rate appreciation, and have a deteriorating effect on institutions through rent-seeking (especially worrying in the case of already weak institutions).

It is important to state our argument clearly, as in our case of Mozambique and possibly elsewhere, there is also a question of when, how much and in which phase both aid and natural resource exploitation are situated at different points of time in our analysis. It is possible (and probable, given our expectations) that aid led to a real appreciation in Mozambique through the rapid increase of aid inflows during the 1980s, the data from this period is however not available for analysis and this paper is concerned with mapping the development of the real exchange rate index vis-à-vis fluctuations in aid, we are not able to carry out an analyses of the economy from before and after aid.

In the event of a natural resource boom, especially relevant to Mozambique right now, there is a discovery phase and an exploitation phase, whereas only the latter generates the revenues, but where the former might induce the mechanics affecting institutions as incentives for rent-seeking are present. There is no extraction of liquid natural gas of size yet, however the race for securing access to resources has been running for some years. The literature would leads us to expect that this development - in a country with already weak institutions - would damage institutions further.

Aid is theorized to affect institutions, but in a different way and with a different outcome. Through mechanisms that could be described as sedating the institutional development; the national government faces reduced incentives to push through reforms as well as facing challenges in working unified national goals - having to manage a vast multitude of relations with donors and foreign government with possibly diverging objectives.

The expectations are shown in a two-by-two matrix. In the case of Mozambique, we would expect a stable institutional development as well as a stable real effective exchange rate in the period of time from 2002-2010, with aid dependency and while the natural gas sector was negligible. We expect Mozambique to start in the upper right corner and move to experience effects shown in the lower right corner as natural resource discoveries emerge at the end of our analysis. Vast natural gas discoveries started to emerge in 2010, and we would expect this to have a weakening effect on institutions, at a minimum show signs of deterioration over the last two years of our observation, with implications for the future. The real exchange rate is however expected to be unaffected until revenues are generated.

Table 1: Expected effects of aid dependency and natural resource boom (pre-extraction) on the real exchange rate and institutional quality

	Aid negligible	Aid dependent
Natural resources negligible	No effect	Real appreciation Stagnant institutional development
Natural resource boom (pre-extraction)	No appreciation Deteriorating institutions	Real appreciation Deteriorating institutions

Main findings

We find that contrary to our expectations derived from the existing literature, the real exchange rate has depreciated overall throughout the selected time period, until 2010 when there was a turn to appreciation as the real effective exchange rate index increased annually by 10% both in 2011 and 2012, showing an almost linear trend. The real effective exchange rate diverges from the nominal effective exchange rate (NEER) trend by a small factor, as the NEER increased by a slightly lower factor. This shows how inflation is higher in Mozambique than in the weighted average of its most important trade partners, coupled with recent appreciation which tells how the nominal exchange rate is not adjusting for the increase in prices. This does not bode well for competition if these signs manifest themselves in constant appreciation in years to come, we might however expect the recent pick-up from depreciation to follow contractional policies introduced by the national bank in 2010, with pro-cyclical intentions. The global economic slowdown by the end of the decade also led to a significantly slower development of the GDP deflator in most of Mozambique's major trade partners while Mozambique experienced a continued growth rate of almost 10 %.

Institutions have remained weak throughout the same pre-discovery period, not showing promise of improvements, but not significantly weakened overall. However, signs of deterioration are shown in some indicators of governance in recent years, which we expected due to the natural resource boom build-up. The data points are however too few to generalize a trend, but makes for a prime candidate for monitoring in years to come.

A very interesting observation made throughout the research process is the potential key role of foreign direct investment as the variable possibly holding much more leverage on our dependent variable – the real exchange rate – than official development assistance. A steep increase in FDI into Mozambique correlates with the sharp appreciation of the real exchange rate during the last three years. The time and data span is however too short to make up a sufficient ground for claims. A related observation is how the world flow of FDI started deviating sharply from international ODA flows in 2004, which correlates with the appreciating real exchange rate index in Mozambique. FDI should make for a prime variable of interest in conducting further research on Dutch Disease derived models.

II. Theory

Relevant theories generate overlapping expectations in the case of Mozambique. Two main branches of resource curse literature are mapped out to generate our set of hypotheses.

The Dutch Disease literature predicts appreciating exchange rates in the event of a resource boom, with a lagging (production) sector at a disadvantage both through weakened competitiveness and mechanisms of resource movement. Recent research debates and literature argue how aid can substitute for natural resource revenues in inducing similar Dutch Disease symptoms. This literature expects us to find an appreciated real exchange rate in the event of aid dependency, first and foremost pressuring the exchange rate through increased public consumption – higher demand increases the price of non-tradable to tradable goods, and the increased demand for currency, appreciating the real exchange rate. Since we are tracking developments in the real exchange rate index, we expect this to be correlated with the amount of aid. Secondly, Dutch Disease expects a sector development favoring the booming – in our case the public – sector, vis-à-vis non-booming sectors, with resource movement being the undesired effect due to both a higher demand in the booming sector, and lowered competitiveness in producing sectors due to real exchange rate appreciation. This might hurt the tradable sector, which in the case of Mozambique would be devastating to an agricultural sector constituting over 80% of the active work force (Instituto Nacional de Estatística, n.d.).

The institutional development literature focus on the institutional impact of large cash inflows such as aid booms - or where aid holds a dominating share of the national economy – or through the discoveries (and extraction) of natural resources. This literature is concerned with the incentives arising from these circumstances and how the behavior of central participants in the institutional development is shaped by these incentives, subsequently affecting institutions.

Dutch Disease Theory

Dutch Disease theory is concerned with the impact of aid on the real exchange rate in this study – the vertical axis of our hypotheses matrix (table 1) separates the predicted outcome of aid dependency from when aid is negligible. Dutch Disease is an explanation offered for why resource rich countries grow slower on average than resource-poor countries. The term and the theory originates from the negative effects the discovery of vast natural gas resources had on Dutch manufacturing through the 1960s, primarily through an appreciation of the Dutch real exchange rate (Corden, 1984, p. 359). This ‘curse of the resources’ is primarily concerned with how extractive industries and the following reliance on these resources, which mostly are non-renewable, might prove detrimental to growth in the long run. In a seminal study of the observed phenomena, Sachs & Warner (1995) shows a negative correlation between capita GDP and the ratio of exports to GDP. Sachs & Warner (1997) holds:

Dutch disease models demonstrate that the existence of large natural resource sectors, or booms in these natural resource sectors, will affect the distribution of employment throughout the economy, as wealth effects pull resources in and out of non-traded sectors. These sectoral shifts can affect long term growth (...) (Sachs & Warner, 1997, p. 5).

This implies political evaluations in addition to the economic effects. First we need to describe the core economic symptoms and effects of a Dutch Disease situation. Corden (1984) is a frequently cited work for describing the main aspects of Dutch Disease. He describes the core model, applied to an open economy, having three sectors: the Booming Sector, the Lagging Sector, and the Non-Tradable Sector (Corden, 1984, p. 360). Referring to the originating situation in the Netherlands, the energy sector constitutes the Booming Sector, manufacturing was the Lagging Sector, and services being the sector which provides non-tradable goods. In the case of Mozambique, the booming and the service sector is the same. The resource boom is conceptualized through the vast supply of aid.

The Spending Effect occurs when parts of the increased income of the Booming Sector are spent (consumed) and results in an increased demand for non-tradable goods (given positive income elasticity in the demand for such

goods) which raises prices for non-tradable goods relative to tradable goods. This is a real appreciation (Corden, 1984, p. 360).

The lagging sector is traditionally constituted by the manufacturing industry, due to the Dutch Disease being studied in industrialized countries. However, the manufacturing sector was shown to increase in most developing oil-exporting countries during the 1970s, whereas the agricultural sector contracted in all cases (Fardmanesh, 1992). Indeed, Corden (1984) emphasizes this possibility:

It has to be underlined that the Lagging Sector can be producing both non-boom exportables and importables, and it need not consist only of manufacturing industry. ... The term “de-industrialization” can thus be misleading (with a major effect possibly being de-agriculturalization!), and should be regarded as no more than shorthand (Corden, 1984, pp. 362-363).

This has been explained by variations of the core DD model which render the manufacturing goods semi-tradable; by relaxing the assumption of free trade - as quotas and trade regulations in many countries make the manufacturing goods semi-tradable - or relaxing the assumption of perfect substitution of imported versus domestic produced goods, both assumptions increasing the profitability of the domestic products which even expands the manufacturing sector – relative to the agricultural sector (Benjamin, et al., 1989, p. 80).

The role of aid as a substitute for natural resources in a Dutch Disease setting is not the most common objective of resource curse studies; it is however investigated in several works related to both aid efficiency and policy reviews. Mwanza Nkusu builds on research on the macroeconomic impact of foreign aid in Uganda in preparation of an IMF paper:

While ODA flows have the potential of contributing to improved macroeconomic performance in recipient countries, they can, at certain levels and in certain circumstances, bring about structural changes that may be undesirable. In that context, large ODA flows, like other resource booms, have been associated with upward pressures on inflation and RER appreciation in recipient countries. An appreciation of the RER and the likely decline in exports that large ODA flows can induce have been compared with symptoms of the Dutch Disease (Nkusu, 2004, p. 6).

Foreign aid primarily received by the government could substitute for natural resource rents in the spending effect, as domestically spent foreign aid could

lead to the same increase in demand and the appreciation of the real exchange rate, hurting exports. Sweder Van Wijnbergen (1986, p. 130) does a classic analysis of this effect, arguing:

This point may be worth stressing: *substantial amounts of aid will put upward pressure on the real exchange rate and will in that way counteract the export promotion schemes often recommended by the aid donors.* This is especially important in the plausible case of substantial but temporary aid.

He further argues in accordance with the spending effect:

In countries without good access to international capital markets (this applies, therefore, to most major aid recipients!) temporary aid will lead to a temporary increase in expenditure and, therefore, to a temporary real appreciation. This draws resources into the NT-sector and leads to a temporary decline in traded goods sector output (Wijnbergen, 1986, p. 130).

Large inflows of aid-induced Dutch Disease symptoms in Ghana in the later 1980s as analyzed by Younger (1992), as the ‘boom’ of foreign aid resulted in a sharp expansion of the foreign exchange available in Ghana which in turn forced an appreciation of the real exchange rate, mainly due to domestic inflation rather than nominal appreciation. Additionally, as the public sector is the recipient of aid, it might crowd out the private sector, furthered by tight monetary policies to control against appreciation (Younger, 1992, p. 1587).

Adenauer and Vagassky (1998) conducted a cross-country analysis looking at the aid-real exchange rate relationship in four West African countries to investigate any presence of Dutch Disease symptoms in these economies. Their result demonstrates a link between aid inflows and real exchange rate appreciation. Togo, receiving less aid than the other countries, also showed a more stable real exchange rate development. Results show less clear linkage between aid and real exchange rate development in the 90s than in the 80s which the authors attributes to larger diversification in aid, and particularly the conditional nature of aid in the 1990s, as they bore more demands from donor governments to regulate labor markets and implement other policies in the domestic economy. However, this development might have other unwanted effects as donors pursue different and often conflicting objectives than the recipient government (Adenauer & Vagassky, 1998, p. 185). Aid conditionality in Africa is described as a “bribery” type (Adenauer & Vagassky, 1998, p. 185),

and bears implications for political incentives and institutional development handled in another section of this paper.

A resource movement effect would theoretically be introduced by the public sector bidding up wages through increased public expenditure. However, the scarcity of trained personnel for managing aid projects might even induce a resource movement effect from public sector to the donor agencies themselves, directly counteracting the intended effects of state building. Bräutigam and Knack (2004) illustrates how an agricultural project in Kenya hired local economists away from civil service by offering 10-20 times higher wages compared to government wages, not only extracting qualified personnel away, but leaving the remaining workers demotivated. Even as donor countries were setting up educational programs for Kenyan government officials and subsequently complained about the same officials leaving government sector soon after completing their courses, in many cases the donor agencies themselves were drawing these officials out of public sector and into aid management project groups (Bräutigam & Botchwey, 1999, p. 14).

Can the effects of Dutch Disease be reduced even with vast cash inflows? Barder (2006) argues how a buildup of the supply side can offset DD effects of aid inflows:

If the aid is used in ways that improve the supply side, and so help the country to export more or to improve its capacity to compete with imports, then the overall effect on output in general, including the tradable sector, may be positive. ... A substantial proportion of aid is used in ways that is intended to increase productivity and growth. Some of this may have quite rapid effects on supply performance, such as investments in transport and communications infrastructure, improvements in power generation and distribution ... (Barder, 2006, p. 10)

Investing in infrastructure, hence aiding the supply side of production instead of purely boosting domestic demand (hence increasing prices) might offset some of the effects DD induces. In a simple imagined economic model, boosting supply while demand is increasing might lead to a new equilibrium where prices are constant but the output is higher, hence turning the assumed negative effects to real benefits.

So far there has been asserted that a 'boom' in a sector in this basic model might lead to real exchange rate appreciation and subsequent

deindustrialization or deagriculturalization. Deindustrialization or deagriculturalization due to real exchange rate appreciation happens because of higher public consumption, as higher demand for public (non-tradable) services/goods increases the price ratio of non-tradable goods to tradable. Thus, in our approach to aid-induced DD, public sector (which originally constitutes the non-tradable sector apart from a separate booming extractive sector) is also the booming sector, which as being non-tradable in nature would bear a minimum equally strong link to real appreciation by directly increasing demand in non-tradables resulting in real appreciation. Real exchange rate appreciation weakens export competitiveness and leads to a decline in producing sector output. At its core, Dutch Disease as a theory argues that with large cash inflows due to natural resource discoveries or aid, the spending effect expands the non-tradable sector's output at the expense of the "Lagging Sector" (manufacturing, agriculture). Real exchange rate appreciation is the channel through which Dutch Disease would be evident in Mozambique. If aid and the enlarged economic room of maneuver for the government is used for investing in sectors such as transport, this might reduce the impact of Dutch Disease.

Institutional development theory

How might aid inflows and natural resource discoveries give rise to incentives affecting the state's capacity for building development? Dutch Disease and resource curse are two terms sometimes used interchangeably. The concept of a resource curse must however be understood as the observation of the correlation (and causation as shown by Sachs and Warner (1995)) between resource richness and comparative growth decline. More recently, larger parts of resource curse literature is devoted to the ability of countries to transform resource wealth into development and real benefits for their populations through their institutional performance. This resource curse literature is concerned with the role of institutions and how their level of quality is a core predictor for either a successful resource wealth management or deteriorating economic and institutional development. In our matrix of expectations (table 1), aid and natural resources are expected to induce different effects on institutional development, as natural resources are expected to lead to

deterioration of institutions, this effect overrides the more modest hampering effect of aid once vast discoveries of natural resources are made.

Theories on the impact of aid on institutions expect us to find that aid hampers institutional development, by creating incentives to maintain the status quo. Natural resource wealth, however, might lead to institutional deterioration through rent-seeking. Building state capacity and improving institutions means establishing a proper bureaucracy, improving adherence to the rule of law as well as battling corruption. We expect indicators for these areas of governance in Mozambique to show no improvement through years of aid dependence, with a shift to decay after the vast natural gas discoveries.

The grave implication is here that years of aid have weakened the incentives for national reforms of democratic institutions – which in turn set Mozambique up in a bad position for handling the oncoming natural resource boom. Arguments derived from the rent-seeking literature allow us to paint some expectations for the institutional development with implications for economic development in Mozambique based on institutional data and analysis.

While economists allegedly ignore the political implications of state revenues, political scientists have – according to Moss et al. (2006, p. 5) – been “remarkably oblivious to the political dynamics created by foreign aid”. While aid has undoubtedly contributed to improvements in many receiving countries, the long term effects of significant aid and whether these effects might even counteract the intentions of aid are questions of relevance in assessing the performance of aid-receiving countries especially in sub-Saharan Africa, where aid has been significant for a long time. A subcategory of aid is technical assistance to build state capacity in recipient countries, and while this has been successful in some specific areas such as banking, it might be an exception to the rule, as state capacity has arguably improved little during periods of aid, with examples of decline (Moss, et al., 2006, p. 6).

According to Moss et al. (2006), “it has become ‘fashionable’ in the donor community to blame this surprisingly slow pace of state capacity building on the nature of African bureaucracies, which are argued to be patrimonial and corrupt” (Moss, et al., 2006, p. 6). But even if this argument is accepted, as Moss et al. argues: why has the large volume of technical assistance which is especially focused on improving institutions not had a bigger impact on improvement of state capacity?

OCCUPIED GOVERNMENT RESOURCES

Bräutigam and Knack (2004) discuss two possible ways by which high levels of aid might block governance improvement. Direct effects of high levels of aid creates management issues such as transaction costs, fragmentation of policies, “poaching”, and distraction of the budget process. A less direct effect might be inducing incentives that counteract the process of overcoming collective action problems in building state capacity.

One of the bigger challenges is the lack of trained government officials – and as these are tied up in managing the sometimes vast amount of donors and projects – even less resources are available for conducting other governance projects. Countries with a high level of aid probably have a high number of ongoing projects and donors, each which must be attended to by the government. Bräutigam and Knack (2004) point to how senior government officials in Ghana, one of the most heavily aided African countries, each spent as much as 44 weeks a year facilitating or participating in donor supervision missions, time they were unable to devote to their ministries’ own priorities (Bräutigam & Knack, 2004, p. 261). Bräutigam and Botchwey (1999) include Mozambique in a list of countries having to cope with an immense number of projects; having 405 donor-funded projects in the health sector alone (Bräutigam & Botchwey, 1999, p. 11). The alternative solution deployed by donors, setting up management separate from the government to conduct the implementation of different aid-funded projects, might not prove any better, as the bypassing of local government does not help the learning process – there is no skill transfer – and this type of technical assistance is not sustainable in itself, apart from the immediate management of projects, freeing up time for government officials to tend to other matters.

REDUCING INCENTIVES

The other problem arising from substantial aid is what Bräutigam and Knack relates to the incentives inherent in the system of aid and budgetary support. In solving collective action problems, substantial aid might reduce the incentives to cooperate in the sacrifices necessary for reform to occur. Aid allows a wide range of initiatives to be funded and operated by donors, which in itself cannot be termed a negative effect, but focus is then allowed to be diverted from the critical activities the government should engage in to

improve their financial situation. There is little incentive for political leaders to change a situation where large amounts of aid provide benefits and opportunities otherwise not available to low-income countries (Bräutigam & Knack, 2004, p. 263). This view is shared and amplified by Williamson (2009): “[t]he political elite understand that they will benefit from aid flows by having access to more resources (aid), thus strengthening their relative positions and keeping them in power” (Williamson, 2009, p. 24). Williamson continues this argument in a more categorical matter: “[e]ssentially, recipient governments do not have any incentive to achieve results. In fact, it is possible that governments actually do not want to achieve results” (Williamson, 2009, p. 24). Whether government officials are benevolent or not in their mission of governance might be a logical continuation of this argument. The nature of the argument of incentives in this paper is however not primarily concerned with benevolence or not, to make decisions maximizing benefits to an interesting group (in the extent a branch of the public government is an interest group) could be restricted to a rational choice, and not a matter of benevolence. This is illustrated by the Samaritan’s Dilemma, which occurs when a Samaritan (assuming an aid donor has good intentions) chooses to help someone in need, whereas the recipient of help realizes it will be better off by expending lower than optimal effort and rely on continued support, as improving upon his/her own situation would similarly scale down on the help received – and the extra effort becomes an added cost (Ostrom, et al., 2001, p. xvii).

Aid might provide an insurance leading to riskier behavior – creating another moral hazard. Building on the argument of reduced incentives for reform, governments are more likely to allow corruption or inefficiency if reforms in these areas will lead to a decline in budgetary support. Simultaneously, a similar effect might unfold within donor agencies – as a lack of internal sanctions causes funding to continue even in the face of project failure, as the costs of failure does not fall on the donor agency. There’s also a concern of path dependency – donors that sustain aid to countries already owing them vast amounts of money (Bräutigam & Knack, 2004, p. 264).

Access to foreign aid might also allow soft budget constraints, whereas hard constraints would set strict rules for the size of deficits or the possibilities for carrying deficits over to the next budget period. Soft constraints – as a result of the access to foreign aid as a significant “non-earned” subsidiary –

reduces incentives for imposing hard constraints on the budget process and allows for more leeway in working the deficits, and a reduced relationship between state revenues (non-aid) and expenditure (Bräutigam & Knack, 2004, p. 264). This is related to the rentier effects discussed later in this paper.

AID AMPLIFIES, RATHER THAN CHANGES TRAJECTORY OF DEVELOPMENT

Bräutigam and Knack (2004) termed a chapter on this subject “Aid Dependence and Institutional *Destruction*” (2004, p. 261, emphasis added). One might want to avoid predicting extremes from singling out aid as a sole factor of inducing deterioration of institutions in receiving countries. This is also noted by Bräutigam and Botchwey (1999), who argue that “ultimately, accountability and other institutional strengths and failures are probably more affected by domestic political leadership decisions and the culture of politics than by aid dependence and capacity shortages” (Bräutigam & Botchwey, 1999, p. 21). A similar argument is made by Dutta et al. (2013) which builds a third hypothesis as a middle way between those who hold aid to be contributing to democratic improvement, and those deeming it harmful to development, by resorting to an argument of amplifying effects. Through a cross-country time-series analysis of aid and level of democracy they find that aid is more likely to amplify whatever track the country is on already, whether that be a democratic or dictatorial one, than being able to turn the development in a wanted direction. Their most important finding is that the aid literature tends to overstate the power of aid on institutions. However, there is evidence for modest impacts on the political-institutional trajectories developing nations are already on (Dutta, et al., 2013, p. 223). Some questions might arise from this study. What trajectory a country is on and most importantly, whether this was present before or after flows of aid was initiated, might become a question of the chicken or the egg in many developing countries that are entering their third or even fourth decade of significant aid, such as Mozambique. Secondly, dictatorship is not necessarily the alternative to democratic development, as Dutta et al. might imply through their binary operationalization of democracy. Last, their suggestion of aid causing democratic development in democratic countries includes a condition of strong constraints on the executive. This might not be the case in many developing countries such as Mozambique, where such institutions are

expected to be weak. Further on, the impact may be modest but amplifying, in the sense of following an existing course of development. While tracking development trajectories pre- and during aid - to test for either continuum or change of course - might prove difficult, we should still not expect a turn in development without a change of the amount of aid to a given government. While there are theoretical grounds to expect negative returns to institutional development from aid, at a minimum there will be no significant trajectory turnabout through increased aid.

RENT SEEKING AND NATURAL RESOURCES

The core working concept of the rent-seeking perspective on development is the rent nature of natural resource exploitation and how rent-seeking behavior undermines institutions and growth. Natural resources – such as natural gas - makes a country vulnerable to rent-seeking activities due to its point-resource nature; limiting access to a vastly profitable resource allows for rent-seeking behavior, lack of competition and the accumulation of much wealth by few (Bucuane & Mulder, 2007). Different angles to the connection between institutions, growth and resource abundance are identified by Mehlum et al. (2006):

One, where the quality of institutions are hurt by resource abundance and constitutes the intermediate causal link between resources and economic performance; another, where the institutions do not play an important role; yet another, where resources interact with the quality of institutions such that resource abundance is a blessing when institutions are good and a curse when institutions are bad (Mehlum, et al., 2006, p. 1119).

Whether to expect Mozambique to be captured in a natural resource-driven resource curse is determined by its institutional qualities, according to Mehlum et al. (2006). “[I]nstitutional quality is the key to understanding the resource curse: when institutions are bad, resource abundance is a growth curse; when institutions are good resource abundance is a blessing” (Mehlum, et al., 2006, p. 1127). This originates from modeling different production and profit curves for weak and strong institutions, as bad institutions – “grabber friendly” institutions as they are termed by Mehlum et al. (2006, et al. 2006, p. 1121) as they reward more rent-seeking – shifts entrepreneurs from producing to grabbing (rent-seeking), because of the competing nature of production and

rent-seeking and the higher point profits of grabbing. Producer-friendly institutions that adhere to the rule of law, constitute a strong bureaucracy, and with low corruption, allows rent-seeking only for legitimate causes. Opposed to grabber friendly institutions, producers are here the beneficiaries of grabbing as their legitimate business and especially large scale production gives them an edge in lobbying for subsidies and resource extraction contracts. Rent-seeking occurs, but as a supplement to production (Mehlum, et al., 2006, p. 1121). Grabber-friendly institutions invite competition between producers and grabbers, as corruption, expropriation, fraud, crime, and other illegitimate activities are less constrained and makes grabbing more profitable than production. The paradox of plenty is how the pull of entrepreneurs, which are assumed to be a scarcity which indeed is plausible in developing countries, out of productive activities and into non-productive activities because of a natural resource boom and higher rents, leads to an equilibrium of grabbers and producers at lower profit levels than before (Mehlum, et al., 2006, pp. 1124-1125). Leite and Weidmann (1999) showed how capital intensive natural resources are a major determinant of corruption. Equally important, they stress the importance of strong institutions in the wake of natural resource discoveries for curbing the negative growth effects of corruption. “This is especially true in less developed countries where natural resource discoveries have a much higher relative impact on both the capital stock and the extent of corruption, and are confronted with generally weaker and less adaptable institutions” (Leite & Weidmann, 1999, p. 31). Interestingly, they find rapid growth to increase corruption on a general basis, controlling for location.

In the traditional rentier state literature, a rentier state is among other characteristics one where the state’s government is the principal recipient of the external rent (Beblawi, 1987). Rents are most commonly royalties or other payments for oil and gas exports, but other income such as fees and aid are typically considered rents as well (Gray, 2011). The “rentier mentality” is described by Beblawi (1987):

The basic assumption about the rentier mentality and that which distinguishes it from conventional economic behavior is that it embodies a break in the work-reward causation. Reward – income or wealth – is not related to work and risk bearing, rather to chance or situation. For a rentier, reward becomes a windfall gain, an isolated fact, situational or accidental as against the conventional outlook where reward is integrated in a process as the end result of a long, systematic and organized production circuit. The contradiction between production and rentier ethics is, thus, glaring (Beblawi, 1987, p. 52).

Academic (as well as political and religious) debates on rent-seeking go back centuries. Rent is understood as “non-earned” income, conceptualized for oil and gas it is merely an award for owning the production rights to a produce, not the gains from actively producing goods, commodities or services. Religious ethics, capitalist instincts for salvation through work, and Marxists bore deep-rooted mistrust against rentiers (Beblawi, 1987, p. 50).

Ross (2001) attributes the modern rentier literature to Middle Eastern scholars who sought to explain the lack of democratic development in resource rich Middle Eastern states. An important argument on the “taxation effect” is made to how large amount of aid impact democratic accountability. Following the soft restraints induced by aid - by the nature of aid as an unearned resource rent, parallel to those of mineral rents which might show very relevant both in the present and future case of Mozambique – incentives to improve state capacity are diminished due to the nature of revenue being little affected by government efficiency. A need to be accountable to donors because of aid, or natural resource rents, rather than depending on improving on the social contract with the civil society, adds to this effect. This inhibits accountability because the lack of need of taxation leaves the civil society with less leverage on public policies (Hoffman & Gibson, 2005, p. 4). This argument is also stressed by Moore (1998), as well as Bräutigam and Botchwey (1999) which emphasizes taxation as one of the primary levers a society has for holding political leaders accountable to their voters. The empirical background for this argument is the democratic development in Europe where “taxation and disputes over the use of revenues stimulated the development of greater citizen rights and privileges, with democratic institutions enforcing accountability and greater transparency in expenditures” (Bräutigam & Botchwey, 1999, p. 21). In essence, the attempt to raise taxes was met with demands for representation. The assumption of a

strong link between higher taxation and democratic accountability is strengthened by Ross (2001), which in a cross country analysis of more than 100 states found a highly significant positive effect of taxation on democracy (Ross, 2001, p. 348). This establishes a counterfactual expectation – how institutional development might have been better off without aid – because of the increased leverage of tax-payers on a government forced to rely on taxes for revenue. With tax reliance and the absence of a Samaritan, we expect governments to be facing a much greater incentive for pushing for societal reforms.

Rent-seeking and its effects on institutional development are not limited to the taxation effect, nor does the government constitute the sole actor of such behavior. The rent-seeking theory was one of the first economic instruments developed to model corruption in the public sector, and is seen as one of two harmful rent-seeking behaviors exercised on and by public officials, the other being lobbying. Traditional theory proposed how corruption actually was the favorable of the two, due to the inherent waste of resources in pursue of favorable treatment, however more recent literature suggest that corruption is indeed the more harmful behavior of the two to domestic welfare and development (Lambsdorff, 2002).

There are some nuances inherited in the rent-seeking argument. Rent-seeking in scale in a natural resource discovery scenario is *allowed* by weak institutions – the activities are not constrained by strong institutions – rent-seeking is thus a symptom of existing weak institutions. Rent-seeking is expected to undermine institutions when rent-seeking is profitable, i.e. when institutions are weak. The behavior induced by rent-seeking incentives is expected to be a dominant effect on institutional development. Thus, we expect institutional decay during the resource discovery phase in which Mozambique has been situated for the last years.

The concept of grabber-friendly institutions represents an assumption that institutions are the main predictors of the outcome of a natural resource boom. From this we might be able to draw out some implications for whether Mozambique will be able to realize its resource wealth potential from the results of analyses on institutional performance and development.

Expectations

Dutch Disease is expected to manifest itself through real appreciation and subsequent sectoral development shifts. We track the real effective exchange rate from 2002 through 2012 indexed with a base year of 2004. In case of an alarming real appreciation the index will rise significantly throughout the period of our analysis, with values well above 2004 levels. In the event of real appreciation, it is important to note that Dutch Disease due to aid inflows to Mozambique is not the sole possible factor inducing this effect on the economy. We are tracking effective exchange rates through three main variables; nominal rates, trade, and inflation. In the world economy these variables are universally multilaterally dependent. Therefore, an external shift in either of these variables affecting countries included in our calculations will also affect Mozambique. Stagnancy (or even deflation) in the national economy of trade partners will almost certainly materialize in bilateral real appreciation for Mozambique vis-à-vis affected countries because of the sustained higher inflation rate. Indeed, this is a real possibility in light of the global economic slowdown toward the end of the decade. However, the strong appreciation we would expect in the event of Dutch Disease due to aid will be constant and significant throughout the period – it is expected to materialize in Mozambique and hence be universally applied to all bilateral relationships.

Furthermore, we expect to see growth in the public sector, constituting a booming sector in our modified approach to the Dutch Disease concept. Public services are expected to grow at a higher rate than tradable sectors, notably agriculture in Mozambique. Faster growth is not necessarily harmful – it would be expected in any case where one sector is experiencing a higher growth, which should be welcomed. However, if sectors are found to face declining growth even after extracting booming sectors from the calculations, it is a more worrisome development.

The increasing amount of research literature problematizing the role of aid in building state capacity largely expects institutions to stagnate while aid inflows are significant and constant. In tracking institutional development over time through the use of four Worldwide Governance Indicators (WGI) developed by the World Bank, providing data from 1996-2012, we expect to see stagnancy; no positive development of state capacity. State capacity cannot

be expected to be volatile – indeed, short-term fluctuations in this data would rather raise suspicions to the validity of data more than it would be accepted as a representation of reality. However, a time period of 16 years, a period of time in Mozambican history shortly after civil wars ceased, should ideally see an improvement in governance and the perceptions of state capacity, the latter which the indicators measure. Idealism is not a proper scientific standpoint – and the literature expects not first and foremost the absence of war to improve state capacity, but the demand for government accountability from the people and the leverage held, mainly through taxes – the survivability of governments accountable to their electors. In the case of aid – governments are able to survive on external aid and donor relationships, and this very possibility lessens incentives for societal reforms. Reforms are costly, they involve sacrifices by current actors in power, and it will also lead to less aid in the long run if national conditions are improved. Obviously, stagnancy might be due to possibilities such as despite the best intentions of donors and the government, wrong policies are implemented. It might not even have to do with aid at all. But such an argument as the latter would arguably be the less probable whereas such large amounts of aid and efforts are directed exactly towards improving state capacity – a linkage is strongly expected to exist. Therefore we do expect results from institutional development to be linked to aid, and we measure the success of the efforts and intentions by the institutional indicators.

The literature expects another trajectory of institutional development in the event of natural resource wealth. This is where the institutional approach differs from our Dutch Disease approach, where the latter expects the same effects from aid and natural resources. Aid and natural resources are expected to exert different effects on institutions – although both are less desirable. Whereas institutional development is expected to stagnate with aid, natural resource wealth induces deteriorating effects on state capacity. Our dependent variable is the same (WGI), natural resource discoveries being the independent variable. In Mozambique, the discoveries are very recent, and thus generates a less than optimal amount of data, we have only annual WGI data available, and with discoveries surfacing through 2009/2010, we are restricted to three points in time. With the rapid upheavals in the extractive sector and relevant governance branches due to the potentially massive sub-sea wealth we suspect prompt returns to institutional indicators. The

subjective nature of these indicators are arguably a strength in this contemporary setting. We expect universal decline in indicators from 2010-2012 – we are however restricted to comment on these observations as stretching any findings to establish conclusions would be illegitimate.

We expect Mozambique to be situated in the right column of our matrix (table 1) by being aid dependent throughout our period of analysis. Before the vast gas discoveries we expect real appreciation and stagnant institutional development, but adding natural discoveries by the end of the decade, deteriorating institutional development is expected and a shift to the lower right box in our matrix.

III. Analysis

Dutch Disease analysis

Our objective is to investigate whether there is any presence of Dutch Disease in Mozambique, expected to materialize in real appreciation and sectoral development shifts in favor of a booming public sector. Aid dependency will be documented and the necessary real effective exchange rate analyses which makes up a substantive part of this study are carried out by including an unprecedented number of trade partners and their corresponding variables in trade, national economies and exchange rates in the data generation for Mozambique. We want to uncover whether there has been a significant real appreciation in Mozambique and whether sectors of the national economy are experiencing worrisome rates of development.

AID DEPENDENCY

Table 2: Aid to Mozambique, total 2002-2011

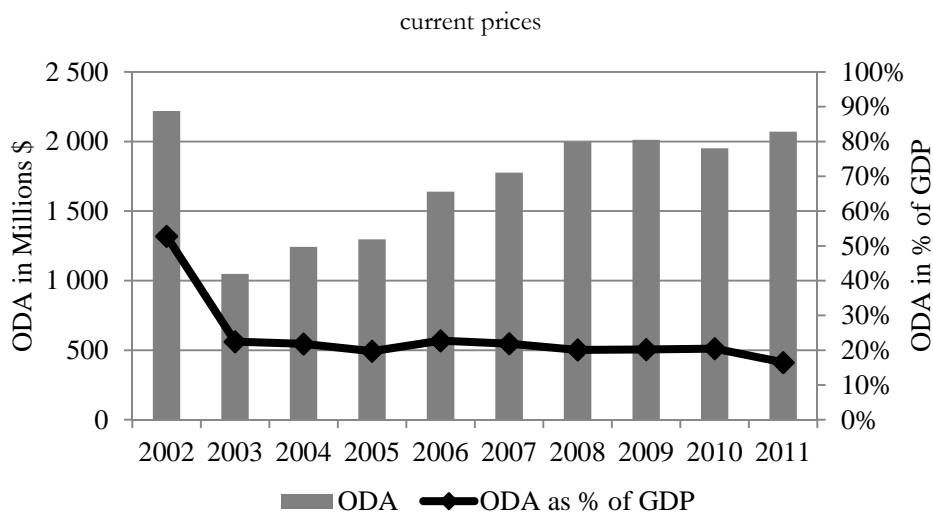
	\$ m	% of total ODA
Total ODA	17 261.36	
Grants	13 909.14	81 %
Loans	3 352.22	19 %
Selected categories		
Net debt relief	1 235.78	7 %
Technical Cooperation ¹	1 881.80	11 %
Humanitarian and Food aid	1 733.87	10 %

OECD International Development Statistics

¹ There are two basic types of technical cooperation: (1) free-standing technical cooperation (FTC), which is the provision of resources aimed at the transfer of technical and managerial skills or of technology for the purpose of building up general national capacity without reference to the implementation of any specific investment projects; and (2) investment-related technical cooperation (IRTC), which denotes the provision of technical services required for the implementation of specific investment projects (International Monetary Fund, 2003).

Mozambique has been a highly aid-dependent country for some time. As Falck (2000) illustrates as a starting point for his research, foreign aid constituted as much as 60 percent of Mozambique’s gross national product (GNP) in 1996 (Falck, 2000, p. 1). With peace and growth since the end of the civil war, it has been highlighted as one of the success stories in Africa, and - according to some analysts – it is increasingly important to keep it that way (de Renzio & Hanlon, 2007, p. 2), as donors have disbursed substantial amounts of aid to Mozambique and are committed to see results from their efforts.

Figure 1: Aid flows and share of GDP



*OECD International Development Statistics
IMF World Economic Outlook Database*

Table 1 shows the aggregated amount of Official Development Assistance (ODA) during 2002-2011, unfortunately the data from 2012 not yet available.

The amount of more than 17 billion US dollars excluding debt relief² shows a vast commitment to Mozambique from its donor countries. As figure 1 shows, the share of ODA to GDP no longer makes up the majority of Mozambique's GDP, holding a share of almost one-fifth of the nation's economy still is a substantial contribution and following the argument that large cash inflows bolster the real exchange rate, there are good reasons to be cautious with regards to resource-driven economic problems.

REAL EXCHANGE RATE

Real appreciation of the exchange rate is a main channel through which Dutch Disease is theorized to affect growth and economic performance. When referring to exchange rates one usually has nominal exchange rates in mind – the market price of currencies. Real exchange rates, however, also takes price levels into account. Basically, real exchange rates tell us about the purchasing power of a currency by comparing domestic prices with those of the foreign country. This is often illustrated by use of the Big Mac index (The Economist, 2012), where the McDonald's Big Mac is used to compare prices as an equal good across countries where the production of the good involves a range of processing and services. If a Big Mac sells for \$1 in the U.S., and 10 NOK in Norway, we would expect an exchange rate of 10 NOK/USD given absolute purchase power parity. However, if the nominal exchange rate is just 5 NOK/USD, 1 dollar would just buy half a Big Mac in Norway. Hence the Norwegian Crown would be overvalued by 100%, which would give incentives to import American Big Macs to sell in Norway as you get 2 American Big Macs at the price of 1 Norwegian Big Mac. On a much larger scale, this pressures the nominal exchange rate to adjust over time as demand for USD will go up.

²"Debt relief" is a somewhat ambiguous term. In calculating the ratio of ODA to GDP, multiple sources provide different results. The main reason for this is the handling of debt forgiveness. OECD differs between debt forgiveness and "offsetting entries for debt relief". The reason for this is to avoid double-booking of ODA. Debt forgiveness is here understood to be the cancelling (forgiving) of loans not originally intended as ODA. On the other hand, cancelling a loan originally intended as aid would – if being solely booked as a grant – result in the loan amount being booked twice as it has already been booked as aid upon loan initiation. In this paper debt forgiving is calculated as ODA while offsetting entries are not.

Tracking real exchange rates thus involves both including changes in nominal exchange rates over time and changes in foreign and domestic price levels over time. Variance between these values results in a change in the real exchange rate index. If Norwegian Big Macs increase in price by 100% to 20 NOK but the nominal exchange rate depreciates by the same factor, the real exchange rate index will remain the same. Norwegian Big Macs will still cost 200% of the US Big Mac price in \$.

ANALYSIS OF THE REAL EXCHANGE RATE IN MOZAMBIQUE

Unfortunately, McDonald's is currently not serving Big Macs in Mozambique. There is a lack of available, published data on the Mozambican economic performance in terms of real exchange rate development over the last ten years, which is a gap this study aims to fill with a thorough analysis including the most important trade partners of Mozambique, continuing while extending the data available in Falck (2000) which seemingly includes only a couple of partner countries into the real effective exchange rate calculation. The data presented in this paper is thus aimed to be a contribution both to the current debate on resource curse in Mozambique and elsewhere, and also building on former research while adding complexity to the analysis, making data crucial to resource curse research available and up to date for Mozambique.

The ingredients for conducting such an analysis are readily available. We need data on trade partners, the value of each bilateral trade relationships in terms of import/export value for each year, price level development indicators, and nominal exchange rates for each trade partner over the selected years of analysis. The resulting database consists of trade data for 12 of Mozambique's most important trade partners³, which in turn are assigned weights based on their relative share to each other in export to and import from Mozambique. The selection of Mozambique's trading partners to be included in the equation has been made from the Mozambican government's own import/export reports for the last decade (Instituto Nacional de Estatística, n.d.), and data on exports is supplied by the UN Comtrade

³ Zimbabwe has been left out due to the unstable currency situation throughout the decade ultimately leading to total abandonment of domestic currency in 2009 (BBC News, 2009).

database (United Nations, 2012). In tracking the real exchange rate index for Mozambique for the last decade the GDP deflator of Mozambique and its main trading partners have been used, supplied by the World Bank databank and rebased for all countries to 2004. The GDP deflator index is chosen over the Consumer Price Index (CPI) due to its complete coverage of domestic production and consumption. All data have been rebased for 2004. The calculation of the effective exchange rate indices follows these steps⁴, following Kurilenko (1998):

- Changes in exchange rates relative to a base period 0 can be expressed as $R_{it}^* = R_{it}/R_{i0}$, and $S_{it}^* = S_{it}/S_{i0}$, whereas R would be the value of one unit of foreign currency expressed in units of national currency, and S units of foreign currency per one unit of national currency. They are related by $S_{it} = 1/R_{it}$. This paper deploys R and indexes all rates in 100s:

$$S_{it}^* = 100 * \frac{1}{\left(\frac{R_{it}}{R_{i0}}\right)}$$

- Basic weighting of trade partners is calculated from the sum of partner i 's export x and import m as a share of the total trade of selected trade partners n . The sum of w_i is 1 (normalized).

$$w_i = \frac{x_i + m_i}{\sum_{i=1}^n x_i + \sum_{i=1}^n m_i}$$

⁴ The effective exchange rate is calculated using the weighted nominal exchange rates of other currencies with price development included in the equation. The focus of this method is to track changes over time and not to give the actual exchange rate at any given point. R_{it} = the value of one unit of currency of partner i in units of national currency at time t . This is the directly quoted nominal exchange rate, e.g. in the Mozambican market, 25 mzn to 1 usd. S_{it} = the indirect exchange rate in time t , e.g. 0,04 usd to 1 mzn. These are related through the following: $S_{it} = 1/R_{it}$

- The nominal effective exchange rate index is then calculated as a product of the indirect rates relative to base period, weighted:

$$NEER_t = \prod_{i=1}^n S_{it}^{* w_i}$$

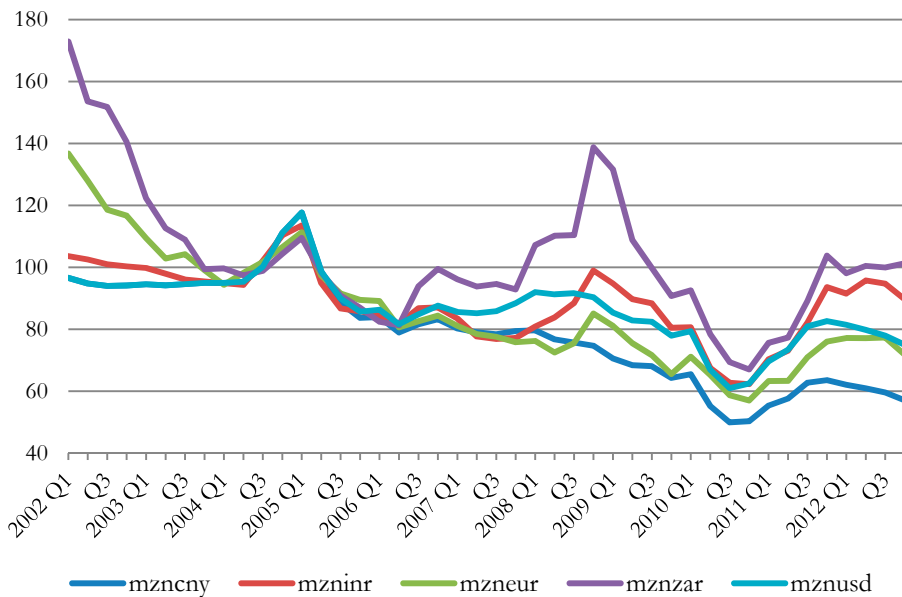
- The real exchange rate can be calculated through adding a foreign (trade partner i) to domestic (m) price level ratio P_{it} to the equation relative to the same base year 0 as the exchange rate, deflating the nominal rate by this ratio. I have used the GDP deflator in this paper, although other values can be used.

$$P_{it}^* = \frac{\left(\frac{P_{it}}{P_{i0}}\right)}{\left(\frac{P_{mt}}{P_{m0}}\right)}$$

- The final calculation can then be carried out.

$$REER_t = \prod_{i=1}^n \left(\frac{S_{it}^*}{P_{it}^*}\right)^{w_i}$$

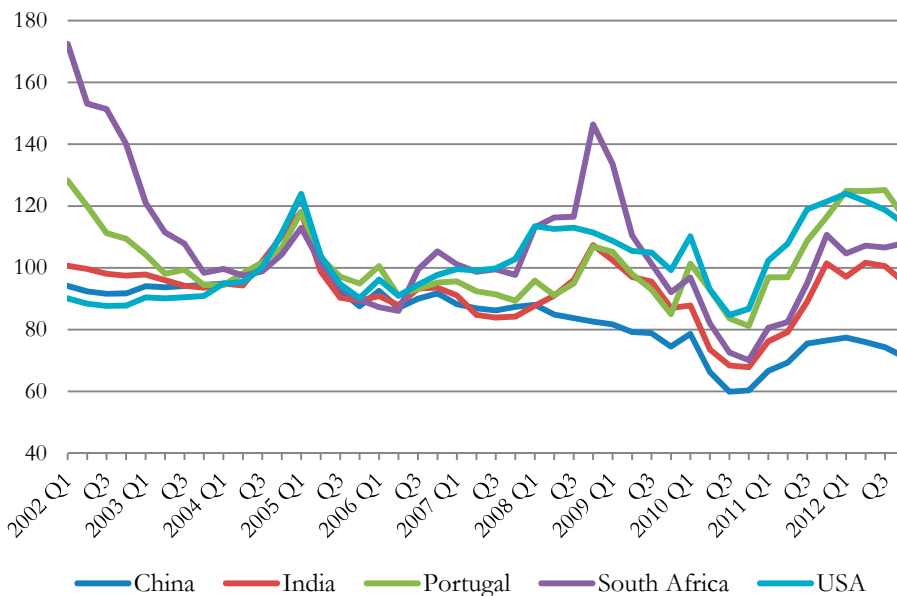
Moving weights are applied to the data, i.e. weights are recalculated based on trade data updated for each year.

Figure 2: Bilateral Nominal XR indices; main trading partners

*OANDA Forex database, IMF World Economic Outlook Database
Author's calculations*

An increase in the nominal exchange rate index represents a strengthening (appreciation) of the Mozambican Metical versus foreign currency. Figure 2 shows that as a general trend the Mozambican Metical depreciated versus its trade partners throughout the decade, with the exception of the Malawian Kwacha which the Metical steadily appreciated against up to 2008, followed by a few years of depreciation with a steep return to appreciation in 2011 and 2012. The South African Rand which the Metical appreciated rather sharply against during 2007-2008. During 2008-2010 the Metical depreciated sharply versus all currencies, but faced a similar sharp appreciation after the 2010 bottom-low point. Whether this is a balancing trend which will bring the Metical back to pre-2008 rates or if it will continue to appreciate will soon be clear, as Mozambique currently is at 2009 levels in many of the bilateral exchange rates and the coming months and year will see if the Metical will continue to appreciate. The nominal exchange rate reflects the demand for currency through market pricing, but does not include price level developments between countries.

Figure 3: Bilateral Real XR indices; main trading partners

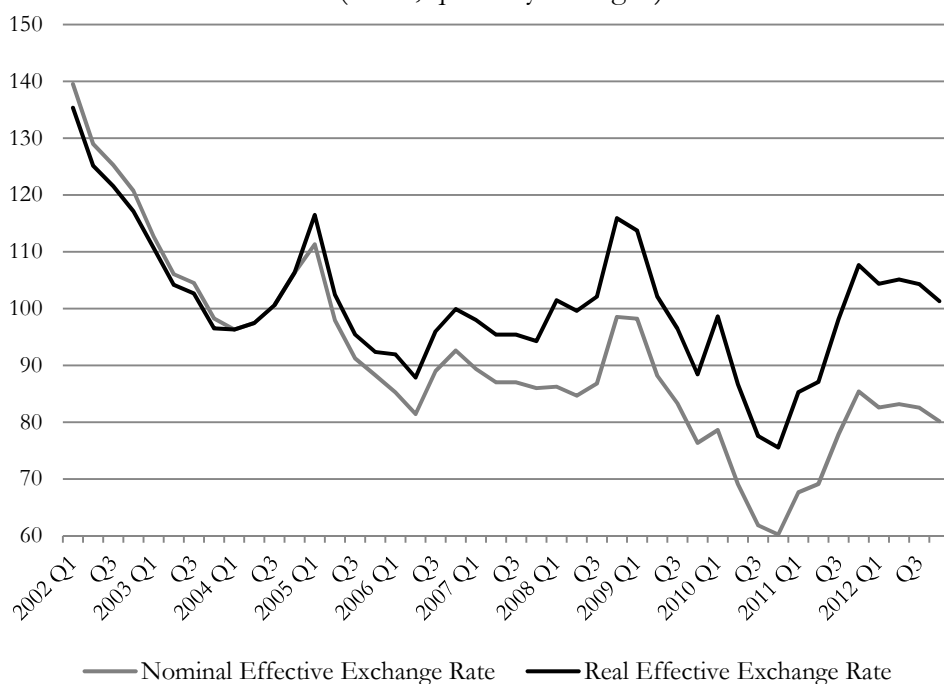


*UN Comtrade Database, OANDA Forex database, IMF World Economic Outlook Database
 Author's calculations*

After including GDP deflators of respective countries into the equations other results are found, illustrated in figure 3. In general, we recognize some similar patterns to the nominal exchange rates; however there is an overall upward shift in the development of the real exchange rate. While the Metical had appreciated in nominal terms against only one currency from 2004-2012, it appreciated in real terms against a majority of the trade currencies in total in the same period, shown by the index value >100. One such variance between nominal and real rates is found versus the U.S. Dollar. The Metical depreciated versus the Dollar throughout the decade and the exchange rate of Dollars per Metical in 2012 was just about 75 % of the 2004 rate. However, when including the GDP deflator into the equation to control for the difference in inflation between Mozambique and the United States, the Metical has actually appreciated in real terms vis-à-vis the Dollar with almost 15% since 2004. This can be understood by looking into the inflation rates of the two countries in question. The United States is experiencing a much lower inflation than Mozambique, with the GDP deflator index of 2012 at just below 120,

denoting a total inflation rate of just below 20 % since 2004. Mozambique, on the other hand, is experiencing strong inflation with numbers estimating a 2012 index of 183, 82 % above 2004 levels. The price levels in Mozambique have thus increased more than the Mozambique Metical has weakened against the Dollar (~75 % of 2004 rate). Real appreciation weakens competitiveness as the incentive for American imports of Mozambican goods weakens, as per the Big Mac example. This is an example of real appreciation. However, American imports/exports do not dominate Mozambique's total trade, which must be taken into account when measuring a sum total of de/appreciation of the effective exchange rate. To do this the trading partners must be weighted in their equation after their share in the trade volume of Mozambique. The effective exchange rate is thus a multilateral exchange rate index, measured against Mozambique's top trading partners.

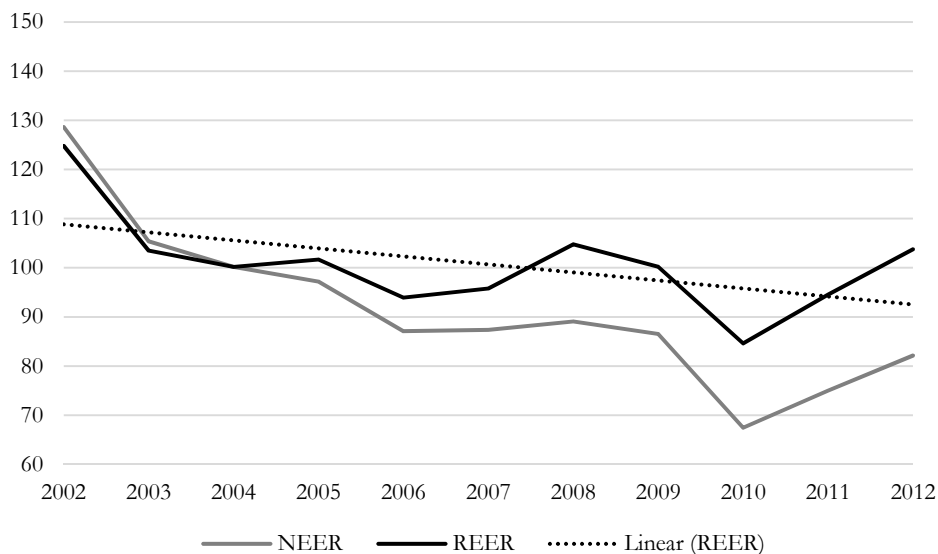
Figure 4: Real Effective XR & Nominal Effective Exchange Rate
(index, quarterly averaged)



UN Comtrade Database, OANDA Forex database, IMF World Economic Outlook Database
Author's calculations

Figure 5: REER & NEER, 2002-2012

(index, yearly averaged)



*UN Comtrade Database, OANDA Forex database, IMF World Economic Outlook Database
Author's calculations*

Figures 4 and 5 shows how the real effective change rate (REER) trend correlates with the nominal effective change rate (NEER), but there is an increasing divergence throughout the period, as illustrated later by figure 6. Exchange rates are prone to wide short-term fluctuations as figure 4 shows, with peaks and lows which, as seen in figure 5, diminishes some when indices are represented in yearly average movements. The NEER shows a rather significant depreciation while the REER experiences increasing divergence from the NEER which indicates a divergence in the development of exchange rates and price levels. The exchange rates show a cyclic peak pattern, most evident in the quarterly graph but recognizable in our yearly representation. The slight appreciation of the metical in 2008 led to a boosted real appreciation, a year where Mozambique saw most of its trade conducted with European countries, with their low inflation levels weighing heavy in on the real exchange rate. To counter inflation, the metical would have depreciated correspondingly with the ratio of inflation of Mozambique to its trade partners, but as this did not happen, real appreciation occurred. The

fluctuations in exchange rates where the Mozambican metical depreciated at sharp levels in 2010, could be attributed to the recovery of some of the world's largest reserve currencies in wake of the financial crisis. The U.S. dollar and the Euro carries significant weights in our effective exchange rate models and as the Metical depreciated significantly against these, it overcompensated for domestic inflation and led to the strongest real depreciation in our period of analysis. The South African Rand also strengthened in the same period, contributing to the effective exchange rate depreciations through being a heavily weighted trade partner. In response to the depreciation, the Mozambican central bank increased interest rents through late 2010 and 2011, which along with restrictive monetary policies saw a return to pre 2010 exchange rate levels (African Economic Outlook, 2011, p. 9).

Apart from observing the aforementioned cyclic pattern, we cannot conclude on a trend and certainly not establish any strong predictions. Due to the significant variations in bilateral trade volumes as shares of total over the last decade there is no solid base for predicting this development further. We observe that drawing a linear REER trend over the course of the last ten years shows a slight real depreciation. The average REER index value over the last 10 years is 100.7, which brings us to the concept of price purchase parity. The premise of relative purchase price parity (PPP) holds that over time, exchange rates should converge to hold purchasing power parity between two currencies. This stems from the expectation of free trade mechanics; if imports from Mozambique get cheaper due to cheaper currency, demand for Mozambique import will increase until PPP equilibrium is established (currency perfectly reflecting price level ratio between countries). A failure of this premise implies that there are free trade distortions in the real world, but also that the prices of non-tradables are increasing relative to tradables, because tradable goods are expected to be price-takers in an international market. If inflation rates between Mozambique and all its trading partners were equal, NEER and REER would be perfectly correlated, a depreciating currency would be equally depreciating in real terms. If prices are constant but the foreign currency gets cheaper, you would naturally get more from importing, hence real depreciation improves competitiveness. Perfect PPP implies that nominal currencies would perfectly counteract inflation, which in our model would result in a constant REER value of 100. As we can see, this

cannot be expected in short terms, but we observe that the real effective exchange rate over a 10 year average is remarkably close to 100.

Figure 6: REER/NEER ratio



Author's calculations

Figure 6 shows the divergence between the REER and NEER effective exchange indices, which shows the ratio of Mozambican price levels to trade partners' price levels in terms of the provided GDP deflators. Given NEER and REER values, the latter being weighted nominal exchange rate adjusted for inflation, we are able to decompose the ratio of domestic to foreign price levels from the data. This increasing divergence between the real and nominal effective exchange rates shows how inflation is increasingly higher in Mozambique than in the weighted average of its trade partners.

We attribute this pattern and the diverging trend of the effective exchange rates to two main factors. The divergence has increased since 2004, whereas South Africa's dominant share in Mozambican trade has declined from constituting more than 50% of the trade of the selected trade partners in 2002, to 37,5% in 2012. With a trade partner weighing over 50% in the analysis, the impact of the bilateral exchange rate strongly influences the real exchange rate in which the bilateral NEER is a function. Additionally, South Africa and Mozambique's inflation rates were initially quite similar; hence when the Mozambican Metical depreciated strongly vis-à-vis the South African Rand from 2002-2004, this was a real depreciation. This implies that the

diversification (and expansion) of trade leading toward a more leveled distribution of trade across partner countries has exposed the currency to equilibrium-mechanics, leveling the development of its effective exchange rate from the steep slope seen pre-2004. In general, the fact that Mozambique has seen the strongest inflation of the basket trade partners, coupled with the REER's divergence from a constant rate, implies that the domestic currency fails to sufficiently reflect price changes in short terms. A real appreciation has been periodically evident while the nominal rate has been depreciating from 2004 levels throughout the period.

The DD literature expects a real appreciation in the event of Dutch Disease. The index shows a real overall depreciation from 2002 to 2012, while aid has been fairly constant from 2003 to 2012, the 2002 peak being an exceptional disbursement due to loan forgiveness. There have, been returns to high appreciation levels throughout the period, with notable peaks in early 2005, 2009 and 2012. However, with the exception of the bottom level in 2010, the real effective exchange rate has fluctuated about +/- 5 % from a constant 2004 rate. This must be regarded as negligible and all in all a sound development with regards to any worrisome effects on the competitiveness of Mozambican goods. There is no Dutch Disease in Mozambique, contrary to expectations. Mozambique seems to have avoided the impact vast aid inflows is thought to have on the real exchange rate.

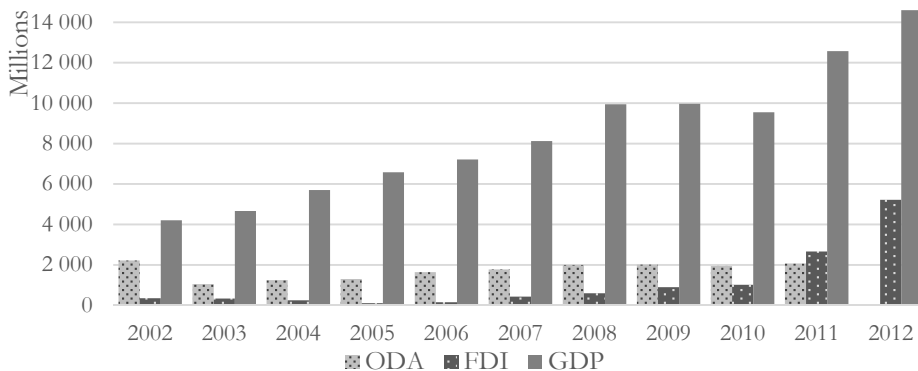
The academic interest from these finds could be focused on what might be a new development in the effective exchange rate. In the first two peak periods the exchange rate depreciated rather quickly to former levels. In 2012 the exchange rates held more constant levels throughout the year. We observe that the appreciation from 2010 to 2012 was the steepest appreciating development throughout the analysis period, and note how the current flattening trend from 2012 quarterly numbers might bear implications for further appreciation. Given our expectation of correlation with aid disbursement, this late appreciation is an unexpected find. While we find that the rapid depreciation from 2002 to 2003 and the relatively stable development throughout the decade does indeed correlate with the aid disbursements as shown in figure 1, the return to appreciation when aid is declining further raises doubts whether aid has a determining impact on the real exchange rate.

FOREIGN DIRECT INVESTMENTS (FDI)

We must however lend our attention to a find, not being a targeted variable of this paper, but which might show very relevant - the vast increase in FDI inflows to Mozambique.

Figure 7: FDI, ODA⁵ and REER development

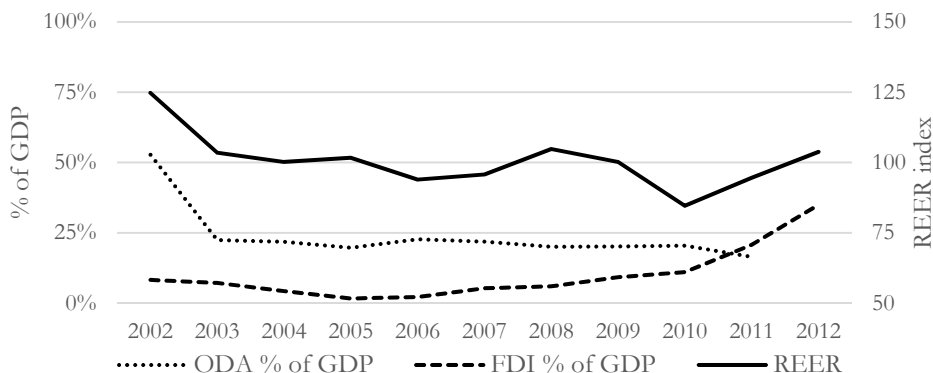
Current prices, \$



United Nations Conference on Trade and Development Statistics
 OECD International Development Statistics, IMF World Economic Outlook Database

Figure 8: FDI, ODA⁵ and REER development

% of GDP and REER index



United Nations Conference on Trade and Development Statistics
 OECD International Development Statistics, IMF World Economic Outlook Database

⁵ ODA data not yet available for 2012

As a percentage of GDP, FDI overtook ODA, being a major factor of resource inflows to Mozambique, continuing this steep increase into 2012 – correlating with REER appreciation. Figure 7 and 8 shows relative and absolute values of the variables of interest, where we do observe how FDI has developed from a rather insignificant channel of inflows to holding a 1:3 ratio of GDP in 2012, with in cash value accounts for twice⁶ as much as ODA has provided at its peak point in 2011. It might not be a question of whether ODA or FDI exerts a bigger impact on the REER; ODA is fairly constant in shares of GDP and constitutes a significant amount of cash, and when FDI is seeing such a steep increase the total amount of inflow of capital to Mozambique is vast. The amount of foreign direct investment inflows to Mozambique in 2012 was an impressive 4% of world total flows of FDI (UNCTAD, 2013). This graph reflects directly what trend external resources inflows to Mozambique is seeing, and might also imply a more global trend of the channels through which the commitment to developing countries are materialized. The recent development of the REER can thus be seen as a sum of several mechanisms working in the Mozambique economy. In response to the depreciation, the Mozambican central bank increased interest rents through late 2010 and 2011, which along with restrictive monetary policies saw a return to pre 2010 exchange rate levels (African Economic Outlook, 2011, p. 9). This contractional monetary policy leads to an appreciation of the nominal exchange rate by reducing the amount of money in circulation. In the same period, the inflows of foreign exchange to Mozambique increased vastly through foreign direct investments, with an increased demand of the Mozambican metical. Inflation is rather constant, and coupled with the nominal exchange rate appreciation and economic slowdown in many of the major trade partners, real appreciation has ensued. Although policy implications is not an objective of this study, we might expect the national bank to introduce countercyclical policies increasing money supply to reduce the appreciation – just as part of the current appreciation must be seen as such a countercyclical policy.

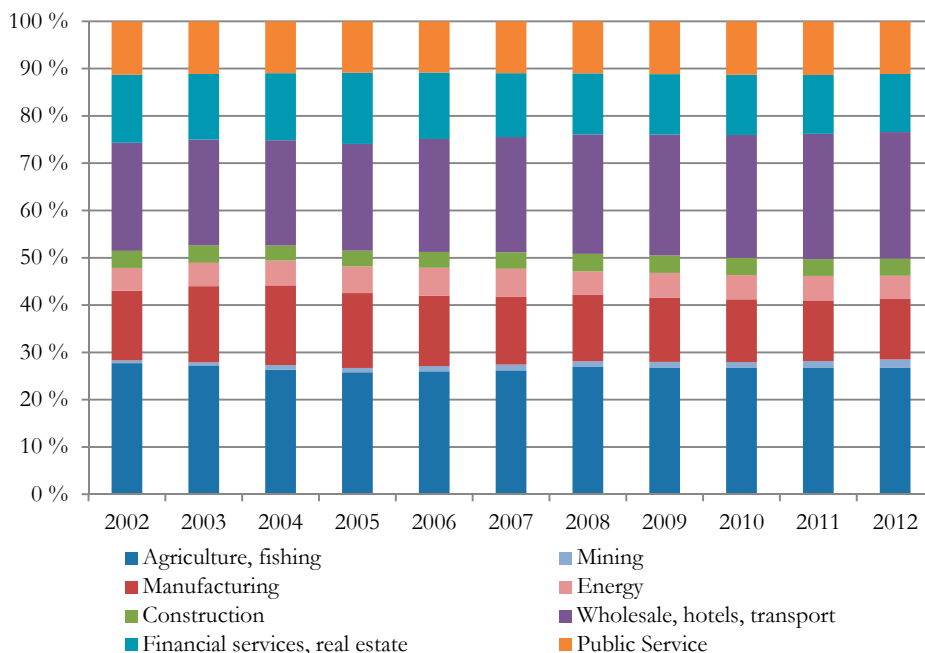
⁶ The more correct measurement for giving this statement would be constant prices to control for inflation, it does however compare well enough as only one year separates the two points in time in question.

This study has shortcomings regarding analyzing real exchange rate development. It is limited to tracking developments in time of nominal exchange rates adjusted for inflation and weighted for trade partners. It cannot, however, establish whether e.g. aid has induced absolute real appreciation – or the even more interesting counterfactual – whether the Mozambican Metical would have depreciated more in real terms without aid. The latter is commented on by Falck (2000) with a statement which without doubt must be seen as probable; the considerable aid inflows (dominating the national economy throughout the 1990s) must have pressured both nominal exchange rates and positively affected inflation rates, something we might even dare to attribute to the significant FDI “boom”, which opposite to aid, this study observed the very outbreak of.

SECTOR ANALYSIS

We’ll turn now to the different sectors of Mozambique’s economy to look for any structural variations the last decade.

Figure 9: Sector output as % of GDP value added (minus FISIM)



Instituto Nacional de Estatística, Mozambique & author’s calculations

Our approach to aid-induced Dutch Disease involves two main sectors of interest – where the public sector would constitute the booming sector and agriculture the primary lagging sector. Figure 9 shows the sector output shares of GDP each year from 2002 in constant 2003 \$ prices, and there is not much variation to spot across the years and no clear indications of major sector expansions or contractions during the last decade. There is however a slight contraction in the manufacturing sector’s share, while the transport sector experiences a growth. Fluctuations are however limited to 2-3%. The agricultural sector holds a relatively consistent share across the years, its share in 2012 being an approximate average of the last decade.

Table 3: Selected sectors share in GDP

	Manufacturing	Agriculture	Transport and Communication	Public service
2002	14.76 %	25.68 %	10.51 %	11.32 %
2007	14.30 %	24.45 %	10.47 %	10.96 %
2012	12.89 %	25.22 %	13.26 %	11.13 %

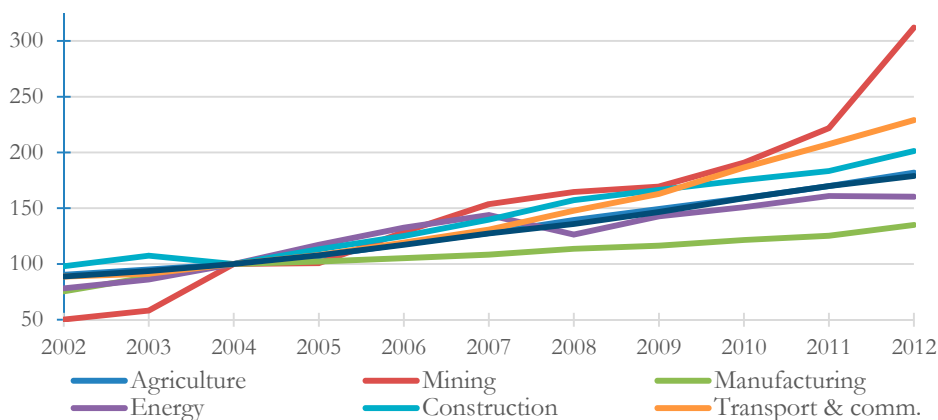
Instituto Nacional de Estatística, Mozambique & author's calculations

Losing shares does not necessarily equal decline in growth, indeed it would be a perfectly worrisome development in the case of a rapidly booming sector, the sector “responsible” for DD by experiencing a significant positive shift in revenues according to the literature, which naturally would constitute a larger and larger share of a correspondingly growing GDP, causing other sectors to have a relative decline. This would be illustrated by extracting the booming sector from the GDP and analyzing the remaining sectors development in a “non-booming” GDP. In this case, we would be able to observe whether some sectors are seeing an absolute decline, which would indicate that the booming sector are either drawing resources from other sectors or lessening their competitiveness through appreciation.

However, since we are not seeing any particular significant movement in sector shares in the GDP it is not necessary to conduct this kind of extraction. Table 2 shows the detailed numbers of some sectors of interest. Public service is fairly constant as well as is agriculture. Our two main sectors of interest are not seeing any noticeable shift in development. Manufacturing

has lost some grounds while transport and communication has grown by approximately the same factor. How is this materialized in actual sector output?

Figure 10: Sector growth index, output in constant 2003 prices



Instituto Nacional de Estatística, Mozambique & author's calculations

If we turn to look at individual sector growth in value output in figure 10, we find interesting values especially in the mining and manufacturing sector comparatively. The two sectors holding each their end in the growth scale with manufacturing showing the slowest growth of all sectors since 2002, mining the highest. A positive find is that all sectors are growing. The extractive sector (which, arguably is a “booming sector” in its rapidly growing nature, but not in term of economic significance and the objective of this study) have faced significantly steeper growth slopes the last year and have overall grown more than 300% since 2004 (and more than 350% since 2002), but as we could see in figure 7 this sector has yet to constitute a significant share of GDP and with the build-up of the natural resource extractive industry which initially produces low numbers, we would expect such a massive growth percentage. Public services holds a middle ground growing at a constant yearly rate of about 10 %. Transport and communication has picked up pace throughout the decade, being only second to mining in growth (hence top of the league among the significant shareholding sectors) which is an interesting but not unexpected find, due to the increasing necessity of improving poor transport and communication infrastructure in Mozambique, and especially

the necessity of this sector in establishing the mega-project investments. The relevance to the DD argument is high, as boosting supply side performance through investing in e.g. transport and infrastructure have been argued to reduce the impact of DD. As we have seen from our real effective exchange rate analysis, the extent of which DD has materialized at all is at best unclear, and hence the boost of infrastructure might not just be seen as reducing DD (which implies DD is present), but a sound strategic policy regardless.

The sector data has so far shown to only vaguely indicate parts of the Dutch Disease symptoms. Manufacturing has lost shares in the GDP and has grown slowly over the last decade, although agriculture has not developed significantly faster or slower than other sectors. Manufacturing is growing, but at a significantly lower rate than other sectors, which does imply a less-than-desired development, in a developing country expecting an industrial buildup. We might however assume that the reason for slow development in the manufacturing sector is due to the underdevelopment of this sector, coupled with the deteriorating effect of trade liberalization on manufacturing in the 90s, and not necessarily due to Dutch Disease. One of the premises of the Dutch Disease effect of resource movement is that sectors are close to maximum production potential, which we assume to not be the case in Mozambique. We expect a high unemployment rate in Mozambique, where no newer official numbers can be found after the 1997 estimate of 21% (CIA, 2012). If there was a case of increased demand in sectors (assuming demand is not solely for skilled workers), demanding sectors will be able to draw on unallocated resources with both little relative wage impact and resource movement. This point has been stressed before (Nkusu, 2004) although seemingly often overlooked in the resource curse literature on developing countries.

NO DUTCH DISEASE IN MOZAMBIQUE

Real exchange rates have overall depreciated and service sectors have had a sector-wise consistent output over the last ten years. Although the natural resource discoveries might be too fresh to yield results, if substantial aid has been constant through this period – which it has – why has there not been a clearer development of Dutch Disease related symptoms? The traditional Dutch Disease is predominantly concerned with demand impact; but as

Barder (2006) argues how a buildup of the supply side can offset DD effects of aid inflows, Dutch Disease might be avoidable. Indeed, the Mozambican government, along with private investment partners, has invested vast amounts in transports and communications according to the Transport Minister of Mozambique, Paulo Zucula (allAfrica, 2012c). This is also reflected in the growing share of GDP output by the transport sector (Figure 10). A significant amount of the investments have been conducted to support and establish the growing coal export industry, increasing the capacity of this sector being a policy goal for the Mozambican government, quoting Zucula: “within 3 years we shall have the capacity to move about 50 million tons of coal a year” (allAfrica, 2012c). Mozambique also approved the construction a new \$2 billion hydro-electric dam in 2010, in order to increase power supply and stimulate foreign investments, according to Reuters (Reuters, 2010).

The study conducted in 2000 of the impact of foreign aid-induced Dutch Disease effects in Mozambique concluded that the impact on exchange rates were limited, and that the Dutch Disease effects were limited at most, having found no evidence for an impact on relative sector development (Falck, 2000, pp. ii-iii), a statement that still holds ten years later. In the study before you we have not found real appreciation during times of foreign aid, neither have sectoral output shown to legitimize any suspicions of Dutch Disease. Indeed, transport have seen a positive shift – possibly effectively boosting supply-side performance which reduces price-increasing mechanisms in the economy. As a result, I do not suspect Dutch Disease to be present, so we might still expect healthy development (with regards to Dutch Disease) even if supply-side performance had not been boosted.

Institutional development analysis

Our objective is to investigate the institutional performance in Mozambique, both in terms of development over time, and how their performance might imply whether Mozambique is ready and able to manage the coming resource boom for the benefit of national growth and to the benefit of the people. Natural resource discoveries and potentials are documented, to establish expectations of when the effects of rent-seeking would show through the World Governance Indicators (WGI) which provides our operationalized variables of institutional performance in Mozambique. We also take a look at examples of whether donor loyalty has resulted in the implementations of controversial policies.

NATURAL RESOURCE WEALTH

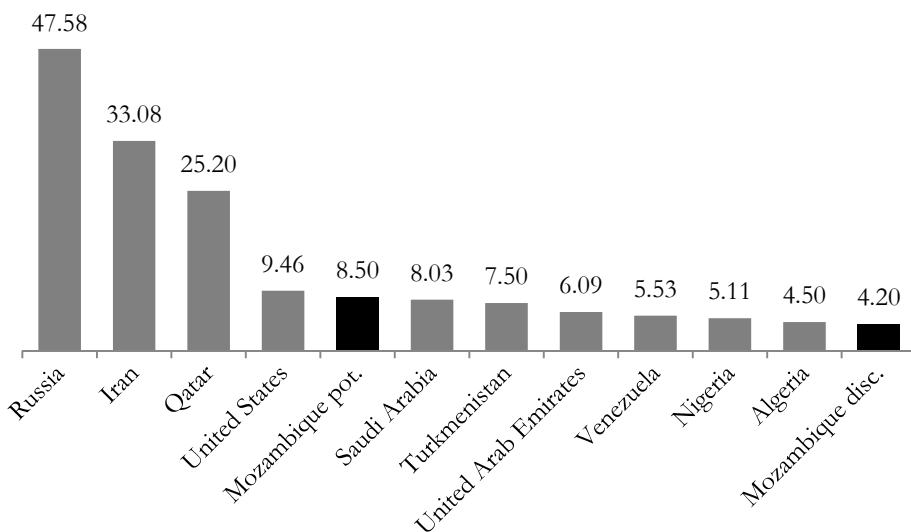
Mozambique is one of the primary exporters of minerals in Africa, perhaps most notable for exporting tantalum where it holds a 16% world share of exports. However, aluminum is the most important export commodity in an economic perspective, as it provided more than one billion \$ in export revenues in 2010 (U.S. Department of the Interior, 2012). Aluminum ingot is Mozambique's main export by large, constituting 49% of total export value in 2010 (Instituto Nacional de Estatística, n.d.), the majority of this from the Mozal smelting facility which is one of the world's largest smelting facilities with a yearly capacity of over 500 000 tons per year (International Development Association, 2007). This smelter was a result of a joint investment venture by the World Bank group and was finished in 2000, and proved how big investment projects ("mega-projects") can prove successful in Mozambique.

There have been initiations of several investment projects throughout the following decade, most importantly in the vast coal resources of Mozambique and also recent races for investment in the newly-discovered massive natural gas reserves off the Mozambican coast (Daly, 2012). A recent report from the Mozambican national institute of economics also highlights other natural resources flagship projects in the making in Mozambique, including materials as magnetite, phosphate, ruby and other resources which show the potentials of increasing profits over the next decades (Resenfeld, 2012). Just as the

aluminum industry evolved to dominate exports within few years after the Mozal smelter started production (from a mere 8% share in exports in 2000 to 60% in 2005), the potential for other valuable resources to see an equal increase in the export will surely be welcomed by a country with a long-running trade deficit.

Figure 11: Natural gas reserves

Proven world reserves & Mozambican discoveries and potential
trillion cubic meter, 2012



U.S. Energy Information Administration

The spotlights are now on the natural gas explorations in Mozambique which already have uncovered recoverable resources forecasting Mozambique as one of the world’s main exporters of natural gas. Official numbers are hard to come by, as fresh discoveries are made throughout the writing process. Mozambique holds a rather modest 126 billion cubic meters of proven natural gas reserves (U.S. Energy Information Administration, 2013) (Ernst & Young, 2012), however several sources point to discoveries of well above 4 trillion cubic meters of natural gas reserves, with prospects for significant additional reserves (allAfrica, 2013) (Reuters, 2013).

Figure 11 compares recent discovery numbers from Mozambique (“Mozambique disc.”) with official reserve numbers from the rest of the

world, discoveries puts Mozambique second only to Nigeria and Algeria in terms of natural gas reserves – and could place them solely at the top of the table of African gas exporters – being 5th in the world reserve-wise - if predictions (“Mozambique est.”) of the remaining potential holds true.

WEAKENED BARGAINING POWER

Table 4: Main donors, 5-year average (2006-2011) disbursement to Mozambique in \$ millions.

Donor	Disbursement
United States	272.22
IDA	205.99
EU Institutions	174.97
Denmark	85.48
Canada	84.76
Germany	82.06
Sweden	81.44
Italy	80.00
United Kingdom	75.68
Netherlands	73.68

OECD International Development Statistics

An issue arising dependence is the weakening of bargaining power vis-à-vis donor countries and organizations. Table 4 shows the ten most contributing donor countries and organizations over a 5-year average between 2006 and 2011. The United States along with the International Development Association (IDA, World Bank fund) and the EU institutions accounts for a significant share of the total ODA to Mozambique – along with the bargaining possibilities it might yield. Mozambique’s history has already shown how it reluctantly has had to accept policies to align with the (western) world’s trade policies, in the face of threats of withdrawing support. The World Bank threatened to withhold its Country Assistance Strategy unless Mozambique liberalized the protected cashew industry. Most – if not all - other aid was conditional on the World Bank program. Having already faced starvation by donors withholding food in order to make Mozambique join the IMF and the World Bank in 1983, Maputo gave in to the liberalization demands – with

moderate economic gains, although offset by large costs of unemployment and low returns for the farmers. However, the government has stood firm in other issues, such as the refusal of land privatization (de Renzio & Hanlon, 2007, pp. 10-12). Nonetheless, there are reasons to argue that aid in larger scale shifts the bargaining power out of the government's hands more than if aid has been insignificant (or absent).

How might this policy enactment materialize in society? If foreign agents enjoy more leverage on domestic policies in Mozambique than domestic interest groups, this proves an example of how donor loyalty alter the mechanisms of institutions. We want to see whether such actions have been taken in Mozambique.

The cashew industry serves an example of illustrating some effects of policies imposed as conditions for aid, in the interest of donors rather than the civil society. After independence in 1975, the government banned exports of the raw cashew to stimulate domestic processing, and Mozambique became a frontrunner as a producer of processed cashew in Africa. McMillan et al. (2002), in their analysis of the disappointing results of cashew industry liberalization throughout the 1990s, covers the history of cashew in Mozambique swift and precisely. Mozambique, once a cashew mammoth with a production peak of no less than 240 000 tons of cashew in 1973, where 149 800 tons of these were processed for export, lost their dominant world position during the next decades, seeing merely 8000 tons being produced in 1999. The turning point in Mozambique's cashew industry factor-wise, already having seen a lengthy decline due to factors such as an ongoing civil war, was the liberalization of the industry in the early 1990s in accordance with World Bank and IMF strategies to restore market incentives. As export bans were lifted, first through the introduction of high tariffs which were rather quickly abandoned, export of raw cashew grew and pulled resources out of the processing industry. Domestic processing took a toll, and disappointingly, even though the agricultural production of raw nuts is more labor intensive than processing plants, more than 90% of the processing sector's employees were still unemployed in 2001.

Lise Rakner in Bräutigam and Botchwey (1999, p. 22) argues how the level of aid and donor dependency in Zambia has induced a patronage culture, resulting in limited attachment and commitment to the local community. The

argument is applied to NGOs through case studies of NGOs in Zambia, but represents a need to keep loyal – or as a Zambian official interviewed in Rakner’s study expressed: “...we are forced to lick the boots of someone who is financing you” (Rakner in Bräutigam and Botchwey, 1999, p. 22).

If policies adapted to enable aid but not benefiting the long-term growth are introduced as a result of weakening bargaining power, the institutional impact of aid can show just as detrimental to domestic growth as those of more purely economic mechanics.

INSTITUTIONAL PERFORMANCE

One of the most relied-on sources for measuring institutional development is the Worldwide Governance Indicators (WGI) administered by the World Bank, generating indicators on six fields of governance: Voice and Accountability, Political Stability and Lack of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. The data is survey-based, generating indicators from response-based data from a vast amount of sources and diverse respondents. The collected data is theorized to measure the same underlying concept within each field of governance, allowing for estimating a score of between -2.5 to 2.5 for a country’s performance within each area. This kind of data is subjective in nature; it reflects the performance of governments in light of people’s perceptions – which arguably gives a well-based representation of reality if the sources and respondents are diversified enough. In some areas of governance, any objective data might be impossible to generate by the nature of the phenomena which it attempts to measure, such as corruption. This paper assumes this subjective form of measurement to be better suited for tracing institutional development in Mozambique and elsewhere in a comparative view. More objective measurements could be deployed through traditional variables like tax structures, how fast public offices process different cases like contract dealings, crime levels, among others.

This paper deploys four of the WGI indicators for tracking institutional development in Mozambique: Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. It is assumed that these four more directly measure state capacity in the sense of the institutional quality our deployed literature is concerned with, whereas Voice and

Accountability, and Political Stability and lack of Violence measure a slightly broader sense of governance, concerned with the basis on which governments are elected (if in a democracy), and less with the government performance.

Table 5: Aid dependency and institutional performance

ODA in % of GDP
Averaged number of 4 deployed WGI indicators

	ODA % GDP			Avg. WGI (4) score		
	1996-2000	2002-2006	2007-2011	1996-2000	2002-2006	2007-2011
Sub-Saharan Africa (n=45)	10.4 %	11.5 %	11.1 %	-0.66	-0.68	-0.66
Burundi	7.9 %	28.7 %	31.1 %	-1.47	-1.22	-1.11
Congo, Dem. Rep.	2.9 %	33.6 %	22.4 %	-1.97	-1.55	-1.52
Eritrea	20.3 %	28.5 %	8.6 %	-0.41	-0.88	-1.32
Malawi	22.0 %	20.5 %	18.1 %	-0.33	-0.56	-0.40
Rwanda	21.0 %	20.5 %	21.1 %	-1.12	-0.69	-0.16
Sierra Leone	17.6 %	25.8 %	15.7 %	-1.28	-1.13	-0.97
Mozambique	23.2 %	27.2 %	19.8 %	-0.46	-0.54	-0.50

*World Bank: Worldwide Governance Indicators
OECD Aid Statistics
IMF World Economic Outlook Database
Author's calculations*

Table 4 shows the averaged share of aid to GDP in 45 Sub-Saharan African countries in 4 year periods in the left part of the table. On the right, averaged numbers consisting of the 4 deployed WGI indicators combined is presented. WGI was conducted on a biannual basis from 1996-2002, which is why 2001 is lacking from both tables for comparable reasons. Six sub-Saharan African countries sharing roughly the same (+/- 5 %) average ODA inflows (in terms of share of GDP) over 1996-2011 with Mozambique are also represented along with Mozambique.

For sub-Saharan Africa results show no variation in either the level of ODA or the development of WGIs. ODA disbursements to sub-Saharan African countries have been constant over the 15 years represented in the table. Governance indicators imply that institutional development is at status quo, despite consistent commitment through aid. Mozambique scores slightly higher on institutional quality than the sub-Saharan Africa average. However, it scores significantly higher than 4 out of 6 countries represented as comparable ODA recipients.

We cannot conclude on a clear trend of ODA versus institutional development from this data. Indeed, ODA - being the only independent variable implied to affect institutional development in this table - correlates both negatively and positively with institutional development. A thorough regression analysis could be deployed to investigate this relationship with much more robust results.⁷ One of several such analyses is conducted by Siba (2008), which finds aid to be negatively affecting Rule of Law, the WGI indicator chosen to be the most representative indicator of state capacity in this study. However, this study (and others deploying the same method) must exert some caution when arguing causality. Conducting an OLS on cross-country time-series values which are averaged to represent single cases (i.e. treated as a single observation, per country) does not fully incorporate the assumed longitudinal effect. Indeed, it tests for a relation of aid to institutional quality. Obviously, countries in institutional havoc are reasonably expected to be aid-recipients. Whether aid donors favor developing countries with

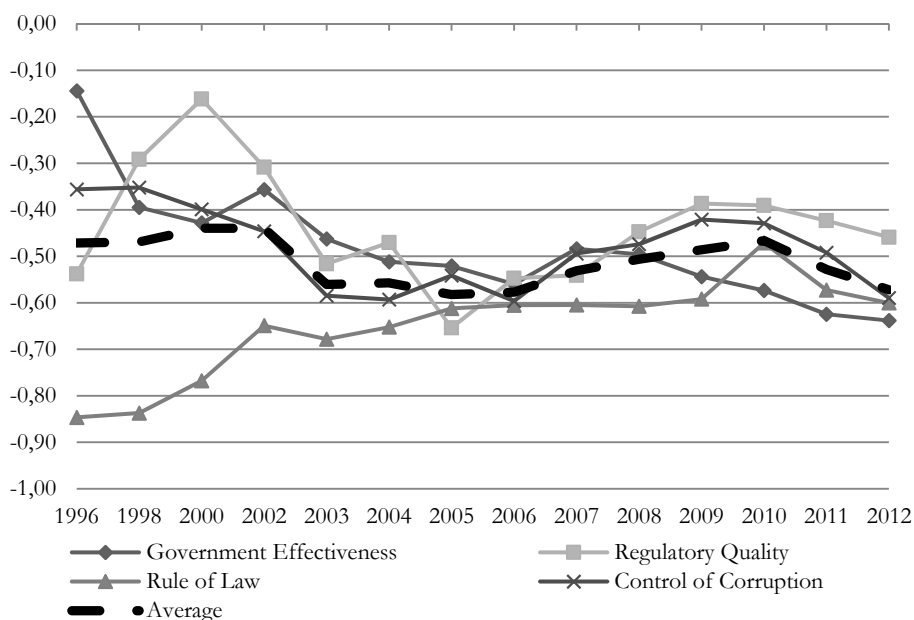
⁷ In the process of conducting the research included in this paper, I ran a cross-sectional time-series regression on data from 45 sub-Saharan countries, including data from 1996-2011 (744 cases) on ODA in share of GDP, FDI in share of GDP, tested in turn on each of the 4 deployed WGI indicators. My goal was to investigate the implied effect of aid (with FDI as simple control variable) on institutions over time, which cannot be done in simple OLS regression. The models found aid to be significantly and positively affecting institutional development by a rather small coefficient for all 4 governance variables, whereas FDI showed a similar effect in one of the instances. The t-test showed the variables to be significant at a 5 %-level, at most, even when only testing for one independent variable, which implies a much too weak model. It does however give a slight indication of the caution which should be enacted when concluding on strong finds in the aid-institution quantitative literature. Ultimately, it could imply how aid is not affecting institutional development, this is however a subject for further research and development of similar models.

promising institutions due to the implied increased potential for growth (as we derive from literature also presented in this paper) is an interesting research debate, but not the intended debate for this study.

By turning to our case of study Mozambique in more detailed view, the obvious conclusion is that there is a disappointing lack of development in the institutional performance, as measured by our WGI deployed indicators.

Figure 12: Worldwide Governance Indicators

Mozambique, 1996-2012



World Bank: Worldwide Governance Indicators

Figure 12 shows our selected governance indicators over the years of 1996-2012. Mozambique scores weak on institutions, with an average value of about -0.5 with some fluctuation over the years. There has been a trend of convergence across indicators over the years, assumedly due to the increase in included sources in generating the WGIs. The only field of governance seeing a clear improvement is Rule of Law, which targets the confidence in the rules of society and the extent to which they are abided. This is not limited to crime and the courts, but also law enactment, contract enforcement and property rights. Aforementioned study by Siba (2008) held this indicator as the most important indicator of state capacity, and it is a positive clear find

that the perception of a working judiciary system is increasing in Mozambique. The other indicators are more or less constant overall since 2003, with some promise for improvement shut down by recent returns to 2003 levels, and the overall development is rather disappointing, easily read by the average data series.

AID IMPACT UNCERTAIN, NATURAL RESOURCE IMPACT INTERESTING

While the indicators fluctuate and diverge to some extent over the years, there is one universal trend showing the last couple of years; as all indicators are found to decline since 2010. This coincides with three earlier finds in this paper (which is not explained by our literature, although some interactional effects are suspected): The return to appreciation, the sharp increase in FDI inward flows and a slight decline in aid. What our deployed literature does expect is the deterioration of institutions due to incentives induced by natural resources, and we observe how institutional indicators all decline after 2010, a year where discoveries of massive natural gas deposits went public. Three data points is far too little to establish any certainties about the observed development or its roots, and certainly not predicting the future curves, however we cannot ignore how both institutional development has been negligible over the last 16 years according to our data, and that our four indicators based on an aggregate collection of many diverse response groups are all pointing in the same direction.

Stated simply, we find that the status quo-nature of institutional development in Mozambique fits well with our expectation of hampered institutional development. However, from comparable data in sub-Saharan Africa we do not expect aid to be a strong determinant of such development. Asserting that something has induced status quo might easily be substituted by arguing that it has not affected the dependent variable at all. Overpowering a single variable in such a complex environment is a major pitfall that should be avoided. Another angle of attack is whether institutions would have improved in the absence of aid, as the literature arguing the importance of leverage and accountability between governments and the people uphold. There might be reasons for this to be an invalid standpoint as well. With governments operating in especially weak institutional environments (e.g. a weak constraint on the executive, weak control of corruption) and in light of

the resource richness, and the strategic interests in many African countries from wealthy nations, the expectation of governments to subdue to the demands of the people based on several hundred year old European societal history must be considered a stretch. The Samaritan's dilemma appears a more plausible, rational-choice approach. We observe how aid seems somewhat uncorrelated with institutional improvement, but there has not been a radical deterioration of institutions where aid has been constant in table 5. As aid inflows are constant, governments have both reduced incentives to exert high efforts to improve institutions – but at the same time they have an incentive to not let their situation deteriorate further, as to not make the Samaritans abandon what would appear a lost cause.

We do not find it possible to conclude on the relevance of the amplification theory (see chapter “Aid amplifies, ...”); as this approach suffers from the same lack of pre-aid data on institutions as we lack pre-aid data on real exchange rate development – making establishing conclusions on the absolute impact on institutions difficult. The amplification theory should be analyzed with an even broader time aspect and most importantly by including data from pre-aid phases of Mozambique's history, if the difficulty of obtaining such data does not make such a study impossible.

We do however find interesting signs in the very last years of our analysis with regards to the theories of natural resources and the impact of rising incentives for rent-seeking, especially in light of the presence of weak institutions in Mozambique. Theories on rent-seeking expect weak institutions to allow for grabber behavior (“grabber-friendly institutions”), which both undermines institutions and leads to declining growth. Weak control of corruption “permits” illegitimate activities which in itself undermine institutions even more. If institutional development has been hampered by aid, and these constant weak institutions allow for rent-seeking activities, this is indeed the “double resource curse” described initially. This must be monitored closely in years to come both by researchers and policy makers in Mozambique as it bears grave implications for growth and development, opposite to the expectations arising from their newly won resource wealth in the poor developing country.

IV. Conclusions: Implications for the coming resource boom

The literature predicts that Mozambique's growth and competitiveness should be distorted by the "rent-nature" of both aid and natural resource revenues. Aid and natural resource revenues are also expected to induce suboptimal institutional development. In our analysis of the macroeconomic and institutional performance in Mozambique, focused on a 10 year period spanning from 2002-2012, we observe no significant indicators of Dutch Disease. We do however find that institutional development is relatively stagnant. We observe that there is an appreciating - both nominal and real - effective exchange rate trend over the last 2 years which coincides with natural resource discoveries, large increases in FDI inward flows and deterioration of measured institutions, according to our data. We find support for our expectations of institutional development, first stagnancy with aid and then deterioration with natural resources, whereas the incentives arising from such potential wealth might well be expected to induce effects on institutions before actual revenue is generated. We do not find support of our expectations of Dutch Disease, in terms of a real appreciation or subsequent distortions of sector development.

Thus, our matrix of expectations (table 1) failed to predict the development in Mozambique. We did however find partial support in analyses, as institutional development was indeed stagnant – and if the recent signs of deterioration continues as a trend, there are stronger grounds to argue the detrimental impact of natural resource discoveries and rent-seeking, on institutions in Mozambique. Likewise, the recent real appreciation, not being an absolute appreciation as it shows a current return to 2004 levels, might manifest as a trend in years to come, and such an undesired level of appreciation might cause Dutch Disease related effects on the economy. There are strong reasons to follow these two trends closely in years to come.

Although data show little evidence of Dutch Disease related symptoms in the Mozambican economy the last decade, different findings imply that something is brewing. A large buildup of extractive industries, major investments and a recent appreciation of the currency (which we don't know will flat out or not) gives rise to concern for Dutch Disease in the future. The gas fields' estimates – if correct – will place Mozambique at the top tier of world natural gas reserves, potentially yielding massive revenues. The recent

appreciation is inversely correlated with the amount of aid in terms of share in GDP. It is however positively correlated with the large inflows of FDI which has grown by 30% in terms of share in GDP in just 3 years. The massive amounts of investment inflows have not been a targeted variable in this research. But it is interesting to note that such vast inflows of resources might affect economic variables such as the exchange rates and pressure even a real appreciation (for the same reasons already attributed to aid and natural resources). This should provide an interesting variable for further research.

The aid-institutions and natural resource-institutions literature provides predictions for both economic growth and institutional development. It concludes that strong institutions are a prerequisite for turning wealth potential to reality. Weak institutions are left with little hope, being captured in a downward spiral of weak control of corruption and other illegitimate rent-seeking behaviors which reduce incentives for promoting growth by increasing production.

Mozambique scores low on institutional indicators, although it is above average in sub-Saharan Africa. There have been no significant gains in the area of institutional development over the last 16 years. Thus, on the basis of our data, we conclude that institutional development is hampered. What we are less entitled to draw some conclusions about whether aid is the culprit of this stagnant development. We have seen how countries with comparable amounts of aid have seen stagnant, significantly positive and even negative development of institutions over the same period of time. Claiming a dominant impact of aid is a stretch. We have however seen how aid does affect the balance of power and the mechanics of accountability, which must be accepted as an uncontroversial claim. It is only obvious that donor countries with large transfers to Mozambique expect to have a say on what terms their money is spent. The larger question is thus whether aid is beneficial in the long run at all, or if it provides short-term relief in urgent areas. It seems that aid hampers improvement of state capacity due to diminishing accountability. The verdict on the benefits of aid will be for the future to pass: we do, however, observe how the larger flows of cash now seem to be directed through channels such as FDI.

The last years of our analysis support expectations of institutional development. The years and the observations are far too few to justify

conclusions in this area. It must be noted, however, that the indicators of institutional development are sharing a clear trend, much more than any point earlier in our analysis. The attention brought to Mozambique in the wake of natural resource discoveries, along with the expected increase in activities (assumedly from many resource-rich external agents) concerning most areas of society, will undoubtedly have an effect on the mechanics of governance and the shaping and execution of policies. Weak institutions are expected to deteriorate further during a resource boom, with dissipation of any growth potential. Mozambique faces a downward development in institutions. To be able to turn the massive potential for wealth and growth into real benefits for the people in one of the poorest countries in the world, this area must attract the attention of policy-makers in Mozambique and researchers alike, as well as the world community. Tracking the development of economic and institutional variables in Mozambique is a subject of research which much be attended to in the coming years.

Literature

- Adenauer, I. & Vagassky, L., 1998. Aid and the Real Exchange Rate: Dutch Disease Effects in African Countries. *Intereconomics*, 33(4), pp. 177-185.
- African Economic Outlook, 2011. *Mozambique*. [Online]
Available at:
http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/Country_Notes/2011/Full/Mozambique.pdf
[Accessed 3 December 2012].
- allAfrica, 2011. *Mozambique: Cashew Processing Now Provides 9,000 Jobs*. [Online]
Available at: <http://allafrica.com/stories/201110190016.html>
[Accessed 3 December 2012].
- allAfrica, 2012a. *Mozambique: No 'Dutch Disease' in Mozambique, Says Central Bank*. [Online]
Available at: <http://allafrica.com/stories/201211010281.html>
[Accessed 27 November 2012].
- allAfrica, 2012b. *Mozambique: Cashew Production Hits 10-Year Low*. [Online]
Available at: <http://allafrica.com/stories/201206170215.html>
[Accessed 2 December 2012].
- allAfrica, 2012c. *Mozambique: Vast Investments Required in Transport*. [Online]
Available at: <http://allafrica.com/stories/201207160610.html>
[Accessed 4 December 2012].
- allAfrica, 2013. *Mozambique: Annual Revenue from Gas Could Reach U.S. 10 Billion Dollars*. [Online]
Available at: <http://allafrica.com/stories/201309050296.html>
[Accessed October 2013].
- Barder, O., 2006. *A Policymakers' Guide to Dutch Disease*. [Online]
Available at:
<http://www.eldis.org/vfile/upload/1/document/0708/DOC14813.pdf>
[Accessed 4 December 2012].
- BBC News, 2009. *Zimbabwe Abandons its Currency*. [Online]
Available at: <http://news.bbc.co.uk/2/hi/7859033.stm>
[Accessed 28 November 2012].
- Beblawi, H., 1987. The Rentier State in the Arab World. I: H. Beblawi & L. Giacomo, red. *The Arab State*. London: Croom Helm, pp. 49-63.
- Benjamin, N. C., Devarajan, S. & Weiner, R. J., 1989. The "Dutch" Disease in a Developing Country: Oil Reserves in Cameroon. *Journal of Development Economics*, Volume 30, pp. 71-92.

- Bräutigam, D. A. & Knack, S., 2004. Foreign Aid, Institutions, and Governance in Sub-Saharan Africa. *Economic Development and Cultural Change*, 52(2), pp. 255-285.
- Bräutigam, D. & Botchwey, K., 1999. The Institutional Impact of Aid Dependence on Recipients in Africa. *Chr. Michelsen Institute: Development Studies and Human Rights*, 1999(1).
- Bucuane, A. & Mulder, P., 2007. *Expanding Exploitation of Natural Resources in Mozambique: Will it Be a Blessing or a Curse?*. [Online]
Available at:
http://www.iese.ac.mz/lib/publication/livros/ref/IESE_Q.Econ_4.ExpanExplo.pdf
[Accessed 26 November 2012].
- CIA, 2012. *CIA World Factbook: Mozambique*. [Online]
Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/mz.html>
[Accessed November 2012].
- Corden, W. M., 1984. Booming Sector and Dutch Disease Economics: Survey and Consolidation. *Oxford Economic Papers, New Series*, November, 36(3), pp. 359-380.
- Daly, J., 2012. *Texas Firm Strikes Natural Gas in Mozambique*. [Online]
Available at: <http://oilprice.com/Latest-Energy-News/World-News/Texas-Firm-Strikes-Natural-Gas-in-Mozambique.html>
[Accessed 25 November 2012].
- de Renzio, P. & Hanlon, J., 2007. *Contested Sovereignty in Mozambique: The Dilemmas of Aid Dependence*. [Online]
Available at: http://www.globaleconomicgovernance.org/wp-content/uploads/Derenzio%20and%20Hanlon_Mozambique%20paper%20rev%20120107.pdf
[Accessed 12 August 2013].
- Dutta, N., Leeson, P. T. & Williamson, C. R., 2013. The Amplification Effect: Foreign Aid's Impact on Political Institutions. *Kyklos*, 66(2), pp. 208-228.
- Ernst & Young, 2012. *Natural gas in Africa: The Frontiers of the Golden Age*. [Online]
Available at:
[http://www.ey.com/Publication/vwLUAssets/Natural_gas_in_Africa_frontier_of_the_Golden_Age/\\$FILE/Natural_Gas%20in_Africa.pdf](http://www.ey.com/Publication/vwLUAssets/Natural_gas_in_Africa_frontier_of_the_Golden_Age/$FILE/Natural_Gas%20in_Africa.pdf)
[Accessed 7 October 2013].
- Falck, H., 2000. *Mozambique: Dutch Disease in Mozambique?*. [Online]
Available at: <http://www.sida.se/Documents/Import/pdf/20001-Mozambique-Dutch-Disease-in-Mozambique.pdf>
[Accessed 25 November 2012].

- Fardmanesh, M., 1992. Dutch Disease Economics and Oil Syndrome: An Empirical Study. *World Development*, June, 19(6), pp. 711-717.
- Gray, M., 2011. *A Theory of "Late Rentierism" in the Arab States of the Gulf*. [Online]
Available at:
<http://www12.georgetown.edu/sfs/qatar/cirs/MatthewGrayOccasionalPaper.pdf>
[Accessed October 2013].
- Guyer, J., 1992. Representation Without Taxation: An Essay on Democracy in Rural Nigeria, 1952-1990. *African Studies Review*, 35(1).
- Hoffman, B. D. & Gibson, C. C., 2005. *Fiscal Governance and Public Services: Evidence from Tanzania and Zambia*. [Online]
Available at:
http://www.sscnet.ucla.edu/polisci/wgape/papers/9_GibsonHoffman.pdf
[Accessed August 2013].
- Instituto Nacional de Estatística, n.d. [Online]
Available at: <http://www.ine.gov.mz/ResourceCenter/>
[Accessed 20 November 2012].
- International Development Association, 2007. *Encouraging Investments and Economic Growth in Mozambique*. [Online]
Available at:
<http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/IDA/0,,contentMDK:21321646~menuPK:3266877~pagePK:51236175~piPK:437394~theSitePK:73154,00.html>
[Accessed 25 November 2012].
- International Monetary Fund, 2003. *Glossary of Statistical Terms; Technical Co-Operation Grants*. [Online]
Available at: <http://www.imf.org/external/pubs/ft/eds/Eng/Guide/index.htm>
[Accessed 16 August 2013].
- Kurilenko, S. B., 1998. Exchange rate and competitiveness of national economy. Calculation of indices of nominal and real effective exchange rates for Ukraine. *Cybernetics and Systems Analysis*, September-October, pp. 766-770.
- Lambsdorff, J. G., 2002. Corruption and rent-seeking. *Public Choice*, 113, pp. 97-125.

- Leite, C. & Weidmann, J., 1999. *Does Mother Nature Corrupt? Natural Resources, Corruption and Economic Growth*. [Online]
Available at: <http://www.imf.org/external/pubs/ft/wp/1999/wp9985.pdf>
[Accessed September 2013].
- Lopes, M., 2012. *Mozambique's Currency Crushes Cashew Comeback*. [Online]
Available at: <http://www.theglobeandmail.com/report-on-business/international-business/african-and-mideast-business/mozambiques-currency-crushes-cashew-comeback/article4559882>
[Accessed 19 November 2012].
- Matsuyama, K., 1992. Agricultural Productivity, Comparative Advantage, and Economic Growth. *Journal of Economic Theory*, Volume 58, pp. 317-334.
- McMillan, M., Rodrik, D. & Welch, K. H., 2002. *When Economic Reform Goes Wrong: Cashews in Mozambique*. [Online]
Available at: <http://www.nber.org/papers/w9117>
[Accessed 19 November 2012].
- Mehlum, H., Moene, K. & Torvik, R., 2006. Cursed by Resources or Institutions?. *The World Economy*, 29(8), pp. 1117-1131.
- Moore, M., 1998. Death Without Taxes: Democracy, State Capacity, and Aid Dependence in the Fourth World. I: G. White & M. Robinson, red. *Towards a Democratic Developmental State*. Oxford: Oxford University Press.
- Moss, T., Petterson, G. & van de Walle, N., 2006. An Aid-Institution Paradox? A Review Essay on Aid Dependency and State Building in Sub-Saharan Africa. *Center for Global Development Working Paper*, January, pp. 1-28.
- Newitt, M. D. D., 1995. *A History of Mozambique*. s.l.:Wits University Press.
- Nkusu, M., 2004. *Aid and the Dutch Disease in Low-Income Countries: Informed Diagnoses for Prudent Prognoses*. [Online]
Available at: www.ipc-undp.org/publications/aids/wp0449.pdf
[Accessed August 2013].
- Oomes, N. & Kalcheva, K., 2007. *Diagnosing Dutch Disease: Does Russia Have the Symptoms?*. [Online]
Available at: <http://www.imf.org/external/pubs/ft/wp/2007/wp07102.pdf>
[Accessed 16 November 2012].
- Ostrom, E., Gibson, C., Shivakumar, S. & Andersson, K., 2001. *Aid, Incentives and Sustainability*. [Online]
Available at: <http://www.oecd.org/derec/sweden/37356956.pdf>
[Accessed August 2013].

- Payne, A., 2012. *Mozambique Suffers Flooding Crisis*. [Online]
Available at: <http://digitaljournal.com/article/318135>
[Accessed 3 December 2012].
- Resenfeld, D., 2012. *The Coal Mining Sector in Mozambique: a Simple model of predicting government revenue*. [Online]
Available at:
http://www.iese.ac.mz/lib/publication/III_Conf2012/IESE_IIIConf_Paper19.pdf
[Accessed 25 November 2012].
- Reuters, 2010. *Mozambique Approves \$2 bln Hydroelectric Dam*. [Online]
Available at: <http://www.reuters.com/article/2010/08/18/us-mozambique-power-idUSTRE67H3MH20100818>
[Accessed 4 December 2012].
- Reuters, 2012. *Mozambique's cashews get dose of Dutch disease*. [Online]
Available at: <http://www.reuters.com/article/2012/09/21/africa-money-idUSL5E8KKLIV20120921>
[Accessed 18 November 2012].
- Reuters, 2013. *Anadarko expects to sign Mozambique gas supply agreements this year*. [Online]
Available at: <http://www.reuters.com/article/2013/09/10/anadarko-mozambique-lng-idUSL3N0H60ZL20130910>
[Accessed October 2013].
- Ross, M. L., 2001. Does Oil Hinder Democracy?. *World Politics*, Volum 53, pp. 325-361.
- Sachs, J. D. & Warner, A. M., 1995. *Natural Resource Abundance and Economic Growth*. [Online]
Available at: <http://www.nber.org/papers/w5398>
[Accessed 26 November 2012].
- Sachs, J. D. & Warner, A. M., 1997. *Natural Resource Abundance and Economic Growth*. [Online]
Available at: http://www.cid.harvard.edu/ciddata/warner_files/natresf5.pdf
[Accessed November 2012].
- The Economist, 2012. *Big Mac index*. [Online]
Available at: <http://www.economist.com/blogs/graphicdetail/2012/07/daily-chart-17>
[Accessed 19 November 2012].
- U.S. Department of the Interior, 2012. *The Mineral Industry of Mozambique. U.S. Geological Survey: 2010 Minerals Yearbook*.

- U.S. Energy Information Administration, 2013. *EIA: Independent Statistics & Analysis, Natural Gas*. [Online]
Available at: <http://www.eia.gov/cfapps/ipdbproject/>
[Accessed 7 October 2013].
- UNCTAD, 2013. *United Nations Conference on Trade and Development, Statistics*. [Online]
Available at: <http://unctadstat.unctad.org>
[Accessed October 2013].
- United Nations, 2012. *United Nations Commodity Trade Statistics Database*. [Online]
Available at: <http://comtrade.un.org/db/>
[Accessed November 2012].
- Utenriksdepartementet, n.d. *Developments of Russian oil and gas policy during the coming years- what does this mean for Norwegian petroleum interests?*. [Online]
Available at:
<http://www.regjeringen.no/nb/dep/ud/kampanjer/refleks/innspill/energi/nor.e.html?id=491877>
[Accessed 20 November 2012].
- Wijnbergen, S. V., 1986. Macroeconomic aspects of the effectiveness of foreign aid: On the two-gap model, home goods disequilibrium and real exchange rate misalignment. *Journal of International Economics*, August, 21(1-2), pp. 123-136.
- Williamson, C. R., 2009. Exploring the Failure of Foreign Aid: The Role of Incentives and Information. *The Review of Austrian Economics*, 23(1), pp. 17-33.
- Younger, S. D., 1992. Aid and the Dutch Disease: Macroeconomic Management When Everybody Loves You. *World Development*, 20(11), pp. 1587-1597.

Appendix 1: Nominal exchange rates, 2002-2012

	China	Germany	India	Japan	Malawi	Nether lands	Portugal	South Africa	Spain	Thailand	United Arab Emirates	USA	Mozambique
	mzncny	mzneur	mzninr	mznjpy	mznmwk	mzneur	mzneur	mznzar	mzneur	mznthb	mznaed	mznusd	
2002 Q1	2,757	20,011	0,470	0,172	0,327	20,011	20,011	1,979	20,011	0,521	6,212	22,815	
Q2	2,809	21,379	0,475	0,184	0,307	21,379	21,379	2,229	21,379	0,543	6,330	23,252	
Q3	2,833	23,067	0,482	0,197	0,306	23,067	23,067	2,255	23,067	0,558	6,384	23,449	
Q4	2,830	23,445	0,485	0,191	0,286	23,445	23,445	2,435	23,445	0,540	6,377	23,423	
2003 Q1	2,818	25,015	0,488	0,196	0,266	25,015	25,015	2,797	25,015	0,545	6,349	23,321	
Q2	2,828	26,607	0,497	0,198	0,263	26,607	26,607	3,039	26,607	0,554	6,374	23,410	
Q3	2,816	26,255	0,507	0,198	0,240	26,255	26,255	3,142	26,255	0,564	6,346	23,308	
Q4	2,803	27,624	0,510	0,213	0,219	27,624	27,624	3,444	27,624	0,584	6,317	23,202	
2004 Q1	2,805	29,002	0,513	0,216	0,219	29,002	29,002	3,435	29,002	0,592	6,321	23,217	
Q2	2,793	27,859	0,516	0,211	0,216	27,859	27,859	3,512	27,859	0,575	6,293	23,113	
Q3	2,657	26,893	0,477	0,200	0,205	26,893	26,893	3,462	26,893	0,533	5,988	21,993	
Q4	2,396	25,695	0,441	0,188	0,187	25,695	25,695	3,281	25,695	0,492	5,400	19,832	
2005 Q1	2,263	24,578	0,429	0,179	0,177	24,578	24,578	3,126	24,578	0,485	5,099	18,728	
Q2	2,699	28,097	0,513	0,208	0,195	28,097	28,097	3,483	28,097	0,557	6,083	22,341	
Q3	3,010	29,896	0,562	0,220	0,199	29,896	29,896	3,768	29,896	0,593	6,670	24,499	
Q4	3,183	30,592	0,568	0,220	0,208	30,592	30,592	3,937	30,592	0,627	7,005	25,727	
2006 Q1	3,172	30,703	0,576	0,219	0,198	30,703	30,703	4,152	30,703	0,649	6,953	25,538	
Q2	3,372	33,941	0,596	0,236	0,198	33,941	33,941	4,211	33,941	0,708	7,356	27,017	
Q3	3,263	33,141	0,561	0,224	0,189	33,141	33,141	3,644	33,141	0,690	7,078	25,996	
Q4	3,199	32,433	0,560	0,214	0,182	32,433	32,433	3,440	32,433	0,689	6,849	25,154	
2007 Q1	3,318	33,743	0,584	0,216	0,185	33,743	33,743	3,560	33,743	0,758	7,012	25,753	
Q2	3,370	34,887	0,627	0,214	0,185	34,887	34,887	3,649	34,887	0,794	7,047	25,878	
Q3	3,397	35,284	0,634	0,218	0,184	35,284	35,284	3,617	35,284	0,817	6,992	25,680	
Q4	3,353	36,097	0,631	0,220	0,179	36,097	36,097	3,685	36,097	0,801	6,792	24,931	
2008 Q1	3,344	35,885	0,602	0,228	0,171	35,885	35,885	3,194	35,885	0,773	6,524	23,959	
Q2	3,470	37,747	0,581	0,231	0,172	37,747	37,747	3,106	37,747	0,749	6,575	24,148	
Q3	3,516	36,243	0,550	0,224	0,171	36,243	36,243	3,101	36,243	0,710	6,550	24,059	
Q4	3,566	32,176	0,492	0,254	0,171	32,176	32,176	2,467	32,176	0,701	6,642	24,395	
2009 Q1	3,776	33,754	0,514	0,276	0,183	33,754	33,754	2,600	33,754	0,732	7,028	25,813	
Q2	3,896	36,237	0,543	0,273	0,187	36,237	36,237	3,145	36,237	0,766	7,245	26,608	
Q3	3,914	38,209	0,551	0,286	0,190	38,209	38,209	3,430	38,209	0,787	7,279	26,736	
Q4	4,143	41,766	0,605	0,315	0,198	41,766	41,766	3,771	41,766	0,849	7,700	28,282	
2010 Q1	4,067	38,478	0,604	0,306	0,187	38,478	38,478	3,698	38,478	0,844	7,561	27,769	
Q2	4,825	41,939	0,721	0,358	0,218	41,939	41,939	4,366	41,939	1,017	8,965	32,930	
Q3	5,336	46,613	0,776	0,421	0,239	46,613	46,613	4,932	46,613	1,142	9,837	36,129	
Q4	5,299	48,012	0,782	0,428	0,233	48,012	48,012	5,107	48,012	1,177	9,605	35,278	
2011 Q1	4,811	43,255	0,693	0,385	0,209	43,255	43,255	4,528	43,255	1,037	8,619	31,656	
Q2	4,622	43,230	0,667	0,368	0,198	43,230	43,230	4,428	43,230	0,993	8,179	30,042	
Q3	4,245	38,552	0,593	0,350	0,172	38,552	38,552	3,840	38,552	0,904	7,413	27,227	
Q4	4,190	35,985	0,520	0,345	0,161	35,985	35,985	3,298	35,985	0,861	7,262	26,672	
2012 Q1	4,290	35,475	0,532	0,342	0,163	35,475	35,475	3,489	35,475	0,873	7,368	27,062	
Q2	4,371	35,492	0,509	0,345	0,130	35,492	35,492	3,406	35,492	0,885	7,521	27,624	
Q3	4,470	35,389	0,514	0,360	0,103	35,389	35,389	3,425	35,389	0,903	7,698	28,276	
Q4	4,670	38,106	0,543	0,362	0,094	38,106	38,106	3,379	38,106	0,958	7,999	29,382	

OANDA Forex database, historical exchange rates, quarterly midpoint average

Appendix 2: GDP deflators & trade based weights

	China	Germany	India	Japan	Malawi	Nether lands	Portugal	South Africa	Spain	Thailand	United Arab Emirates	USA	Mozambique
	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def	gdp def
2002	91,163	97,405	91,421	103,140	79,614	97,157	94,741	89,066	92,271	95,663	95,235	95,258	88,820
2003	93,522	98,486	94,918	101,372	87,200	99,273	97,588	94,011	96,113	96,943	92,648	97,261	93,047
2004	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
2005	103,921	100,459	104,491	98,749	111,265	102,429	102,525	105,445	104,340	104,450	112,509	103,321	108,781
2006	107,877	100,588	110,624	97,642	141,658	104,240	105,376	112,329	108,662	109,926	127,029	106,659	118,917
2007	116,116	102,111	117,016	96,733	155,812	106,166	108,357	121,403	112,213	113,721	138,531	109,755	127,697
2008	125,131	103,188	127,544	95,509	169,297	108,426	110,072	131,123	114,877	118,192	160,360	112,189	138,364
2009	124,372	104,339	133,295	95,032	183,475	108,531	111,076	142,002	114,984	120,493	139,134	113,166	144,120
2010	132,629	105,443	146,132	92,975	197,021	109,681	111,765	152,231	115,446	124,907	150,136	114,679	159,230
2011	142,987	106,226	158,745	91,227	204,716	111,044	112,350	161,429	116,554	130,188	171,906	117,123	172,095
2012	145,599	107,399	171,104	90,438	240,955	111,868	112,192	170,240	116,880	131,864	173,655	119,219	181,578
	weight	weight	weight	weight	weight	weight	weight	weight	weight	weight	weight	weight	
2002	0,032	0,017	0,073	0,090	0,039	0,010	0,115	0,500	0,058	0,005	0,007	0,054	
2003	0,036	0,029	0,056	0,030	0,041	0,008	0,079	0,592	0,054	0,007	0,008	0,060	
2004	0,026	0,009	0,041	0,012	0,031	0,389	0,049	0,368	0,027	0,014	0,011	0,025	
2005	0,030	0,009	0,037	0,021	0,023	0,400	0,032	0,375	0,019	0,015	0,012	0,026	
2006	0,044	0,033	0,063	0,028	0,015	0,148	0,045	0,495	0,027	0,015	0,045	0,041	
2007	0,053	0,016	0,054	0,035	0,010	0,166	0,052	0,508	0,017	0,021	0,038	0,030	
2008	0,042	0,018	0,035	0,029	0,011	0,445	0,029	0,292	0,020	0,018	0,023	0,037	
2009	0,053	0,020	0,065	0,031	0,013	0,298	0,038	0,386	0,012	0,028	0,018	0,038	
2010	0,044	0,021	0,049	0,028	0,007	0,386	0,056	0,358	0,009	0,012	0,011	0,019	
2011	0,074	0,015	0,053	0,026	0,009	0,284	0,037	0,370	0,015	0,017	0,056	0,044	
2012	0,142	0,008	0,051	0,022	0,005	0,215	0,046	0,375	0,010	0,012	0,067	0,045	

IMF World Economic Outlook Database
UN COMTRADE trade database

Appendix 3: Nominal bilateral rate indices & Nominal effective exchange rate

	China	Germany	India	Japan	Malawi	Nether lands	Portugal	South Africa	Spain	Thailand	United Arab Emirates	USA	Mozambique
	nxr	nxr	nxr	nxr	nxr	nxr	nxr	nxr	nxr	nxr	nxr	nxr	NEER
2002 Q1	96,598	136,738	103,601	118,253	63,188	136,738	136,738	172,932	136,738	105,103	96,598	96,598	139,505
Q2	94,786	127,986	102,532	111,035	67,308	127,986	127,986	153,579	127,986	100,865	94,785	94,785	128,980
Q3	93,986	118,622	100,959	103,637	67,594	118,622	118,622	151,794	118,622	98,260	93,988	93,989	125,275
Q4	94,093	116,707	100,314	106,452	72,178	116,707	116,707	140,537	116,707	101,538	94,091	94,091	120,731
2003 Q1	94,507	109,383	99,780	103,954	77,544	109,383	109,383	122,354	109,383	100,587	94,502	94,502	112,690
Q2	94,146	102,839	97,914	103,165	78,637	102,839	102,839	112,619	102,839	98,935	94,145	94,144	106,045
Q3	94,557	104,217	96,097	102,697	86,185	104,217	104,217	108,934	104,217	97,128	94,554	94,554	104,514
Q4	94,989	99,054	95,438	95,568	94,206	99,054	99,054	99,373	99,054	93,899	94,988	94,987	98,260
2004 Q1	94,928	94,346	94,880	94,198	94,422	94,346	94,346	99,633	94,346	92,613	94,925	94,925	96,292
Q2	95,353	98,216	94,310	96,564	95,824	98,216	98,216	97,440	98,216	95,304	95,353	95,353	97,457
Q3	100,208	101,746	102,102	101,773	100,683	101,746	101,746	98,868	101,746	102,834	100,210	100,208	100,580
Q4	111,123	106,488	110,339	108,667	110,605	106,488	106,488	104,319	106,488	111,294	111,123	111,126	106,329
2005 Q1	117,674	111,326	113,476	113,636	116,799	111,326	111,326	109,488	111,326	112,923	117,674	117,678	111,330
Q2	98,641	97,384	94,954	98,051	106,006	97,384	97,384	98,277	97,384	98,366	98,645	98,647	97,935
Q3	88,474	91,525	86,719	92,446	103,561	91,525	91,525	90,843	91,525	92,332	89,957	89,959	91,227
Q4	83,657	89,443	85,772	92,825	99,136	89,443	89,443	86,943	89,443	87,398	85,664	85,666	88,285
2006 Q1	83,942	89,119	84,521	93,249	104,346	89,119	89,119	82,430	89,119	84,383	86,298	86,300	85,238
Q2	78,970	80,617	81,740	86,298	104,557	80,617	80,617	81,271	80,617	77,343	81,570	81,575	81,446
Q3	81,611	82,562	86,780	91,000	109,317	82,562	82,562	93,911	82,562	79,440	84,779	84,779	89,005
Q4	83,241	84,365	87,013	95,389	113,213	84,365	84,365	99,503	84,365	79,579	87,614	87,617	92,625
2007 Q1	80,246	81,090	83,435	94,460	111,622	81,090	81,090	96,132	81,090	72,311	85,568	85,578	89,364
Q2	79,010	78,431	77,684	95,033	111,682	78,431	78,431	93,806	78,431	68,970	85,153	85,165	87,021
Q3	78,378	77,548	76,851	93,463	112,412	77,548	77,548	94,620	77,548	67,038	85,814	85,822	87,017
Q4	79,404	75,801	77,131	92,488	115,557	75,801	75,801	92,889	75,801	68,411	88,345	88,400	85,988
2008 Q1	79,622	76,250	80,871	89,521	120,549	76,250	76,250	107,161	76,250	70,843	91,971	91,988	86,238
Q2	76,738	72,488	83,837	88,089	119,780	72,488	72,488	110,179	72,488	73,122	91,263	91,266	84,660
Q3	75,723	75,495	88,500	91,163	121,114	75,495	75,495	110,385	75,495	77,147	91,608	91,605	86,803
Q4	74,664	85,039	98,948	80,185	120,478	85,039	85,039	138,748	85,039	78,137	90,346	90,342	98,533
2009 Q1	70,515	81,064	94,769	73,742	112,903	81,064	81,064	131,619	81,064	74,891	85,382	85,379	98,230
Q2	68,349	75,509	89,739	74,606	110,310	75,509	75,509	108,824	75,509	71,537	82,822	82,828	88,205
Q3	68,033	71,612	88,371	71,341	108,741	71,612	71,612	99,773	71,612	69,628	82,431	82,433	83,330
Q4	64,278	65,513	80,457	64,662	104,135	65,513	65,513	90,754	65,513	64,520	77,926	77,927	76,363
2010 Q1	65,468	71,111	80,603	66,563	110,546	71,111	71,111	92,560	71,111	64,917	79,362	79,365	78,626
Q2	55,181	65,242	67,507	56,977	94,855	65,242	65,242	78,395	65,242	53,874	66,927	66,928	69,097
Q3	49,901	58,700	62,740	48,408	86,402	58,700	58,700	69,392	58,700	47,981	61,000	61,001	61,843
Q4	50,251	56,990	62,251	47,661	88,665	56,990	56,990	67,020	56,990	46,566	62,471	62,472	60,235
2011 Q1	55,352	63,258	70,294	52,922	98,757	63,258	63,258	75,589	63,258	52,845	69,621	69,621	67,670
Q2	57,614	63,294	73,057	55,352	104,083	63,294	63,294	77,299	63,294	55,176	73,360	73,360	69,111
Q3	62,722	70,974	82,126	58,214	120,198	70,974	70,974	89,128	70,974	60,602	80,944	80,945	77,878
Q4	63,545	76,037	93,585	59,058	128,261	76,037	76,037	103,791	76,037	63,665	82,631	82,631	85,410
2012 Q1	62,074	77,130	91,527	59,646	126,454	77,130	77,130	98,088	77,130	62,739	81,438	81,439	82,599
Q2	60,914	77,095	95,757	59,092	158,968	77,095	77,095	100,487	77,095	61,931	79,784	79,783	83,184
Q3	59,569	77,319	94,732	56,676	199,903	77,319	77,319	99,930	77,319	60,689	77,943	77,942	82,551
Q4	57,024	71,805	89,673	56,238	220,620	71,805	71,805	101,287	71,805	57,210	75,009	75,009	80,166

Author's calculations

Appendix 4: Real bilateral rate indices & Real effective exchange rate

	China	Germany	India	Japan	Malawi	Nether lands	Portugal	South Africa	Spain	Thailand	United Arab Emirates	USA	Mozambique
	rxr	rxr	rxr	rxr	rxr	rxr	rxr	rxr	rxr	rxr	rxr	rxr	REER
2002 Q1	94,116	124,687	100,654	101,835	70,496	125,006	128,193	172,455	131,624	97,584	90,092	90,070	135,350
Q2	92,351	116,706	99,616	95,619	75,091	117,004	119,988	153,154	123,199	93,650	88,401	88,380	125,139
Q3	91,572	108,167	98,087	89,248	75,411	108,444	111,209	151,375	114,185	91,232	87,657	87,637	121,544
Q4	91,675	106,421	97,461	91,673	80,524	106,693	109,414	140,149	112,342	94,275	87,754	87,733	117,135
2003 Q1	94,027	103,341	97,812	95,417	82,743	102,523	104,293	121,100	105,894	96,545	94,908	90,407	110,684
Q2	93,668	97,160	95,983	94,692	83,909	96,390	98,054	111,465	99,559	94,958	94,549	90,065	104,158
Q3	94,077	98,461	94,203	94,263	91,964	97,681	99,368	107,817	100,893	93,225	94,961	90,457	102,654
Q4	94,507	93,583	93,556	87,719	100,523	92,841	94,444	98,354	95,894	90,125	95,397	90,871	96,511
2004 Q1	94,928	94,346	94,880	94,198	94,422	94,346	94,346	99,633	94,346	92,613	94,925	94,925	96,292
Q2	95,353	98,216	94,310	96,564	95,824	98,216	98,216	97,440	98,216	95,304	95,353	95,353	97,457
Q3	100,208	101,746	102,102	101,773	100,683	101,746	101,746	98,868	101,746	102,834	100,210	100,208	100,580
Q4	111,123	106,488	110,339	108,667	110,605	106,488	106,488	104,319	106,488	111,294	111,123	111,126	106,329
2005 Q1	123,178	120,548	118,135	125,181	114,191	118,230	118,119	112,952	116,064	117,605	113,775	123,897	116,468
Q2	103,255	105,451	98,853	108,012	103,640	103,423	103,326	101,386	101,529	102,446	95,377	103,861	102,456
Q3	92,613	99,107	90,279	101,838	101,249	97,202	97,111	93,717	95,421	96,161	86,976	94,713	95,438
Q4	87,570	96,853	89,293	102,255	96,923	94,991	94,901	89,693	93,250	91,023	82,825	90,193	92,360
2006 Q1	92,533	105,359	90,858	113,568	87,595	101,668	100,571	87,265	97,530	91,286	80,787	96,218	91,936
Q2	87,052	95,308	87,868	105,102	87,772	91,969	90,977	86,038	88,226	83,670	76,361	90,950	87,845
Q3	89,963	97,607	93,287	110,829	91,768	94,188	93,172	99,420	90,355	85,938	79,365	94,522	95,998
Q4	91,761	99,739	93,537	116,173	95,039	96,245	95,206	105,339	92,328	86,088	82,019	97,687	99,903
2007 Q1	88,250	101,409	91,050	124,696	91,481	97,535	95,563	101,116	92,280	81,198	78,876	99,568	97,983
Q2	86,891	98,083	84,775	125,452	91,530	94,337	92,429	98,669	89,254	77,446	78,494	99,088	95,414
Q3	86,195	96,980	83,865	123,381	92,128	93,275	91,389	99,525	88,249	75,276	79,103	99,853	95,410
Q4	87,323	94,795	84,171	122,092	94,706	91,174	89,330	97,705	86,261	76,818	81,436	102,851	94,282
2008 Q1	88,043	102,243	87,732	129,690	98,523	97,304	95,849	113,079	91,840	82,934	79,356	113,451	101,449
Q2	84,853	97,199	90,950	127,616	97,894	92,504	91,120	116,264	87,309	85,602	78,746	112,560	99,592
Q3	83,731	101,231	96,008	132,069	98,985	96,341	94,900	116,481	90,931	90,314	79,043	112,978	102,114
Q4	82,560	114,029	107,343	116,165	98,465	108,520	106,898	146,410	102,427	91,474	77,954	111,420	115,913
2009 Q1	81,711	111,972	102,465	111,834	88,686	107,646	105,180	133,583	101,605	89,576	88,442	108,732	113,739
Q2	79,201	104,299	97,027	113,144	86,649	100,270	97,973	110,447	94,643	85,564	85,790	105,484	102,132
Q3	78,835	98,915	95,547	108,192	85,417	95,094	92,915	101,261	89,757	83,281	85,385	104,981	96,487
Q4	74,484	90,491	86,990	98,063	81,799	86,995	85,002	92,107	82,113	77,171	80,719	99,242	88,420
2010 Q1	78,599	107,385	87,828	113,997	89,342	103,236	101,310	96,815	98,080	82,756	84,169	110,197	98,622
Q2	66,249	98,523	73,557	97,580	76,661	94,716	92,949	81,999	89,986	68,678	70,981	92,928	86,670
Q3	59,910	88,644	68,363	82,905	69,829	85,219	83,629	72,583	80,963	61,166	64,695	84,699	77,571
Q4	60,330	86,060	67,830	81,625	71,658	82,735	81,192	70,101	78,603	59,362	66,254	86,741	75,554
2011 Q1	66,620	102,483	76,205	99,835	83,020	98,037	96,897	80,583	93,402	69,856	69,698	102,298	85,290
Q2	69,342	102,541	79,201	104,419	87,497	98,093	96,952	82,407	93,456	72,938	73,440	107,791	87,106
Q3	75,490	114,984	89,033	109,819	101,045	109,995	108,716	95,016	104,795	80,109	81,033	118,936	98,156
Q4	76,481	123,186	101,456	111,410	107,823	117,842	116,472	110,648	112,271	84,159	82,721	121,414	107,650
2012 Q1	77,413	130,403	97,130	119,755	95,293	125,193	124,832	104,621	119,825	86,392	85,154	124,036	104,371
Q2	75,966	130,342	101,619	118,643	119,795	125,135	124,774	107,179	119,769	85,279	83,424	121,514	105,111
Q3	74,289	130,721	100,531	113,792	150,642	125,499	125,137	106,585	120,118	83,569	81,499	118,711	104,311
Q4	71,115	121,399	95,162	112,912	166,253	116,549	116,213	108,033	111,552	78,778	78,432	114,243	101,297

Author's calculations

Appendix 5: GDP of Mozambique, constant prices

	quarter	agriculture		fishing	mining industry	manufacturing industry	electricity and water	construction	trade and repair of vehicles	hotels and restaurants	transport and communications	financial service	house rents	public administration	education	health care	other services	FISIM	value added
2002	1	5 999	473	135	3 216	1 041	634	2 462	333	2 285	787	2 629	758	852	308	576	-372	22 117	
	2	9 280	481	141	3 130	1 248	916	2 970	372	2 402	843	2 626	916	844	313	579	-406	26 655	
	3	6 608	494	145	3 911	1 195	820	2 766	416	2 927	854	2 624	1 184	840	316	583	-443	25 239	
	4	2 841	511	145	3 955	1 124	1 119	2 140	409	2 509	869	2 621	1 087	840	318	586	-511	20 562	
2003	1	6 355	528	135	3 270	1 369	835	2 483	391	2 338	871	2 621	826	909	321	590	-600	23 244	
	2	9 444	521	145	3 589	1 198	957	3 039	398	2 580	885	2 632	1 054	913	329	593	-678	27 601	
	3	6 835	529	171	4 879	1 210	1 061	3 031	445	2 754	916	2 659	1 057	916	335	596	-742	26 653	
	4	3 372	547	206	4 897	1 294	973	2 470	387	2 749	1 034	2 701	1 197	920	341	600	-847	22 843	
2004	1	6 649	545	255	4 930	1 638	1 002	2 917	410	2 411	1 054	2 760	1 047	1 017	348	604	-833	26 755	
	2	10 296	542	273	4 528	1 369	852	3 475	456	3 421	1 128	2 803	1 094	1 021	352	607	-844	31 372	
	3	7 043	530	316	4 613	1 342	816	2 867	402	2 343	1 156	2 831	1 128	1 024	358	611	-802	26 579	
	4	3 352	513	283	4 761	1 547	889	2 546	402	3 251	1 302	2 844	1 057	1 025	367	614	-816	23 939	
2005	1	7 341	518	304	4 817	1 543	724	3 146	431	2 722	1 503	2 842	1 134	1 132	371	619	-824	28 323	
	2	10 732	529	281	4 598	1 701	903	3 671	465	3 144	1 792	2 843	1 159	1 136	376	622	-889	33 064	
	3	7 377	543	275	4 873	1 776	1 229	3 426	501	3 151	1 793	2 847	1 096	1 145	384	626	-865	30 176	
	4	3 777	560	275	4 948	1 891	1 173	2 989	501	3 318	1 841	2 854	1 233	1 159	395	629	-935	26 609	
2006	1	8 077	568	313	5 256	1 704	1 000	3 857	479	3 118	1 839	2 867	1 226	1 223	411	633	-1 063	31 510	
	2	11 948	567	354	4 902	1 566	1 092	4 642	547	3 353	1 731	2 871	1 170	1 237	427	637	-1 084	35 961	
	3	7 940	578	397	4 746	2 514	1 255	4 119	521	3 796	1 758	2 873	1 398	1 245	445	641	-1 142	33 083	
	4	4 299	602	387	4 899	2 033	1 103	3 434	543	3 356	1 853	2 871	1 345	1 248	465	644	-1 197	27 883	
2007	1	8 691	617	393	5 282	2 255	1 016	4 329	505	3 295	1 872	2 867	1 441	1 395	486	648	-1 151	33 942	
	2	12 795	627	426	5 097	2 101	1 111	5 034	669	3 717	1 913	2 866	1 197	1 395	503	652	-1 137	38 966	
	3	8 505	636	453	4 978	2 152	1 504	4 362	591	4 026	2 041	2 869	1 472	1 397	517	656	-1 191	34 967	
	4	4 908	644	459	5 054	1 979	1 343	3 723	641	3 906	1 991	2 874	1 293	1 401	527	661	-1 139	30 265	
2008	1	9 519	667	444	5 482	1 807	1 140	4 539	600	3 710	2 047	2 874	1 429	1 476	537	663	-1 227	35 709	
	2	13 517	684	454	4 823	1 854	1 233	5 382	688	4 583	2 029	2 881	1 472	1 482	544	668	-1 235	41 058	
	3	9 284	681	491	5 452	1 989	1 867	4 689	701	4 375	1 975	2 893	1 542	1 503	553	672	-1 213	37 455	
	4	5 810	661	466	5 647	1 798	1 355	4 077	691	4 213	2 023	2 910	1 349	1 540	563	677	-1 244	32 536	
2009	1	10 598	627	457	5 383	2 165	1 350	4 827	573	3 847	2 134	2 930	1 628	1 619	573	682	-1 303	38 089	
	2	14 847	604	474	5 232	2 007	1 416	5 638	648	4 482	2 188	2 946	1 567	1 658	583	685	-1 327	43 648	
	3	9 823	595	505	5 497	2 082	1 565	4 987	765	5 179	2 235	2 956	1 622	1 685	594	688	-1 353	39 426	
	4	5 557	600	474	5 801	2 166	1 591	4 382	754	5 100	2 306	2 961	1 412	1 698	607	689	-1 393	34 705	
2010	1	11 525	634	520	5 732	2 240	1 527	5 124	657	4 589	2 398	2 985	1 781	1 815	623	696	-1 412	41 434	
	2	15 616	644	503	5 413	2 213	1 578	5 827	737	5 286	2 373	2 999	1 644	1 835	638	700	-1 391	46 613	
	3	10 058	662	558	5 742	2 269	1 634	5 122	735	5 830	2 761	3 014	1 776	1 846	651	704	-1 599	41 762	
	4	6 304	683	570	5 998	2 173	1 499	4 537	774	5 601	2 429	3 029	1 586	1 850	663	709	-1 406	36 998	
2011	1	12 098	692	529	5 627	2 342	1 825	5 274	804	5 424	2 396	3 044	1 885	1 915	673	715	-1 452	43 792	
	2	16 110	698	519	5 499	2 325	1 587	6 052	822	5 660	2 755	3 056	1 766	1 946	684	719	-1 585	48 613	
	3	11 447	702	737	5 906	2 409	1 943	5 530	807	6 275	2 886	3 064	1 958	1 966	695	721	-1 670	45 376	
	4	6 793	688	714	6 541	2 414	1 170	4 935	749	6 346	2 568	3 068	1 794	1 977	706	723	-1 487	39 698	
2012	1	12 780	718	676	5 921	2 520	2 016	5 678	696	5 740	2 622	3 068	2 018	2 018	718	723	-1 519	46 393	
	2	17 225	744	811	6 149	2 522	1 762	6 651	823	6 344	2 830	3 068	1 904	2 018	729	723	-1 638	52 666	
	3	12 485	757	1 064	6 216	2 193	2 026	5 923	790	6 930	3 211	3 068	2 134	2 018	741	723	-1 860	48 419	
	4	7 254	757	965	7 149	2 214	1 362	5 329	733	7 154	3 303	3 068	2 003	2 018	753	723	-1 913	42 871	

Annual reports, Instituto Nacional de Estatística, Mozambique

Appendix 6: Trade data and weights, major trade partners 2002-2012, current prices \$

				Weight
2002	Export	China	5 494 878	
2002	Export	Germany	711 479	
2002	Export	India	4 930 472	
2002	Export	Japan	14 787 146	
2002	Export	Malawi	40 569 854	
2002	Export	Netherlands	2 709 617	
2002	Export	Portugal	39 872 544	
2002	Export	South Africa	127 053 637	
2002	Export	Spain	57 980 047	
2002	Export	Thailand	819 482	
2002	Export	United Arab Emirates	815 552	
2002	Export	USA	7 874 789	
			303 619 497	
2002	Import	China	30 860 889	0,032
2002	Import	Germany	19 183 661	0,017
2002	Import	India	79 301 086	0,073
2002	Import	Japan	89 223 913	0,090
2002	Import	Malawi	4 802 512	0,039
2002	Import	Netherlands	8 414 417	0,010
2002	Import	Portugal	92 587 049	0,115
2002	Import	South Africa	448 810 437	0,500
2002	Import	Spain	9 282 400	0,058
2002	Import	Thailand	5 127 615	0,005
2002	Import	United Arab Emirates	6 997 068	0,007
2002	Import	USA	54 612 625	0,054
			849 203 672	1,000
2003	Export	China	5 412 123	
2003	Export	Germany	705 598	
2003	Export	India	3 608 914	
2003	Export	Japan	9 201 497	
2003	Export	Malawi	32 836 908	
2003	Export	Netherlands	1 192 495	
2003	Export	Portugal	38 909 683	
2003	Export	South Africa	169 636 392	
2003	Export	Spain	41 602 863	
2003	Export	Thailand	2 028 562	
2003	Export	United Arab Emirates	244 041	
2003	Export	USA	15 881 724	
			321 260 800	
2003	Import	China	40 625 460	0,036
2003	Import	Germany	36 585 357	0,029
2003	Import	India	68 041 120	0,056
2003	Import	Japan	29 786 993	0,030
2003	Import	Malawi	19 193 105	0,041
2003	Import	Netherlands	9 214 112	0,008
2003	Import	Portugal	62 250 025	0,079
2003	Import	South Africa	587 719 950	0,592
2003	Import	Spain	27 583 668	0,054
2003	Import	Thailand	6 642 407	0,007
2003	Import	United Arab Emirates	10 574 494	0,008
2003	Import	USA	60 903 485	0,060
			959 120 176	1,000
2004	Export	China	21 390 760	
2004	Export	Germany	769 804	
2004	Export	India	32 954 412	
2004	Export	Japan	12 784 046	
2004	Export	Malawi	49 528 774	
2004	Export	Netherlands	916 534 971	
2004	Export	Portugal	46 960 614	
2004	Export	South Africa	211 429 991	
2004	Export	Spain	37 936 038	
2004	Export	Thailand	2 374 681	
2004	Export	United Arab Emirates	737 024	
2004	Export	USA	10 654 763	
			1 344 055 878	
2004	Import	China	40 270 002	0,026
2004	Import	Germany	19 692 099	0,009
2004	Import	India	63 715 738	0,041
2004	Import	Japan	16 968 907	0,012
2004	Import	Malawi	23 915 819	0,031
2004	Import	Netherlands	10 827 665	0,389
2004	Import	Portugal	70 589 807	0,049
2004	Import	South Africa	666 856 563	0,368
2004	Import	Spain	25 770 913	0,027
2004	Import	Thailand	30 820 513	0,014
2004	Import	United Arab Emirates	24 405 808	0,011
2004	Import	USA	48 433 610	0,025
			1 042 267 444	1,000

2005	Export	China	34 130 204
2005	Export	Germany	762 329
2005	Export	India	26 582 413
2005	Export	Japan	8 785 272
2005	Export	Malawi	49 385 039
2005	Export	Netherlands	1 042 900 074
2005	Export	Portugal	21 903 230
2005	Export	South Africa	280 369 236
2005	Export	Spain	32 887 469
2005	Export	Thailand	9 267 888
2005	Export	United Arab Emirates	1 775 074
2005	Export	USA	17 760 518

1 526 508 746

2005	Import	China	68 288 924
2005	Import	Germany	29 886 956
2005	Import	India	96 724 302
2005	Import	Japan	62 593 616
2005	Import	Malawi	28 635 678
2005	Import	Netherlands	300 406 435
2005	Import	Portugal	85 357 778
2005	Import	South Africa	980 800 761
2005	Import	Spain	31 794 843
2005	Import	Thailand	42 560 919
2005	Import	United Arab Emirates	37 885 254
2005	Import	USA	70 894 801

1 835 830 267

0,030
0,009
0,037
0,021
0,023
0,400
0,032
0,375
0,019
0,015
0,012
0,026
1,000

2006	Export	China	32 939 441
2006	Export	Germany	25 871 073
2006	Export	India	30 197 013
2006	Export	Japan	7 040 410
2006	Export	Malawi	24 738 387
2006	Export	Netherlands	20 840 100
2006	Export	Portugal	29 738 125
2006	Export	South Africa	361 707 189
2006	Export	Spain	43 495 362
2006	Export	Thailand	3 647 762
2006	Export	United Arab Emirates	3 523 093
2006	Export	USA	6 515 429

590 253 384

2006	Import	China	82 660 330
2006	Import	Germany	61 626 495
2006	Import	India	136 842 428
2006	Import	Japan	67 344 989
2006	Import	Malawi	15 490 772
2006	Import	Netherlands	371 111 137
2006	Import	Portugal	89 512 783
2006	Import	South Africa	947 936 434
2006	Import	Spain	28 283 142
2006	Import	Thailand	36 538 278
2006	Import	United Arab Emirates	114 184 199
2006	Import	USA	101 588 433

2 053 119 420

0,044
0,033
0,063
0,028
0,015
0,148
0,045
0,495
0,027
0,015
0,045
0,041
1,000

2007	Export	China	44 040 728
2007	Export	Germany	9 043 104
2007	Export	India	15 915 095
2007	Export	Japan	2 519 483
2007	Export	Malawi	17 425 987
2007	Export	Netherlands	10 453 979
2007	Export	Portugal	39 937 682
2007	Export	South Africa	429 339 068
2007	Export	Spain	33 837 122
2007	Export	Thailand	1 749 644
2007	Export	United Arab Emirates	5 421 700
2007	Export	USA	2 239 061

611 922 653

2007	Import	China	103 221 474
2007	Import	Germany	34 109 117
2007	Import	India	131 815 718
2007	Import	Japan	93 953 982
2007	Import	Malawi	9 340 595
2007	Import	Netherlands	447 849 848
2007	Import	Portugal	103 622 042
2007	Import	South Africa	970 795 002
2007	Import	Spain	13 008 232
2007	Import	Thailand	55 620 076
2007	Import	United Arab Emirates	99 541 332
2007	Import	USA	80 826 318

2 143 703 736

0,053
0,016
0,054
0,035
0,010
0,166
0,052
0,508
0,017
0,021
0,038
0,030
1,000

2008	Export	China	51 604 163
2008	Export	Germany	24 709 187
2008	Export	India	28 401 005
2008	Export	Japan	13 329 865
2008	Export	Malawi	46 767 848
2008	Export	Netherlands	1 476 381 111
2008	Export	Portugal	26 412 548
2008	Export	South Africa	265 540 514
2008	Export	Spain	51 047 849
2008	Export	Thailand	2 185 167
2008	Export	United Arab Emirates	10 989 889
2008	Export	USA	18 166 628

2 015 535 774

2008	Import	China	156 094 057
2008	Import	Germany	64 725 281
2008	Import	India	144 361 046
2008	Import	Japan	127 830 471
2008	Import	Malawi	7 886 834
2008	Import	Netherlands	697 993 781
2008	Import	Portugal	115 824 532
2008	Import	South Africa	1 164 861 416
2008	Import	Spain	44 559 949
2008	Import	Thailand	87 047 908
2008	Import	United Arab Emirates	103 572 446
2008	Import	USA	160 434 493

2 875 192 214

0,042
0,018
0,035
0,029
0,011
0,445
0,029
0,292
0,020
0,018
0,023
0,037
1,000

2009	Export	China	74 477 597
2009	Export	Germany	24 814 300
2009	Export	India	56 511 897
2009	Export	Japan	4 532 482
2009	Export	Malawi	46 708 698
2009	Export	Netherlands	893 933 251
2009	Export	Portugal	32 189 271
2009	Export	South Africa	460 308 742
2009	Export	Spain	31 442 818
2009	Export	Thailand	1 580 204
2009	Export	United Arab Emirates	8 534 992
2009	Export	USA	41 431 353

1 676 465 605

2009	Import	China	173 121 172
2009	Import	Germany	66 439 298
2009	Import	India	244 683 975
2009	Import	Japan	141 572 488
2009	Import	Malawi	14 722 173
2009	Import	Netherlands	488 156 815
2009	Import	Portugal	141 953 378
2009	Import	South Africa	1 333 780 333
2009	Import	Spain	24 665 641
2009	Import	Thailand	127 612 900
2009	Import	United Arab Emirates	75 617 849
2009	Import	USA	134 792 659

2 967 118 681

0,053
0,020
0,065
0,031
0,013
0,298
0,038
0,386
0,012
0,028
0,018
0,038
1,000

2010	Export	China	79 567 735
2010	Export	Germany	20 398 700
2010	Export	India	30 434 646
2010	Export	Japan	3 872 837
2010	Export	Malawi	26 969 616
2010	Export	Netherlands	1 181 947 785
2010	Export	Portugal	108 344 256
2010	Export	South Africa	467 224 448
2010	Export	Spain	30 602 490
2010	Export	Thailand	5 115 649
2010	Export	United Arab Emirates	6 505 981
2010	Export	USA	16 428 794

1 977 412 937

2010	Import	China	130 041 706
2010	Import	Germany	79 489 941
2010	Import	India	201 700 014
2010	Import	Japan	126 267 035
2010	Import	Malawi	6 358 963
2010	Import	Netherlands	642 907 876
2010	Import	Portugal	154 163 972
2010	Import	South Africa	1 226 797 009
2010	Import	Spain	10 209 491
2010	Import	Thailand	52 234 508
2010	Import	United Arab Emirates	47 618 156
2010	Import	USA	74 365 447

2 752 154 118

0,044
0,021
0,049
0,028
0,007
0,386
0,056
0,358
0,009
0,012
0,011
0,019
1,000

2011	Export	China	167 692 000
2011	Export	Germany	75 421 000
2011	Export	India	87 226 000
2011	Export	Japan	1 382 000
2011	Export	Malawi	46 469 000
2011	Export	Netherlands	1 402 144 000
2011	Export	Portugal	42 679 000
2011	Export	South Africa	583 952 000
2011	Export	Spain	83 364 000
2011	Export	Thailand	5 642 000
2011	Export	United Arab Emirates	11 629 000
2011	Export	USA	25 672 000

2 533 272 000

2011	Import	China	373 846 000
2011	Import	Germany	34 138 000
2011	Import	India	300 521 000
2011	Import	Japan	185 393 000
2011	Import	Malawi	16 507 000
2011	Import	Netherlands	676 136 000
2011	Import	Portugal	225 559 000
2011	Import	South Africa	2 121 380 000
2011	Import	Spain	26 838 000
2011	Import	Thailand	119 626 000
2011	Import	United Arab Emirates	401 084 000
2011	Import	USA	292 322 000

4 773 350 000

0,074
0,015
0,053
0,026
0,009
0,284
0,037
0,370
0,015
0,017
0,056
0,044
1,000

2012	Export	China	637 337 269
2012	Export	Germany	15 693 110
2012	Export	India	155 071 477
2012	Export	Japan	9 017 800
2012	Export	Malawi	26 135 300
2012	Export	Netherlands	921 432 365
2012	Export	Portugal	16 161 802
2012	Export	South Africa	666 799 860
2012	Export	Spain	50 911 153
2012	Export	Thailand	2 265 756
2012	Export	United Arab Emirates	8 972 122
2012	Export	USA	61 943 447

2 571 741 461

2011	Import	China	350 229 080
2011	Import	Germany	40 220 880
2011	Import	India	200 919 080
2011	Import	Japan	147 198 910
2011	Import	Malawi	8 998 960
2011	Import	Netherlands	572 924 197
2011	Import	Portugal	304 055 990
2011	Import	South Africa	1 940 501 870
2011	Import	Spain	20 321 510
2011	Import	Thailand	80 035 500
2011	Import	United Arab Emirates	454 064 770
2011	Import	USA	253 989 080

4 373 459 827

0,142
0,008
0,051
0,022
0,005
0,215
0,046
0,375
0,010
0,012
0,067
0,045
1,000

UN COMTRADE database