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Rethinking the political economy of commodity-based linkages

Insights from the coal sector in Mozambique

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ROSKILDE UNIVERSITY
DOCTORAL SCHOOL OF SOCIAL SCIENCES AND BUSINESS

Doctoral Thesis

RETHINKING THE POLITICAL ECONOMY OF COMMODITY-BASED LINKAGES:

INSIGHTS FROM THE COAL SECTOR IN MOZAMBIQUE

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RETHINKING THE POLITICAL ECONOMY OF COMMODITY-BASED LINKAGES: INSIGHTS FROM THE COAL SECTOR IN MOZAMBIQUE

A thesis submitted in fulfilment of the academic requirement for the degree of Doctor of Philosophy jointly in the

Doctoral School of Social Sciences and Business, Roskilde University

and

The Institute of Resource Assessment, University of Dar es Salaam

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DEDICATORY

To my daughters (Mandisa and Ayanda) and to my late parents.

ACKNOWLEDGEMENTS

While researchers in the field of development economics appear to be stimulated either by their academic interests or intellectual curiosity, in general I was moved by the intellectual excitement of this well-established field. However, my daring thoughts are somewhat distant from those in development economics who appear to have seen this field as merely a branch of economics. My contention regarding this issue is that it is meaningless to separate the economic sphere from the political sphere and that as a result politics should be brought into the core of the analysis.

This intellectual ambition of mine to tap into this field of development, especially when natural resources are involved, seemed to me an academic exercise similar to my previous academic achievements. However, what seemed to be a mere academic exercise at first revealed itself as a long trudge, a real journey that I would not have been able to undertake without the support of a large number of people, to whom I wish to express my gratitude.

First of all, I am grateful to those with whom I am connected by blood (**Celina, Irene, Geno, Cláudio, Reginaldo** and **Cristina**) for having provided me unconditionally with the emotional and material support without which I would have found it harder to reach this stage.

My gratitude also goes to my supervisors **Lars Buur** and **José J. Macuane** for their guidance and incommensurable support at all times. Needless to say, the theoretical views I have expressed in this work have been influenced by them ever since the time I was J. Macuane's student at Eduardo Mondlane University. Our joint authorship in an article published in 2017, in which we revisit the Mozambique crisis in the context of natural resource discoveries, gave me the opportunity to expand my theoretical views and subsequently to develop a perspective of my own on the politics of natural resource governance. I therefore thank them for being role models throughout this journey. It goes without saying that this journey would not have been successful in the absence of their support.

In this field of natural resource governance, old and new at the same time, I was equally inspired by **Rod Alence**, who strongly supported me long before this research came to be materialized. I am very appreciative of his incommensurable support. Even though my ideas about resource governance have developed greatly since the time I was Rod's student at the University of the Witwatersrand, I cannot dissociate my academic progress from the influence I have received from him and from his reflections upon, but not limited to, Africa's natural resources.

Through **Delton Muianga**, who was also student at Wits and to whom I am equally grateful, I met **Paul Jourdan**, who came to be my host during the time I was a visiting scholar in the Corporate Strategy and Industrial Development unit (CSID) at the University of Witwatersrand. The interesting discussions I had with Paul about commodity-based development provided me with an

opportunity to rethink the intellectual foundations of linkage formation and development. Meeting Paul was for me a great fortune.

Thanks to **Gilad Isaac,** my visit at CSID was very pleasant. I am also deeply grateful to him for having created a stimulating environment in which I could work on my research and for having connected me to relevant people in the field. Among them is **Nicolas Pons-Vignon,** whose reflections on industrial policy have enlightened me in so many ways. He was attentive to my research, and I had the benefits of his comments and suggestions over my work. I am very grateful for the encouragement he has given me and for his support.

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Given that it would be wrong to mention people who made a great contribution to this work but probably do not want to be mentioned here, I can only express my gratitude in a more ill-defined fashion. I am therefore grateful for the collaboration of an endless list of people from ministries, government agencies, firms based in Tete, business associations, academics, specialists and/or experts. Apologies for not mentioning those who perhaps would like to have been mentioned.

While I have received incommensurable support from all those mentioned above, the responsibility for any defects in this research are entirely mine.

EPIGRAPH

'The goal is not to make [this] case study be all things to all people. The goal is to allow the study to be different things to different people [...]. Case stories written like this can neither be briefly recounted nor summarized in a few main results. [This] case story is itself the result'.

(Flyvbjerg 2006, p. 238)

ABSTRACT

Hoping to break the chains of aid dependence, most countries, including Mozambique, have sought to tap into their natural resources so as to transform their economies. While it is almost certain that natural resources can provide longstanding benefits if linkages with the local economy are established and deepened, in these countries such linkages are lacking. In light of this, the study seeks new answers to a relatively old question: '*how can we understand linkage formation in the commodity sector by examining the conditions that influence the ways in which they develop?*' Insights from the literature to answer this question, despite their generous clues, have separately focused on either technical or political explanations, thus providing us with partial glimpses of why countries have grappled with the problem of linkages. In the belief that studying technical conditions is as valid and useful as studying political conditions, a framework that combines the two perspectives has been developed here and applied to the coal sector in Mozambique.

Research findings demonstrate that, when coal came back on stream in Mozambique, domestic firms were ill-equipped to participate effectively in the coal value chain. On the one hand, while the observed weaknesses of domestic firms operating or aiming to operate in the supply sector of the coal industry constitute a longstanding problem, signs of improvement are lacking due to limitations in the transfer of knowledge to domestic firms, the malfunctioning of government support mechanisms, with limited or no benefits to domestic firms, and the poor implementation of local content provisions. Altogether, the government has been too hands-off in a context in which supporting domestic firms is crucial. On the other hand, given that domestic capitalists are highly dependent on ruling elites for their existence as capitalists and the fact that they constitute an unimportant source of rents for funding the state and/or the ruling party, ruling elites face few consequences if they pay them no heed. Other findings are that ruling elites have no incentive to develop a strong and diversified economic structure, even through linkages, as they fear that the emergence of new centers of economic power could open the doors to future opposition, which in turn could challenge the holding power of the Frelimo ruling coalition. All things considered, it can be argued that linkages in the coal sector are characterized by a shallowness that is due not only to the country's historical legacy of poor industrial capabilities and unmet technical requirements, but also because ruling elites have incentives to keep the private sector under control and underdeveloped.

Keywords: Mozambique, natural resources, coal, linkages, political settlement, domestic firms/capitalists, ruling elites.

ABSTRAKT

I håbet om at mindske afhængigheden af bistandshjælp har flere lande, herunder Mozambique, valgt at trække på deres naturressourcer for at omlægge deres økonomier. Selvom der er stor sikkerhed for, at naturressourcer kan have langvarige fordele, hvis disse i højere grad kædes sammen med den lokale økonomi, så mangler sådanne sammenkædninger i disse lande. I lyset af dette søger undersøgelsen efter nye svar på et relativt gammelt spørgsmål: *'Hvordan kan vi forstå dannelse af kæder inden for råvaresektoren ved at undersøge de forhold, der påvirker de måder, disse kæder udvikler sig på?'*Viden fra litteraturen til at besvare dette spørgsmål har, på trods af de mange holdepunkter, alle fokuseret på enten tekniske eller politiske forklaringer hver for sig og dermed kun givet os delvise glimt af, hvorfor lande har kæmpet med dette problem. I den tro at undersøgelser af tekniske forhold er ligeså værdifulde og nyttige som undersøgelser af politiske forhold, er der her blevet udviklet en struktur, som kombinerer de to perspektiver, og denne struktur er blevet anvendt på kulsektoren i Mozambique.

Forskningsresultater viser, at dengang, man igen begyndte at udvinde kul i Mozambique, var de nationale virksomheder dårligt rustet til at indgå effektivt i kullets værdikæde. På den ene side, og selvom de svagheder, der observeres hos nationale virksomheder, som deltager i eller ønsker at deltage i forsyningssektoren til kulindustrien, er et mangeårigt problem, ser vi stadig ingen tegn på forbedringer. Dette skyldes den begrænsede vidensformidling til nationale virksomheder, de dårlige statslige støttemekanismer med kun få eller ingen fordele for nationale virksomheder og en mangelfuld implementering af lokale bestemmelser. I det hele taget har regeringen ikke vist tilstrækkeligt initiativ i en situation, hvor støtte til nationale virksomheder er afgørende. På den anden side og set i lyset af at nationale kapitalisters eksistensgrundlag er stærkt afhængig af den herskende elite og det forhold, at disse kapitalister udgør en ubetydelig kilde til finansiering af staten og/eller regeringspartiet, vil det ikke have store konsekvenser for den herskende elite ikke at være opmærksom på dette. Andre resultater viser, at den herskende elite ikke tilskyndes til at udvikle en stærk og diversificeret økonomi, heller ikke via sammenkædninger, da de frygter, at fremkomst af nye økonomiske kraftcentre kan bane vejen for en fremtidig opposition, som vil kunne udfordre levetiden for Frelimos regeringskoalition. Alt taget i betragtning kan der argumenteres for, at sammenkædninger i kulsektoren karakteriseres ved en overfladiskhed, der ikke alene skyldes landets historiske arv som et land med dårlige industrielle muligheder og uopfyldte tekniske krav, men også at den herskende elite ønsker at holde den private sektor under kontrol i stedet for at udvikle den.

Nøgleord: Mozambique, naturressourcer, kul, sammenkædninger, politisk aftale, nationale virksomheder/kapitalister, herskende elite.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

1.1 Background

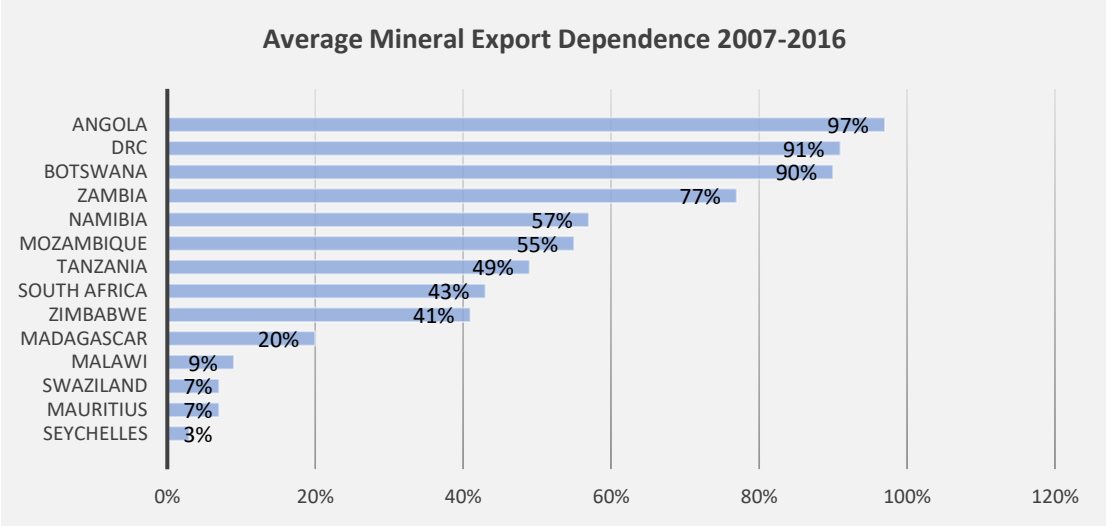
In the twilight of the twentieth century, a number of formerly colonized countries in sub-Saharan Africa sought to tap into their natural resource windfalls to develop economies of their own. Led by the well-established assumption that specialization in the export of commodities is a possible basis for industrialization (see Prebisch 1950), the governments of these countries continue to be quite optimistic that foreign direct investment (FDI) in natural resources could be the engine of the much-needed growth that would sweep the country forward along the avenues of development and poverty alleviation. Along with strong commercial and political pressures to exploit natural resources (UN 2013), the lack of the means, in economic and physical terms, to tap into their own natural resources has led African governments to pin their hopes on FDI in those resources to solve their problems of development.

Most of these countries in sub-Saharan Africa, which in the past were successively considered 'backward', 'underdeveloped', 'less developed', 'poor' and now 'developing countries' (Meier 1984), today occupy a core position in the global political economy due to their natural resource endowments, most of which have yet to be explored. According to Pedro (2015), Africa accounts for more than 30% of the world's extractive resources and produces over sixty different types of minerals for the global market. In the same light, AEO (2013) reported that the resource sector accounted for 35% of the continent's growth in the fifteen years preceding 2012 and for about 80% of Africa's exports.

Not unexpectedly, 'by 2014 FDI inflows in Africa were at a historical high, with significant amounts of these inflows going to the primary sectors of mining, quarrying and petroleum' (UNCTDA 2015). However, from 2016 to 2017 FDI inflows to Africa fell by 21%, due mainly to a plunge in commodity prices that affected resource-rich countries across the continent. The 2018 Investment Report shows that in southern Africa these inflows fell by 66% in 2016 and 2017, though the current recovery in commodity prices had so far contributed to a 7% rebound in FDI in- and outflows in 2018. All this signals not only the seeming importance of the mining sector in these countries, but also how vulnerable they have become in their heavy reliance on the resource sector, particularly because of the volatility of commodity prices.

Whereas the extractive industry is an established activity in a number of sub-Saharan African countries, mining is a dominant activity in all countries in the southern part of the continent, that is, in the Southern Africa Development Community (SADC) countries. Data derived from Comtrade suggests that, within the region, mineral export dependence increased from 54% in 2001 to 75% in 2008 before falling to 56% in 2016 due to the commodity bust. From 2007 to 2016 SADC dependence on mineral exports was at 66% on average. Angola, Botswana, Zambia and the DRC had extremely high dependence on minerals for foreign exchange, with receipts at over 80%, while others are still below that figure, although increases have been registered (see Figure 1.1). While Madagascar's dependence on its mineral exports increased from 1% in 2001 to 24% in 2016, in Mozambique and Namibia it went up by over 50%

Figure 1.1. Mineral resource dependence in SADC countries 2007-2016.



Source: data presented at the experts' group meeting; derived from Comtrade 2017.

In the same light, in the experts' group meeting[1] that reconsidered and validated the draft Regional Mining Vision report, it was observed that SADC mineral exports rose from $28 billion in 2001 to $157 billion in 2012, before falling sharply to $84 billion in 2016 due to the commodity plunge. As the prices of commodities globally have since bounced back, exports

[1] The experts' group meeting to consider and validate the draft Regional Mining Vision report and action plan took place on 21-23 September 2018 in Johannesburg, South Africa. The workshop brought together representatives from the SADC member states' ministries of mines, national and regional experts (including myself), the lead consultant and other stakeholders to validate the Regional Mining Vision.

are currently on the rise again in the majority of SADC countries, at least in certain commodities.

Mozambique is one of those countries where exports of coal, the country's most heavily produced and exported mineral, more than doubled in only two years (2017 and 2018), its exports having swelled from $690 million in 2016 to $1.7 billion in 2018. In spite of coal being the most important mineral at the present time in Mozambique, the country is richly endowed with a plethora of other natural resources, most of which are yet to be exploited. While there has been some extraction[2] of coal, calcareous minerals, tantalite, graphite, copper, bauxite, gemstones and other minerals in the past, the mining sector's role in the Mozambican economy was tiny compared to what is envisaged based on the massive resource discoveries of the last decade. The most prominent natural assets are the huge reserves of coal (estimated at more than 23 billion tons) and gas (estimated at more than 100 trillion cubic feet), which make Mozambique the holder of the third largest gas reserves in Africa; moreover, it is predicted that coal-mining will put the country among the world's ten largest coal producers (see Salimo 2018; UN 2013; Selemane 2013).

While gas exploration in the north is still in its early stages, the exploration and exploitation of coal has accelerated over the current decade, with massive investments flowing into the sector. 'The country's coal deposits are situated in the provinces of Tete (Moatize-Minjova and Mucanha-Vuzi basins), Niassa (Maniamba/ Metangula), Cabo Delgado (Lugenda) and Manica (Mepotepote)' (Selemane 2013: 3), but it is the coal from Moatize which attracts most investors. The Moatize coal basin[3] alone, which is located about twenty kilometers from the provincial capital (Tete city) and boasts reserves of over 23 billion tons, is considered one of the largest untapped coalfields in the world (GTK Consortium 2006).

Unsurprisingly, coal assets in Mozambique brought expectations of continued and sustainable economic growth, as well as confidence that its exploitation would pave the way to reducing poverty and dependence on international financial aid. Such conjectures were initially sparked by speeches from high-ranking politicians, who promised that with the coal bonanza would

[2] It is likely that the sixteen years of civil war that plagued the country from two years after its independence and that destroyed its industrial base was behind the stagnation of what little mining activities there were at that time.

[3] This basin, which covers an area of 250km², is part of the Moatize-Minjova coal basin and extends over three regions: Revúbuè, Calambo and Benga (see Telekhov and Zadara, 1987; Jourdan and Verniers, 1981). Several other coal-bearing sub-basins are also known along the Zambezi graben. These include Muaradzi, Necungas-Meconé and the sub-basin of the Malica river, close to the border with Malawi. Even along the border there seem to be considerable coalfields in Goma and Nacali (see GTK Consortium, 2006).

come local jobs and that the country's new sources of revenue would allow a transformation of the economy and even investment in the social sectors.

According to government figures, the major coal companies would be exporting 51.48 million tons of coking coal by the end of 2015, while of the 39.74 million-ton thermal coal production target, only a small proportion would be for export. Projections were that coal, which accounted for less than 10% of total exports in 2015, would overtake aluminum, the country's principal export commodity, accounting for 31% of Mozambique's exports. Owing to the fact that the coal companies had interrupted their activities because of the coal bust, the role of coal in the country's economy was treated with skepticism among economists and political scientists alike. However, in August and September 2016 the price of coking coal suddenly increased more than double, and the price of thermal coal increased by more than 40%, mainly due mostly to Chinese demand. As a result, coal companies in Moatize resumed[4] their activities, putting coal in a prime position as the most exported commodity since 2017. By the time 2018 was drawing to a close, coal was accounting for 33.9% of the country's total exports.

Despite the long-term prospects of liquefied natural gas in the Rovuma basin, the coal sector remains the largest in Mozambique's extractive industry to date, making it an interesting case to analyze in terms of the benefits it creates for the country, particularly in the upstream and downstream sectors. Despite the fact that the reemergence of coal-mining in Mozambique is of relatively recent vintage, its production having started in 2009 and exports in 2011, I contend that enough time has reasonably elapsed to permit an analysis of the extent to which the exploitation of coal resources has generated benefits for the country.

In the literature, analyses of the impact of mining (or natural resources more generally) on a country's development have overwhelmingly swung between two perspectives, that is, whether natural resources are a blessing or a curse. The latter position has been quite prominent and has challenged the optimism that has been displayed about the prospects of mining for development (see Ross 1999; Luong and Weinthal 2006). This view, often referred to as the resource curse, holds that natural-resource wealth tends to create severe political and economic problems rather than development. It also maintains that the 'resource sectors [in

[4] Projections that coal would account for about 8% of GDP by 2015 did not materialize at that time due to infrastructure bottlenecks and a slump in the prices of all commodities, including coal, which led sizeable coal companies such as Jindal and ICVL to halt their production.

most of these countries] are unlikely to stimulate growth in the rest of the economy, particularly if the foreign multinational dominates the resource extractives and [they] are allowed to repatriate their profits instead of investing them locally' (Ross 1999: 301). That being the case, 'resource exporters would be left with booming resource enclaves that produced few "forward" and "backward" linkages to other parts of the economy' (ibid.: 302).

In aggregate terms, many attempts have been made to demonstrate that 'resource-rich countries' in Africa tend to register slow growth compared to their counterparts elsewhere (Ross 1999; Sachs and Warner 2001; Collier 2010). Under these circumstances, Gelb and Associates (1988: 4) seem justified in asking: 'Is it in fact possible for a country receiving a large windfall gain to end up less well-off than it might have been without it?' This raises the question of which route has to be taken in order for African resource producers to nullify the hardships of mining. How would this apply to Mozambique's coal sector?

1.2 Problem statement/research question

Attempts to answer the first question thoroughly depend on whether one considers natural resources a curse or a blessing. But more importantly, there has been an argument that countries are less likely to suffer from the hardships of mining and may begin generating tangible benefits if they are able to diversify their economies (see Andersen et al. 2015; Whitefield et al. 2015). This school of thought argues that 'countries must diversify their economy away from dependence on a few commodities to an economy based on value addition in agroindustry, manufacturing, knowledge-based services' (Whitefield et al. 2015: 5). If this conclusion is correct, a basic line of inquiry is how resource-rich countries would go about achieving higher levels of economic diversification.

On this point, Morris et al. (2011) suggest that one route to economic diversification is to build linkages into and out of commodity production. According to Solomon (2011), mining in particular has been a pioneer in this regard. The great importance given to mining as a leading sector is due to it being perceived as quite 'different from other types of capital flows as it involves not only the capital itself, but transfers in the form of technology diffusion and processing methods, managerial expertise about production, markets and enhancing labor skills' (Morrisey 2012: 27). Morrissey (ibid.) goes on to observe that these transfers, otherwise known as spillovers, can only take place if linkages are established and

strengthened. This means that the commodity sectors in general, and mining in particular, are more likely to ensure that countries change their economic landscapes if the establishment and nurturing of linkages between resource and non-resource sectors is taken into account.

However, research along these lines shows that the reality across Africa is complex and quite different from what has been so extensively argued. As Hoadley (2002) notes, historically neither the profits nor the production costs of the minerals have been distributed equitably to all those involved in or affected by their production. More precisely, it has been acknowledged that 'resource-abundant economies tend to develop insufficient backward and forward linkages among sectors, and that mining, in particular, was often an "enclave"' (Saad-Filho and Weeks 2013: 2). The result is that few linkages to domestic firms are created and that few spillover opportunities emerge over time. For Morrissey (2012: 129), 'the simple message is that most FDI to sub-Saharan Africa, historically and currently, has done little to provide linkages and even less to provide spillovers'.

Thus, whereas linkages are seen as one of the most important mechanisms through which the commodity sector could change a country's business and economic landscape, the general mood in the continent among political economists is pessimistic. In other words, for some political economists linkages in the resource sector have dwindled to a trickle for two possible reasons: first, the commodity sectors are building the wrong type of linkages, and secondly, international firms dominate existing linkage opportunities in the commodity sector due to the lack of domestic capabilities to enter the value chain (Buur 2014; Hansen et al. 2016; Buur and Monjane 2017). In addition, Jourdan (2015) argues that there is inadequate science, technology and engineering skills formation, which limits forward linkages, as well as constraining access to finance to support the investment required to develop backward linkages.

One observation is that there is no iron law that resource-rich countries must struggle with linkages that do not work to diversify and power the economy, given the existence of a small number of successful cases both on the continent (Botswana and South Africa) and outside it (Malaysia, Chile, Indonesia and Norway). The question to be raised here is why some resource-rich countries have done well, while others have failed to foster linkages with their resource sectors. My understanding is that there are particular features in each of the resource-rich countries that influence the way linkages are developed. Building on this understanding,

I now formulate the question that drives this research so as to enhance our comprehension of the circumstances in which linkages may or may not be developed.

Research question

How can we understand linkage formation in the commodity sector by examining the conditions that influence the ways in which linkages develop?

This broad question can be broken down into six working questions:

1) How, broadly, has linkage formation been understood in the commodity-based literature?
2) What are the conditions that underpin linkage formation in the commodity sector?
3) How has the coal sector in Mozambique evolved over time, and what are its key features?
4) What are Mozambique's existing industrial capabilities, and how do they relate to the features of the upstream and downstream sectors of the coal industry?
5) What are the sector-specific conditions of the coal sector, and how do they exert an influence on the development of backward and forward linkages?
6) How has politics shaped the ways in which backward and forward linkages develop in Mozambique's coal sector?

1.3 The argument of the thesis

Building on the literature on linkages, economic diversification and the politics of development, I now develop the propositions that will form the basis of this research. Specific literature on linkages has been developed in two strands: the first places the emphasis on technical and/or institutional variables (from an economic point of view), while the second brings to the fore the role politics plays in the development of linkages.

My contention is that attempts to understand problems with linkages from an economic perspective, whether technical or institutional, would only give us one side of the story, as they lend us only half-truths. Even though other views within this perspective have sought to draw our attention to the historical aspects of a country's technological capabilities, such histories have been depoliticized as if the history of the country's industrial base were free from political influence. I contend that significant technological capabilities in developing

countries are far from being developed through 'market-driven processes', which requires a ruling elite that supports learning. This latter undertaking reminds us that politics also matters.

On the basis of the above considerations, I contend that linkage formation and development are by no means a purely economic process, nor are they solely determined by the technical capabilities of the local firms in meeting predefined standards. As a process, linkages are also profoundly influenced by the country's politics. Therefore, the conditions that influence the ways in which linkages emerge and develop are both economic (technical) and political. As I unpack this general statement, I formulate a two-pronged argument for this research, each strand corresponding to either the technical or the political aspects of linkage formation and development.

On the one hand, from a technical and economic point of view, linkages would clearly be facilitated if the resource sector had pre-existing capabilities (institutions, knowledge, technologies and so forth) to build on, rather than having to start from scratch. However, given that in most developing countries such capabilities are lacking, I argue that natural resource exploitation can be used as a broad base from which the development of such capabilities can be pursued. Yet, such development is not an automatic process, but one that requires the key players in a particular sector to engage with each other, with the government playing a pivotal role in this engagement. This being the case, far from being a market-driven process, linkages are more likely to develop if the relationships between the government, local firms and multinational corporations exploiting natural resources (MNCs) evolve to a level where 1) local firms are capable of absorbing the knowledge and technology required for their own upgrade; 2) governments are capable of formulating and implementing a coherent industrial policy and of creating a supportive institutional environment for local firms to flourish and develop; and 3) MNCs are 'willing' to engage with both local firms and the government in the development of a competitive local supply chain.

On the other hand, whether or not domestic firms will develop their capabilities with the support of the government and the participation of the commodity's lead firm is a function of the power relations between them, which leads us to the second part of the argument. Let me first emphasize an earlier point, namely that the underlying aim of linkages that are built on a natural resource base is to diversify the economy, since diversification is a prerequisite for economic development. Economic diversification, as Gylfason and Wijkman (2016) observe, tends to go hand in hand with political diversification because diversifying an economy

requires conferring autonomy on different economic groups and supporting the development of their capabilities. This, as Dunning (2005) pointed out, has the potential to create different centers of power that could later constitute a challenge or threat to the political survival of the ruling coalition. Under such circumstances, I argue that ruling elites are less likely to support domestic capitalists if they perceive that this might increase political competition and therefore constitute a challenge to their own political survival. Ruling elites are likely to support domestic capitalists in developing the skills they need to become competitive only if the latter constitute an important revenue stream from which public expenses can be met or are able to generate significant rents to fund the ruling party. In other words, the amount of rents that domestic capitalists are able to generate may serve as leverage in influencing policy decisions in their favor as a class.

In a nutshell, the argument of this study is as follows: linkages are more likely to be formed and developed if it is in the government's interest to support the development of capabilities that domestic business requires to participate in the value chain of the resource sector. Whether or not this support is provided is a function of the strategies that ruling elites pursue for their own survival; that this, whether or not they believe that creating new centers of economic power outside the control of the ruling coalition will threaten the regime's stability.

1.4 Theoretical and empirical relevance of the research

Much of the recent literature on linkages shows the influence of Albert Hirschman's writings from the 1950s. Having pioneered the concept of linkages – which is now central to a number of analyses of development in resource-rich countries – Hirschman, followed by a number of his contemporaries, sought to offer attractive avenues for policy-makers to be able to turn commodity exploitation and exports by multinational conglomerates into something that would also benefit the host countries. However, much of their contribution on the issue, despite their thought-provoking insights, remains very technical and seldom pays attention to the politics of mining in general or of linkages in particular. Despite the relevant points they make about the key role of the government in setting up the institutions that will stimulate the development of linkages, this school focuses more on what governments should do than on what they actually do. In other words, they focus on political will at the expense of unpacking the politics.

More recent views on this issue (such as Hansen et al. 2016; Buur and Monjane 2017) are quite critical of positions that overlook the politics of linkages. In their perspective, the creation of productive linkages is dependent on the type of politics being pursued by those who run the government (ruling elites) and on the type of incentives they face either to support or to smother the development of the technological capabilities required to create and develop linkages. However, in its turn this emphasis on the politics of linkages comes at the expense of the technical aspects of linkage formation (institutions, knowledge, technologies and so forth). Importantly, each of these approaches provides important insights into and refreshing ideas about linkage formation and development. Nonetheless, as separate views (technical vs political), the understanding of linkage dynamics in the commodity sector requires further examination.

My contribution to the literature is centered on enhancing our understating of linkage formation and development by bridging these two perspectives. This is done by developing a framework that will allow an analysis of backward and forward linkages at the sectoral level while also taking into account both the technical and the political aspects. This framework encompasses the role played by the key actors in the commodity sector and highlights how their interaction influences the outcomes that give linkages a particular direction. The framework has its own theoretical underpinnings and makes use of a set of abstract concepts, but it also provides relevant methodological and operational insights, thus offering practical guidance for further research.

Empirically, the work adds to the existing body of knowledge by exploring one case study – the coal sector in Mozambique, given the dearth of extensive research on linkages in this and other sectors of the country's economy. Studies of linkages within the country are quite limited, and the existing ones are either quite broad – not focusing on a specific sector – (Castel-Branco 2002; Muanza 2012; Mandlate 2014) or quite narrowly focused on the Mozal aluminum smelter alone (Castel-Branco and Goldin 2003), there being a tendency to assume that the dynamics observed in the aluminum sector are similar to those in other sectors, including coal. It may be that similarities exist, but until we test this we cannot be sure.

1.5 Structure of the thesis

This thesis is structured into nine chapters.

This introductory chapter constitutes **the first chapter** of this work, which starts by providing the context of the research and introducing the intellectual curiosity that has galvanized the study. Next, I outlined the research question that will guide the study and gave a breakdown of its working questions. This is followed by a presentation of the main argument, which concerns the possible channels through which linkages may or may not develop. Finally, the chapter presents the empirical and theoretical contributions of this research.

The second chapter presents a literature review on linkage-related issues. The first section dwells on the concept of the linkage in order to bring out its meaning and the categories into which it can be broken down. The section that follows examines the conditions that have been understood as linkage shapers, given the assumption that there are indeed specific conditions that give a particular form and direction to a linkage. Towards the end of the chapter the debate on linkages is summarized, specifying also those elements of it that are either adopted or rejected by this study.

The **third chapter**, building on the previous one, presents a framework for the analysis of backward and forward linkages in the commodity sector. I start the chapter by outlining the theoretical underpinnings of the framework and then develop the analytical framework of the conditions that shape backward and forward linkages in the commodity sector. This is accompanied by a graphic representation, or model, of the framework and an outline of the operational elements that inform it.

The fourth chapter describes and explains the methodology used to develop this research, including the methods and procedures used in selecting the case study, collecting data and its analysis. The chapter also outlines the challenges faced during the four years of research, particularly when it came to data collection and accessing information.

The fifth chapter brings out the main features of the coal sector. The objective is to outline contemporary trends in coal exploitation within the country and to provide insights into how the coal sector is organized, who the key players are and the ownership structure of the investments in coal. Arguing that whatever happens in the coal industry globally and regionally will affect Mozambique's coal sector, the chapter starts by looking at key trends in the coal industry internationally and regionally before focusing on the local dynamics. While this chapter provides context and background, it also has a strong analytical component that is built on empirical material collected during four years of research. Thus the ground is prepared for the analysis of backward and forward linkages in the chapters to come.

The sixth chapter constitutes the first step in analyzing the conditions that shape linkage dynamics in the coal sector. The chapter looks into the history of Mozambique's industrial dynamics so as to understand which types of industrial capabilities the country has accumulated over the last forty years since its independence in 1975. Next, I examine the extent to which the current state of backward and forward linkages in the coal-mining sector reflects the country's past technological achievements in the industrial sector.

The seventh chapter builds on the preceding chapter and expands the analysis to examine not only firm-specific capabilities, but also the introduction of the three sector-wide technical processes referred to in this study as 'proximate conditions'. In each section of the chapter, I analyze a particular condition that emerge from a specific relationship, that is, between coal companies and local firms, the government and domestic capitalists, and the government and the coal companies. I wrap up the chapter by analyzing how proximate conditions manifest themselves in the coal-mining sector and their implications for the formation and development of backward and forward linkages.

The eighth chapter examines the political processes or circumstances – referred to in this study as 'underlying conditions' – that influence the likelihood of government support for domestic capitalists to develop the capabilities the coal value chain requires. Unlike the previous chapter, this analysis focuses on the power that each actor has – domestic capitalists in relation to ruling elites and coal companies in relation to ruling elites – rather than on their technical capabilities or business strategies.

By way of a conclusion, **t**he **ninth chapter** summarizes the key findings of the study and provides an answer to the question: 'How can we understand linkage formation and development in the commodity sector by examining the conditions that influence the ways in which linkages develop?' The list of references of the material used in this work follows this chapter.

II. LINKAGES AND NATURAL RESOURCES: A SURVEY OF THE LITERATURE

The objective of this chapter is to analyze how linkage-related issues have been approached in much of the literature on natural resources. Within this literature, the focus is on the reemergence of the exploitation of natural resources as a key driver of economic development in developing countries, especially when the commodity lead firm is not local. For such a development to happen, scholars agree that linkages with the host economy should be fostered so as to diversify the economy away from dependence on the exploitation of natural resources. However, where scholars disagree is whether resource-rich countries in the so-called developing world are realistically able to build up linkages or not.

In this debate, two broad strands can be found in the literature. Whereas some are of the view that commodity exploitation offers great potential to change a country's economic landscape through the development of linkages as long as certain conditions are met, others have held that natural resources have turned out to be more of a bane than a bonus and are therefore unlikely to generate growth in the rest of the economy, as linkages are unlikely to have been developed. This position is associated with the approach known as the 'natural resource curse'.

This chapter draws extensively on this debate but points it in a different direction. I contend that, in order to enhance our understanding of linkage dynamics, we need to go beyond glib phrases with promises of either great benefits or disasters stemming from natural resources, and move towards an understanding of the conditions under which linkages may flourish or vanish. Thus, instead of setting out my stall as a supporter of one view or the other, the task at hand in this chapter is to bring out the key issues that may drive either the success or failure of linkages in the extractive sector. In a nutshell, the basic inquiry here is: under what conditions do linkages either succeed or fail?

The first step in proceeding towards a disentanglement of the channels through which linkages may or may not arise is to understand what is meant by a 'linkage' and what are the categories into which we can break down the term. Secondly, the chapter explores the conditions under which linkages may or may not make their appearance and then draws some reflections from this. To conclude the chapter, I summarize the debate on linkages and specify the elements that are included and excluded in these approaches.

2.1 Understanding the concept of linkages

The concept of linkages has come to be an important one in the commodity sector in developing countries, but it is not so much a new concept as one currently enjoying a renaissance. The concept was pioneered by Albert Hirschman in the 1950s, who contended that the notion of linkage could enhance our understanding of industrialization as a process. The term 'linkage' soon began to populate a number of analyses of growth patterns in developing countries, especially when the focus was on the export of primary commodities. The term's usefulness as an analytical tool has since established it in the lexicon of most contemporary political economists.

2.1.1 Linkages: a matter of definition

At odds with the dominant doctrines of his time, Hirschman (1984) claims to have developed an independent point of view on how development could take place in developing countries, claiming in the process the respect of many scholars. He contends that economic development would be accelerated by creating deliberate 'imbalances in the economy', known as the unbalanced-growth theory of development. In other words, countries that give a high priority to industries with high linkage potential have higher growth rates than countries that allot a priority to industries with low linkage potential. In deciding whether to invest, therefore, or when considering development strategies, the priority should be given to industries or sectors that potentially create external trade relations for local firms, thus increasing the demand for goods and services.

Hirschman (ibid.) holds that a distinctive characteristic of a country's development in a period of export-led growth can be explained in terms of the linkages stemming from its leading commodity sector. In his own words, '[since] development is essentially the record of how one thing leads to another, linkages are that record, from a specific point of view' (Hirschman 2013: 166). In other words, economic development is to be observed when an economy is able to keep adding new linkages to its current production.

Building on Hirschman's contribution, an operational definition of linkages has been offered by Kelly (2001), who argues that they are formed in an economy when the production of a commodity leads to the production of a more complex product. Linkages can then be observed when 'new activities' arise as a byproduct of the 'ongoing activity', the latter being the

commodity production and export, the former the newly added value in a growing commodity value chain.

While in the past the debate on linkages was associated with any sector with the potential to create external economies, more recent analyses have focused specifically on the resource sector in developing countries. Based on the premise that natural resources are finite, they conclude that such resources should therefore be used to build other productive assets above ground through linkage formation. Among the contributions from this school is Morris et al. (2011), which build on Hirschman's concept of linkages and add new elements.

Morris et al. (2011: 25-27) use the term 'linkage' to refer to a 'synergistic link between the exploitation of commodities and the development of industry'. In this conceptualization, the distinction between the breadth and depth of linkages is crucial. While breadth captures the range of inputs and outputs supplied and processed locally (quantity), depth has more to do with the extent of local value added (quality). Thus linkages are not only about the number of firms that drive the sector (breadth), but also the degree to which those firms have established links with other entities and sectors in the local economy.

While defining 'linkage' is hardly a matter of fierce contention, Morrissey (2012) has observed that linkages have often been confused with spillovers. It is nonetheless wrong to treat the two as synonymous, he points out, since spillovers are all about the transfer of knowledge and technologies, while linkages may or may not involve learning. In his view, 'there can be beneficial linkages that do not generate spillovers [because] domestic firms can benefit from the presence of foreign firms to supply or purchase inputs from even if there is no transfer of knowledge' (ibid.: 27).

However, it goes without saying that, whatever differences are identified, these two concepts interact and can be mutually influential, since 'linkages provide benefits themselves and facilitate spillovers, while learning associated with spillovers increases the benefits of linkages' (ibid.). A simple message from Morrissey is that some scholars have just shunted themselves into the wrong direction by using the two concepts interchangeably. In his view, the conditions for linkages to arise are by no means the same as those needed for spillovers to take place.

Undoubtedly Morrissey's arguments are important, leading me to ask where we should draw the line between linkages and spillovers, and which elements should be observed if the aim is

solely to understand linkages. The striking question is whether it is even meaningful to look at linkages as nothing but market-based transactions that are analytically distinct from the knowledge that can spill over from one firm to another. Would there be beneficial linkages if no knowledge or technologies were transferred?

2.1.2 Categories of linkages

Linkages that are formed from the commodity sector can be of different types. Although the literature provides different ways of classifying linkages, a number of scholars support Hirschman's categorization of them. He identified two broad categories: those related to production, which encompass *backward and forward linkages*; and those related to spending income generated from the commodity sector, which involves *consumption* and *fiscal linkages.*

Backward linkages, otherwise known as *upstream* linkages, refer to the 'various inter-firm relationships connecting an industry with its suppliers/supply chain' (Lydall 2009: 112). This type of linkage potentially 'leads to new investments in input-supplying facilities' (Hirschman 2013: 159). From a mining perspective, backward linkages can be of two different types. First, there are vertical linkages, which are those 'arising as a result of a demand at producer level for a particular product or service' (Lydall 2009: 113). Secondly, there are horizontal or lateral linkages, which 'reflect a process in which suppliers who develop capabilities in the supply of inputs to the commodities sector subsequently develop capabilities which have a wide range of applications in other sectors' (Morris et al. 2011: 25-26). We should note at this point – as does Lydall (2009) – that lateral linkages are in fact *spillovers*, since a transfer of technologies and knowledge from one sector to another is implicit.

Forward (*downstream)* linkages, like backward linkages, are the inducement mechanisms that stimulate productive activities in the host country. Unlike backward linkages, forward linkages are those 'that lead to investment in output-using facilities' (Hirschman 2013: 159), such that a commodity lead firm would supply inputs to local producers. These descriptions fit a long-established conceptualization by Yotopoulos and Nugent (1973), who define a forward linkage as a 'non-final activity', meaning that 'an activity that does not cater exclusively to final demand should be expected to induce attempts to utilize its outputs as inputs in some new activities' (ibid.: 158). Inducement mechanisms through forward linkages

can be of two different types: the processing of commodities, and the beneficiation of commodities. While 'processing involves a deepening of value added as a commodity is processed prior to being exported, beneficiation describes a process of transformation in which the commodity is used in a different manufacturing activity' (Morris et al. 2011: 27).

It is worth noting that both backward and forward linkages can take place within ('inside linkages') or outside ('outside linkages') the commodity-exploiting company. Linkages through insiders are those 'situations in which the same economic operators who are already engaged in the [production of a particular commodity] are impelled to undertake an additional activity' (Hirschman 2013: 167), while linkages through outsiders arise when a push to take up new activities is felt by other parties outside the commodity production firm or by the state itself.

Even though backward and forward linkages are both referred to as production linkages, they have their own peculiarities. For example, in comparison to backward linkages, forward linkages are more difficult to establish because the knowledge gaps are more significant. In addition, Andersen et al. (2015) suggests that, while backward linkages may have easier access to the domestic market, forward linkages face both stiff competition and exports. This means that there can be cases where backward linkages are relatively well established without forward linkages making their appearance, as seems to be the case in most developing countries. In the same vein, Banga (2014) observes that, even though most of the raw materials used in developed countries are sourced in developing countries, the latter benefits by only 8% in added value created by the global value chain. This means that developing countries are failing to process their commodities prior to being exported.

Forward linkages are so much less frequent in developing countries that very few studies have been able to find any evidence of their existence (Andersen et al. 2015; Sanchez-Martin et al. 2010). However, there has been a growing recognition that forward linkages offer higher-value output, and also that their employment potential is greater than that of the commodity sector itself. Unlike several studies defending the fact that backward linkages are the most important channels for transferring technology to domestic firms (Morris et al. 2011; Liu 2008; Hansen 2014), others such as Mariotti et al. (2013) argue that spillovers are more readily facilitated by forward linkages than backward ones because the latter demand more effort and greater outlay from local firms.

As for linkages related to the spending of incomes, on the one hand there are *consumption*

linkages, which occur in a situation where the incomes earned from the commodities sector are spent initially on imports and later on domestic products. This means that over time demand for the output of other sectors will rise as a result of the rents earned from the staple (Hirschman 2013; Morris et al. 2011; Hansen 2014).

On the other hand, *fiscal linkages* are said to be present if taxes are levied on the incomes generated from the commodity-leading sector and channeled into productive investments (Hirschman 1984; Morris et el. 2011; Hansen 2014). An important observation when fiscal linkages are at stake, therefore, is that the ability to tax the commodity must go hand in hand with the ability to invest productively. Fiscal linkages can be either direct – that is, through 'corporate taxes, royalties and taxes on the incomes of employees' (Morris et al. 2011:25) – or indirect, as when 'various incomes earned through exports are not tapped directly, but are allowed to generate a flow of imports which are then made to yield fiscal revenue through tariffs' (Hirschman 1984: 98).

Having broken down the concept of linkages into various categories, a basic line of inquiry is to determine the types of linkages that are most desirable for countries in their early stages of development. Following Hirschman (1984, 2013), a number of studies (for example, Morris et al. 2011; Hansen 2014) conclude that development is accelerated if considerations are given to industries with a strong potential to generate both backward and forward linkages. It has been argued that, among different types of linkages, backward and forward linkages offer greater possibilities for economic diversification, the latter being a key source for positive structural change in the economy. Behind this reasoning are some features that render consumption and fiscal linkages less favorable for most developing countries.

Consumption linkages are overwhelmingly judged unfavorable. As Hirschman (2013) pointed out, they can be completely negative because the expansion of imports, instead of creating new industries to satisfy the increasing demand, has the potential to disrupt already established activities by redirecting labor to commodity production. In the meantime, he observes, there is a high risk of local products not being able to compete successfully with the new imports of consumer goods, making it unlikely that these goods will eventually result in consumption linkages. An important caveat for those who pin their hopes on consumption linkages is that imported consumer goods could drive local firms out of existence and preclude the development of infant sectors.

The problem with fiscal linkages is that they are dependent not only on the willingness and ability of governments to tax, but also on their ability to invest productively. The weakness of fiscal linkages lies in this because 'the income stream earned in the enclave [may be] siphoned off for the purpose of irrigating other sectors of the economy' (Hirschman 2013: 162). So, if resource windfalls are not channeled into productive investments elsewhere in the economy, then fiscal linkages are less likely to make their appearance. Even in cases where investments are made, Gelb and Associates (1989) argue that, if public officials are not well paid, political or financial considerations may come to influence investment decisions. They go on to observe that investments may be chosen not for any contribution to the economy, but to enrich contractors and politicians, very possibly creating an incentive to secure a share of the rents for personal gain.

Clearly this is a challenge in many developing countries where transparency in the management of resource revenues is lacking (Collier 2003) and where 'public officials are not personally rewarded according to the economic soundness of their choices' (ibid.:17). If the observation that in developing countries resource rents are either misused or used for faulty investments is correct, then one could quite reasonably contend that fiscal linkages may face difficulties in these countries.

In light of these features of fiscal and consumption linkages, it clearly makes more sense to prioritize industries with strong backward and forward linkage potential. This is not to say that they do not have their own limitations. However, in comparison with the other types, they have more potential to diversify the economy away from the commodity sector and towards manufacturing. This reinforces the Hirschman argument that if the aim is to transform the economy, then policies that support the emergence of backward and forward linkages should be prioritized.

The above considerations have been quite influential for the preceding sections to be focused on backward and forward linkages throughout, as there is little doubt they offer the most attractive avenues for economic transformation in developing countries. However, this does not mean that consumption and fiscal linkages should be ignored, as it is clear that all types of linkages are in one way or another connected and can be mutually influential.

2.2 Conditions for linkage formation and development

There has been a debate on the extent to which natural resources offer developmental prospects to those countries that possess them. The bulk of the literature on this issue falls into two camps. One position has been that in most resource-rich African countries, 'one thing does not lead to another' because natural assets have proved to be more of a bane than a boon. Another position, opposed to the first, holds that under certain conditions commodity production has the potential to generate an increasing variety of linkages, with strong development prospects accompanying them. From these two different views, it appears that linkages may or may not arise, and the question to be ferreted out right away is which conditions stimulate linkages and which prevent them.

2.2.1 The resource curse views

The prevailing wisdom in the 1950s was that primary production had a positive impact on a country's economy, especially in so-called backward states (Ross 1999; Rosser 2006; Hirschman 2013). It was believed that specialization in the production of commodities for export could lead to industrialization, with the latter being the foundation stone for economic development (Hirschman 2013).

Singer (1982) challenged such simplistic optimism about the effects of commodity exports on a country's development prospects. In Singer's view, commodity exports were an unattractive avenue for development because the shocks in the terms of trade could offset the gains from exports. A similar observation had been made almost a generation earlier by Prebisch (1950), who argued that growth based on foreign trade was unreliable given fluctuations in the prices of primary products. It should be noted, however, that these two caveats found little resonance, as they were at odds with the conventional wisdom of the time, which posited that primary commodity exports were the engine of growth.

According to Sachs and Warner (2001: 828), a number of studies observing that countries rich in natural resources tended to perform badly – including Auty (1990), Gelb and Associates (1988), Sachs and Warner (1995, 1999) and Gylfason et al. (1999) – emerged late in the twentieth century, as evidence accumulated on the poor growth experience of resource-rich countries in the post-WWII period and, for much of Latin America, during the inter-war period, when their economies were devastated by a global slump in commodity prices.

Economists and political scientists alike grew skeptical of the benefits of resource-led growth strategies and instead introduced an image of natural resources as a plague on the countries that possessed them.

Studies asking whether natural resources were a curse or a blessing soon festooned the literature, and the emerging consensus by the 1990s was that natural resources were more of a curse than a blessing (Auty 2006; Sachs and Warner 1999, 2001; Luong and Weinthal 2006). Soon any number of undesirable development outcomes observed in resource-rich economies were being attributed to the 'natural resource curse'. At the heart of explanations for the resource curse is the assumption that resource-rich countries are doomed to failure because of their immense wealth. According to Sad and Filho (2013), sub-Saharan Africa is often mentioned as being extremely vulnerable to such effects. Indeed, much of theoretical and evidence-based literature suggests that natural resources do not confer economic success and can even be harmful to resource-endowed countries.

Research in the mainstream of natural resources is explicitly undertaken by accepting the assumptions behind the notion of the *resource curse*. More importantly, many think of the resource curse as a theory, but there is no such theory, and to claim that there is one is to talk nonsense. What we have is a *set of hypotheses* built on an observed set of political and economic problems allegedly caused by the presence of natural resources in a given country. Much of this literature has been quite well summarized (see Ross 1999; Luong and Weinthal 2006), explanations for this puzzling phenomenon being divided into the political and the economic.

Political explanations for the resource curse are overwhelmingly reliant on state-centered approaches whose foundations are built on rent-seeking theory and on the political economy perspective that highlights the role played by institutions. Central to the first approach is the question of how resource rents affect the political economy. Scholars suggest that the possession of natural resources confers negative effects on a state's stability and can lead to wars. The channels through which these resources can fuel conflicts are widespread. According to Collier (2010), they range from rebel predation that turns into loot-seeking and unaccountable governments to pork-barrel politics.

Among the arguments stemming from this view are that the 'existence of a higher level of mineral rents increases rent-seeking and corruption relative to economies with lower mineral abundance' (Di John 2011: 171); that 'windfalls weaken state institutions that are necessary

to foster long-term economic development' (Ross 1999: 308); and that rents tend to encourage the development of predatory political states whose deployment of the rents locks the economy into a staple trap, which carries a high risk of a collapse in growth and an erratic and unstable transition to democracy (Auty 2006). It is then put forward as a fact that the problem linking natural-resource wealth to undesirable development outcomes arises from how the revenues from these natural assets are used.

The centrality of rents in these arguments stems from the view that 'natural resources generate significant windfall revenues for the state, which in turn are a valuable prize for those who control and have access to political power' (Barma et al. 2012: 47). Since these revenues do not come from taxes, they (the revenues) are overwhelmingly understood as enjoying a high degree of volatility, making it easy for the government to hide them from the public.

From an economic point of view, one of the most prominent explanations for the 'curse' has been the poor linkages between the resource and non-resource sectors. We develop this perspective in more detail, as it pertains to the subject of this research – linkages between the resource and non-resource sectors. In general, it has been argued that resource-rich countries are less likely to stimulate growth in other sectors of the economy, as they fail to diversify their economies out of their initial dependence on resource exports (Ross 1999: 301; Sachs and Warner 1999: 45). Specifically, it has been argued that the channels through which countries find themselves locked into such a 'staple trap'[5] vary from shocks in the terms of trade to an enclave trap and the so-called Dutch disease. Let us briefly examine these three mechanisms.

2.2.1.1 Shocks in the terms of trade

One of the reasons countries are said to fail to industrialize is the mismanagement of shocks in the terms of trade.[6] Prebisch and Singer are among those who first raised this point as a critical issue for countries that rely heavily on export-led growth strategies. They highlight a 'tendency for the prices of a primary commodity to decline relative to those of manufactured goods' over the long term (Singer 1982: 281). Thus, diversification out of commodity-export dependence to escape the effects of these shocks was seen as a positive route for a developing

[5] The term 'staple trap' refers to the risk associated with heavy reliance on the export of a single or a few raw materials, thus allegedly delaying the development of the manufacturing sector.
[6] Cashin and Pattillo (2000) contend that the terms of trade, measured by the number of units of imports that can be exchanged for a unit of exports, is one of the most important relative prices in economics.

domestic market to take. However, further developments in the terms of trade argument have shown that these shocks are themselves an obstacle to the establishment of linkages, and hence to diversification. Collier (2003), for example, warns that, alongside poor governance and civil war, shocks in the terms of trade are factors that expose firms to additional risks, as they increase the unreliability of supply by local firms. He argues that macroeconomic shocks may presage bankruptcy and credit shortages, which may result in the interruption of supply and, in turn, in a firm's failure to meet its contractual obligations.

Under these circumstances, one may justifiably argue, strong linkages are less likely to make their appearance, especially if one accepts, as do Cashin and Pattillo (2000), that in African countries shocks in the terms of trade are seldom handled well, hence triggering debt and other obstacles to economic growth. It has been argued that, when the prices of primary products rise, more revenues may be collected in the upswing, but also that local elites may be unable or unwilling to invest them productively[7] (Baran 1952; Collier 2003). Consequently, in a downswing the effects are devastating, with significant welfare losses (Singer 1982; Cashin and Pattillo 2000). A similar observation is made by Ross (1999: 302), who argues that an unfavorable condition for resource exporters is that multinationals are allowed to dominate resource extraction and repatriate the profits instead of investing them locally. Ross goes on to observe that this condition has prevented resource exporters from diversifying their economies, leaving countries with nothing more than booming enclaves.

2.2.1.2 The enclave nature of commodity exploitation

There is widespread agreement that mining in general is an enclave, as extraction takes place miles away from the cities and in seeming isolation from the rest of the economy (Solomon 2011). Morris et al. (2011) point out that mining extraction provides few jobs and limited linkages to local suppliers, given its high capital outlay. The enclave nature of commodity extraction in developing countries, according to Morris et al. (ibid.), is also caused by the enclave-oriented development of infrastructure. For Castel-Branco (2012) the latter carries an element of risk because, when infrastructure is too specifically geared to mining, it serves nothing but external interests. Under these circumstances, he argues, investments will become useless 'ghosts' once the mines have become exhausted or lose their commercial viability. In

[7] As we noted earlier, fiscal linkages are more likely to make their appearance if the ability to tax is combined with the ability to invest productively.

other words, a major effect of a mineral extraction enclave is that commodity producers are locked into their own activity in ways that generate few linkages with the rest of the economy.

2.2.1.3 The Dutch disease

The term 'Dutch disease' refers to the negative consequences for an economy of a sharp inflow of foreign currency, such as that resulting from the discovery of a natural resource. The influx causes the local currency to appreciate, in turn making other products less competitive on the export market (Gylfason 2001; Davis 1995). The process by which sectors such as manufacturing and agriculture shrink as a result of specialization in certain commodities is known as the 'crowding-out effect' (Davis 1995; Beverelli et al. 2011). According to Beverelli et al. (ibid.), this tendency is a result of two phenomena. The first is the *movement effect*, where the shift in production towards the commodity in question takes inputs away from other sectors of the economy, increasing the demand for them and consequently increasing their relative prices. Under these circumstances the real exchange rate appreciates, leaving these other sectors worse off. The second phenomenon is the *spending effect*, where the new revenues from the natural resource in question increase domestic incomes. This increases spending and, in turn, the demand for almost all goods. The increasing demand is accompanied by a general increase in prices, in turn driving an appreciation of the real exchange rate. Under these circumstances the enclave nature of mining is more likely to prevail, and linkages are less likely to make their appearance.

I have so far outlined three mechanisms that are posited as obstacles to the development of successful linkages, namely terms of trade shocks, enclave traps and the so-called Dutch disease phenomenon. However, these explanations – all of them associated with the resource curse hypothesis – do not go unchallenged, with Davis (1995), Di John (2011), Brunnschweiler and Bulte (2008) and Alence (2014) leading the charge against them. Davis, for example, finds no evidence that less endowed countries perform better than their resource-rich counterparts. Instead, like Brunnschweiler and Bulte, he finds that resource-rich countries do well economically because of their minerals. In some resource-rich countries that have experienced political and economic problems after a boom following a natural resource discovery, other scholars find that natural resources have not by themselves crippled countries, and that it is domestic political processes prior to the boom that may generate such problems (Macuane et al. 2017, 2018; Di John 2011).

Based on these findings, one may argue – as do Saad-Filho and Weeks (2013) – that the conclusion should not be that countries are doomed to failure just because of their resource-richness, as if all resource-rich countries have poor development prospects. Thus, in order for a perspective to have clear policy implications, one should tap into the 'contemporary determinants of the nature of linkages, which are different to those that existed in the period in which the resource curse perspective became the conventional wisdom' (Morris et al. 2011: 26; Kaplinsky 2011: 22). In the section that follows, it is this latter undertaking that underpins the second thread in this review of the literature on linkages.

2.2.2 Country-specific conditions

In the second – that is, the more recent – strand of the linkage debate, there is no denial of the notion that linkage formation can be met with difficulties. Rather, the contention is that there are other determinants and conditions that have nothing to do with a so-called resource curse that may either hinder or further the development of linkages. Before going any further, however, it is worth clarifying that the terms 'determinant' and 'condition' are not used interchangeably in this study. While 'determinant' refers to a specific factor that may or may not be beneficial to linkage formation (for example, a policy, or a country's knowledge base), a 'condition' is a state or circumstance under which linkages may or may not arise.

To be more precise, whether a specific determinant – say a policy – is a driver of or a handicap to linkage formation is dependent on the circumstances or conditions under which it is formulated and implemented. While determinants are relatively fixed factors that affect the nature of linkages, such effects are better understood if one considers the conditions under which they take place, as these are not fixed, but change over time. Infrastructure, a knowledge base, technology, ownership structure, policies, institutions, and the capabilities and strategies of both local firms and government are undeniably important determinants, but their effects on linkage dynamics will differ depending on the prevailing circumstances or existing conditions. In the section below, I take a number of determinants of linkages and sketch the conditions under which each one may or may not propel the development of linkages.

2.2.2.1 Knowledge base and technology

Kaplinsky (2011) reminds us that the idea that linkages were less likely to make their appearance in the hard and energy commodities sector due to its enclave nature is not new. He points out that this idea arose with the argument that backward linkages required often large investments and intricate technologies, a seemingly insurmountable barrier. However, Kaplinsky also contends, as do Morris et al. (2011), that these assumptions are unjustifiable because the technological constraints referred to are likely to apply only in the construction phase; there are other phases in mining in which goods and services can be supplied locally. This means that, even though operations in the hard and energy commodity sector require complex technology, it is reasonable to assume that such complexities do not apply to all inputs (certain categories of goods and services) that the commodity sector needs to operate on a daily basis.

Attacking on another flank, Djeflat and Lundval (2016) disagree that natural resources are in themselves the reason why linkages fail. Instead they see 'natural resource curse' as conditional on the knowledge base and the national innovation system. In their view, the failure to diversify away from commodity exploitation is due to the government's incapacity to upgrade the knowledge base. In their analysis of Algeria's gas and oil sector they find that, despite the existence of a strategy aiming to diversify the economy through the development of linkages, it had little success because the leading sector did not diffuse any productive technologies, with the result that for even the most basic services, such as catering, foreign firms were subcontracted.

Andersen et al. (2015) contend that the development of linkages is constrained by past technological achievements. One conclusion of their study is that, if the new industrial activities that are required to establish linkages with the leading commodity extraction firms are unrelated to or incompatible with the country's existing capabilities, knowledge bases, economic conditions and so forth, then linkages are less likely to emerge. It follows, then, that the successful uptake of a linkage is conditional on what Andersen et al. (2015) refer to as the 'degree of relatedness' or, as Hirschman (2013) calls it, the 'degree of strangeness' of the new economic activities in relation to the ongoing ones. In support of this claim, Hirschman observes that processing industries are usually technological strangers to the commodity, which makes it difficult to establish forward linkages because they point largely to industries whose technologies are alien to the country's commodity producers. Under these

circumstances, contends Hirschman, forward linkages that point to considerable processing may act as developmental handicaps rather than drivers.

In a similar vein, Al-Hashemi (2016) relates linkage effects (diversification) to path dependence. In his view, sources of path dependence include existing natural resources, capabilities such as infrastructure and knowledge, and a wide range of existing products, services, industries and institutions. He also holds that it is difficult to develop industries whose technologies are unrelated to pre-existing ones, arguing that 'products that are distanced from existing accumulated capabilities and knowledge will be difficult to produce' (ibid.: 238). If these findings are correct, then an important condition for linkage effects to manifest themselves in resource-export countries is the existence of local entrepreneurs with a background in sectors related to those required to enter the value chain of the new export sector.

Mahroum (2016: 17) too argues that linkages are more likely to succeed if 'the new industries are born with the immediate advantage of being able to tap into the existing pool of resources, supply chains and infrastructure'. He points out that, for example, Malaysia became one of the world's largest producers of palm oil on the basis of its experience with rubber extraction, while Brazil came to be the largest exporter of ethanol by building on the knowledge accumulated from its sugar sector. So the opposite may also be true, as it is almost certain that, if industries in the upstream and downstream sectors are technological strangers to pre-existing ones, then linkages will meet some difficulty, at least initially.

Mahroum (ibid.) also points out that, as a linkage effect, diversification has a better chance of emerging if it is demand-led, especially in cases where the 'demand for certain goods and services exists but is not satisfied due to technology failure or market failure in general' (ibid.: 3). Under these circumstances, he contends, the role of the government is crucial in supporting the creation of domestic capabilities so that local firms can satisfy existing demand. He believes that in these cases the government should provide the necessary infrastructure and resources along the supply chain, as well as influence technical standards.

On the basis of the above findings, it seems clear enough that a nation's existing knowledge base and technological characteristics will have a pervasive influence on the development – or otherwise – of linkages.

2.2.2.2 Institutions and policy orientation

Other studies of linkage development in resource-rich countries have looked at the role institutions play. Frankel (2010) and Brunnschweiler (2008), for example, argue that the recipe for successful linkages has to include the development of a good-quality institutional environment. In other words, in a high-quality institutional environment, but not otherwise, the existence and exploitation of natural resources may have positive outcomes. In this line of reasoning institutions matter because they provide the incentives for entrepreneurs to invest in productive activities. This means that, given appropriate institutions, varieties of linkages may arise and the enclave nature of mining can be unlocked. Morris et al. (2011a), after analyzing eight African countries and six different sectors, concludes that institutions are among the most important determinants of linkage development because they affect the development of capabilities at both the firm and sector levels.

Similar views are put forward by Miozzo and Grimshaw (2008), who argue that the absorptive capacity necessary for forward linkages to emerge is dependent on the prevailing economic and institutional conditions in host countries. They contend that, if institutions in host countries offer no economic certainty, MNCs may well prefer global strategies, instead of depending on local industries whose reliability can be undermined by a poor institutional environment. MNCs pursuing global strategies are export-oriented and therefore less likely to foster forward linkages, while MNCs that are given incentives to focus on local demand are more likely to give rise to forward linkages. Thus the nature of linkages, especially in the downstream sectors, is contingent on whether it is more attractive for MNCs to pursue global strategies by exporting their products to clients abroad, or to supply their outputs to domestic industries. When it comes to the supplier sector, Sanchez-Martin et al. (2015) point to the tendency for export-oriented FDI to rely less on domestic suppliers, thus limiting the scope for backward linkages.

Alongside institutions, policies are seen as critical factors determining the breadth and depth of linkages, and this is where the government is perceived as being crucial. It has been argued that most resource-rich countries are characterized by misdirected policies and poor governance (Howie 2016; Morris et al. 2011a; Collier, 2003). Collier (ibid.) observes that poor governance is associated with a poor investment climate, as it raises the costs of doing business, including nonfactor inputs. Poor policies therefore ‘lock a country into primary commodity dependence because that is the only export activity that remains viable’ (Collier

2003: 152). Because of this, he concludes, diversification out of primary production may be unrealistic.

Underlining the argument that misdirected policies may prevent countries from developing the capabilities local firms need to link up to the commodity sector, Mjimba (2011) cites the case of gold-mining in Tanzania, where the government lacked both the capacity and the political will to implement its policies effectively. As a result, backward linkages were restricted to low value-added activities such as food, beverages and camp-management services. On a more positive note, Morris et al. (2011b) show how, in Botswana and Gabon, well-targeted government policies were pivotal in the successful establishment of linkages in their commodity sectors, rather than market-driven processes.

A factor that has weighed heavily on any implementation of industrial policies aimed at strengthening linkages in many developing countries, as pointed out by Hansen (2014), is misalignments in the relationship between the government, the leading commodity firm and other actors (such as local companies and forms of authority, as well as donors), given that in many cases they seem to be unable to work together. Hansen contends that ending the so-called misalignments and ensuring better coordination and collaboration between these actors is a way forward – that is, a way to step up a gear towards the effective implementation of industrial policies. For that to happen, he argues, the various strategies and capabilities of the government, multinational corporations, local firms and donors should be carefully considered.

Both Hansen (2014) and Morrissey (2012) put the spotlight on domestic actors, as well as on donors. In this respect, Morrissey argues: 'the fact that organizations such as the World Bank (and donors more generally) did not advocate industrial policy diminished the importance of such policy issues on the domestic agenda' (2012: 31). In other words, industrial policy that would be translated into linkages in the domestic market 'is an area of intervention that has been shunned by donors for decades' (Hansen 2014: 33). As a result, many countries have failed to benefit from FDI through linkages.

In a nutshell, institutions and government policies have a crucial role to play when it comes to nurturing (or not) the creation of linkages for the advancement of the industry; without policies based on wisdom and foresight, and without the institutions to carry them out, even if a country is blessed with abundant natural resources, linkages may fail to take hold and develop.

2.2.2.3 The nature of ownership and infrastructure

While the ownership structure of leading firms may certainly affect linkages, a firm headquartered in a specific country may operate differently in different countries, just as lead firms from different countries may operate differently in a specific country. Such variations may influence the trajectories and patterns of linkages in host countries. Analyzing the nature of company ownership, Hirschman (2013) argues that fiscal linkages, for example, have a better chance of emerging if foreigners own the commodity lead firm because 'it is easier to tax foreigners than nationals who, besides owning the resources, are likely to run or own the government as well' (ibid.: 162).

Unlike Hirschman, both Morris et al. (2011b) and Sanchez-Martin et al. (2015) find that the ownership structure can influence backward linkages significantly. Their findings suggest that companies with higher local ownership tend to rely more on local inputs than on foreign suppliers. This suggests that whether the commodity lead firm has greater local participation or is foreign-owned is a factor with implications for linkage formation. Morris et al. (2012) take this further and argue that the origin of foreign investment also has a bearing on linkages. Their findings suggest that, unlike northern commodity lead companies, Chinese and Indian companies are reluctant to outsource their core activities, and 'when they did, and when local firms did not meet their expectations, instead of promoting capabilities in their suppliers, they tended to bring back and internalize these supplies' (ibid.: 129). This is the case in Zambia, where Chinese companies, according to Morris et al. (ibid.), have provided little or no support to suppliers when compared to northern and South African companies. As Kragelund observes (2017: 65), 'locally-owned companies have become increasingly marginalized [and] local content initiatives [that] have been set in motion in Zambia in the past have not succeeded in changing the overall tendency towards the ever-expanding room for transnational OEMs to operate'.

However, regardless of the ownership structure, difficulties in establishing backward linkages may quickly arise if the inputs to be supplied to the commodity-exploiting company require a technology that goes beyond the capacity of local firms. In such cases, according to Dunning (1980), a lack of effort to enable local firms could be a 'result of the MNC having already identified international suppliers to serve the needs of specific production processes using a given technology, or perhaps simple reluctance to engage with local suppliers that might share the technology with other potential competitors' (quoted in Sanchez-Martin et al. 2015:10).

As far as linkages are concerned, another point of consideration is the role of the host country's infrastructure. It seems clear enough that poor roads, for example, can undermine the capacity of local suppliers to feed into the commodity sector (Morris et al. 2011a; Castelo-Branco 2012). Morris et al. (ibid.) also observe that soft infrastructure such as business support and trade facilitation have positively influenced linkage development in South Africa and Botswana.

In sum, the ownership structure influences the ways in which linkages develop, with locally owned commodity lead firms being more likely to rely on domestic markets than their foreign counterparts. The latter also operate differently depending on their origin, as some commodity lead firms (northern companies) are likely to support the development of local capabilities, while others (Chinese companies) do not. The existing infrastructure (hard and soft) also plays a role in unlocking (or not) the enclave nature of the extractive industry.

2.2.2.4 The presence of foreign suppliers: stiff competition

One thing that inhibits local firms' participation in MNCs' value chains lies in their inability to meet the standards required by the mining industry. Under these circumstances, host countries may observe an increase in foreign firms operating as suppliers, thus increasing competition in the supply sectors. Bwalya (2006) concludes that the productivity of domestic firms in Zambia falls as the presence of foreign firms increases in the sector. His findings suggest that stiff competition in the supply of goods and services to the commodity sector resulting from the presence of foreign firms may eventually drive local firms out of existence. He also finds that 'discriminatory provision of fiscal incentives in the form of tax holidays to foreign firms and not to local firms exacerbates the hegemony of foreign firms over potentially competitive local firms operating in the FDI sector' (Bwalya 2006: 524). However, he raises the possibility that local firms may benefit from the presence of foreign firms, as knowledge can spill over from the latter in the upstream sectors to the former in the downstream sectors.

Unlike Bwalya, Liu (2008) and Mariotti et al. (2013) find that the mere presence of foreign firms in the supply sector benefits domestic productivity levels; if not in the short term, their presence certainly raises the long-term rate of productivity of domestic firms. This means that the positive effects of FDI on local suppliers may take some years to become manifest, particularly as technology and knowledge are absorbed. But another important line of inquiry

is whether domestic firms have a structure of incentives that encourage their managers to focus on long-term, rather than short-term profitability. Put another way, while local firms with short time-horizons may derive little benefit from FDI, long-term profitability strategies that involve learning processes may require some investment, depending on the technical and financial capacities of the local firms to absorb the knowledge and technology.

2.2.2.5 Domestic politics

The influence of a country's domestic politics on linkage development is a point that has received less attention within the literature than it warrants; in fact, very little research focuses on it. Dunning (2005) was probably the first to come up with an overarching framework to explain how diversification, more generally, has been shaped by domestic politics. He concludes, based on three case studies (Botswana, Mobutu's Zaire and Suharto's Indonesia), that while diversifying an economy may be economically rewarding, it can also be politically costly. Diversifying the economy results in the creation of economically powerful groups (independent bases of power), which may later constitute a challenge to the political power of ruling elites. In this light, an incumbent is less likely to push for policies aimed at diversifying the economy if it is perceived to threaten his holding power.

In the same light, Ovadia (2012: 415) has observed from a case study in Angola that local content measures, rather than just being a technical issue, are also political and associated with elite survival. He observed that, in the case of Angola, 'local content development [would] continue in its dual roles of creating economic growth (most likely without impacting significantly the majority of Angolans), while enabling new forms of elite accumulation to ensure the maintenance of the political and economic status quo'. This gives us a sense that local content policies are likely to be supported if they allow or serve as the basis for the reproduction of elite power.

More recently Hansen et al. (2016) have analyzed the effects of politics on linkage development, drawing on case studies from Mozambique, Tanzania and Uganda. While these countries have different political trajectories, there are commonalities when linkage development is at stake. Their findings suggest that, whereas the creation of a new entrepreneurial class would be of the utmost importance for linkages to be built, the ruling elites have not opened up a space for new entrants to the business landscape outside the ruling elite, as this would potentially create new centers of power that could challenge their regime.

Moreover, their findings suggest that contracts to supply the commodity sector are awarded to politically well-connected firms, regardless of the criterion of economic efficiency.

A study closer to that of Hansen et al. (2016) and Ovadia (2012, 2016) is that of Buur and Monjane (2017). In an analysis of Mozambique as an example, they found that ruling elites have seized the natural resource rents and captured local content opportunities. Whereas the capture of economic opportunities was politically viable for the incumbent, since he could buy political support through the distribution of opportunities to specific groups, it was nonetheless economically shortsighted because no beneficial linkages were created and avenues for upgrading were quite limited, if any.

These studies of the politics of linkages, irrespective of their different theoretical backgrounds, have in common the conclusion that the ruling elites face a trade-off between on the one hand building an emerging business class by facilitating the development of linkages, and on the other hand the risk that this class could pose to the stability of its coalition. From these findings, it emerges that the desire of the elites to remain in power has weighed heavily against the development of linkages.

2.2.3 Reflections upon linkage-related conditions

I have established, then, that linkages are more likely to emerge under certain conditions than others. The first set of conditions described in this study are those stemming from the economic wing of the resource curse thesis, whose views are based on the notion that the enclave nature of commodity exploitation, price volatility and the effects of the so-called Dutch disease will prevent linkages from emerging, mainly because developing countries are incapable of dealing proactively with these three phenomena. In contrast, more recent studies suggest that natural resources offer a great opportunity for resource exporters to diversify their economies through the development of linkages to the domestic economy. For that to happen, I argued, a particular set of political and economic conditions needs to be met.

It is true that proponents of the resource curse point to mechanisms that need to be avoided if countries are to build productive linkages, as opposed to dependent linkages. However, the determinist character of these views and the prediction that resource exporters will not be able generate productive linkages have been criticized as ‘anomalous’ and as ‘wasteful prophecies with no clear policy implications’ (Saad-Filho and Weeks 2013: 5). In contrast, a second set

of conditions is more likely to inform policy, as it not only points out the linkage problems that countries have been grappling with, but also the conditions necessary to overcome them. Such conditions vary depending on whether the focus is on backward or forward linkages or another kind entirely. For example, rent-seeking activities are more likely to affect fiscal linkages than backward and forward linkages, while the ease with which a technology can be integrated is likely to have a greater impact on backward and forward linkages.

As already noted, a common bond between backward and forward linkages is that their successful emergence depends in the first place largely on technical requirements. In the context of countries where industrial technologies were largely absent before the discovery of their natural resources, and given that such conditions take time to materialize, the nature of the interaction between local firms, the government and multinationals – and to a lesser extent donors – will certainly play a key role further down the line in building the necessary infrastructure, hard and soft, for these conditions to be met.

Based on the above discussion, I posit that backward and forward linkages are more likely to succeed if the technical conditions evolve to a level where: 1) local firms are capable of absorbing the knowledge and technology required for their own upgrade; 2) governments are capable of formulating and implementing a coherent industrial policy and of creating a supportive institutional environment for local firms to flourish and develop; and 3) MNCs are 'willing' to engage with both local firms and the government in developing a competitive supply chain where they can tap into or deliver their mining output. Furthermore, any development of this wide range of capabilities would need to go along with an alignment of the strategies pursued by each player. For example, it can be expected that MNCs will align their strategies with those of the government, thus facilitating backward and forward linkages. Likewise, local firms would need to adopt long-term profitability strategies rather than short-term goals.

2.3 Concluding remarks

While this chapter started by reflecting upon the concept of linkages, the quest for the adoption of a conceptual perspective is still far from over. Even so, there is a swing in favor of a perspective that approaches linkages as more than just a market-based transaction – as one that also encompasses the transfer of knowledge and technologies to local firms and

industries. Among different types of linkages, backward and forward linkages have been given prominence in this literature review due to their greater potential for diversifying the economy through the development of new industrial activities, though fiscal linkages were not ignored.

As for the conditions under which 'one thing may or may not lead to another', the literature surveyed was divided into two strands. In the first strand, the view put forward was that the development of linkages between the resource and non-resource sectors was unrealistic due to shocks in the terms of trade, the enclave nature of commodity exploitation and the effects of the Dutch disease. In the second strand, the common view was that such assumptions regarding the resource curse were just that – assumptions, not iron-clad laws: linkages could well be shaped by other conditions that had nothing to do with curses. Unlike the earlier thesis, this second strand appears to have clear and constructive policy implications, as its explanations are neither deterministic nor prophetic.[8]

Within this second strand, there are two perspectives. In the first, the widely held view has been that the successful establishment of backward and forward linkages depends on their technical requirements and how these harmonize with the country's existing knowledge landscape. This view tends to be accompanied by explanations that put the emphasis on the role institutions play and arguing that the level of capacity development and technological advancement is a function of institutional quality. It follows from this that institutions should play a key role in facilitating linkages – while possibly failing to do so – inasmuch as they are responsible for the development of local capabilities and knowledge transfer.

Without minimizing the role of institutions – they are crucial, as they provide the framework through which productive assets may be built – it is important not to overemphasize them at the expense of possible solutions to linkage problems that are of a more technical nature. If, for example, 'bad institutions' are the only reason for the failure to ensure that linkages are of the right type, what explains the circumstance that certain countries 'have in fact managed to change their initially bad institutions and many other countries have failed to do exactly that' (Stevens and Dietsche 2008: 63)? Why would countries persist with institutions that are

[8]This does not mean that resource curse explanations are outdated. Whereas in some studies resource curse explanations are supported by the empirical evidence based on cross-country analysis (see Ross 1999; Collier 2010; Sachs and Warner 2001), the arguments in favor of the curse do not go unchallenged, notwithstanding utterly different measures and methodologies being applied to test them. Some works have produced results that are contrary to the resource curse hypothesis, finding little evidence of it (Brunnschweiler and Bulte 2008; Alence 2014; Di John 2011). Thus, views on whether the resource curse exists or not are polarized.

not doing the job when it is well known that they are detrimental to economic transformation? Why would corrective action not be taken or attempts to do so usually fail? In other words, why would institutions that are inimical to linkage formation persist over time?

Answers from the literature tend to imply that the problem with institutions is inadequate enforcement due to government incapacity, creating a picture in which the benefits of mining through linkages slip inadvertently through cracks that simply exist (see the Tanzanian case study by Mjimba 2011). This view, whatever its merits, does not go unchallenged because in the majority of developing countries, 'governments appear to have the capacity [to foster linkages], but have commonly failed to do so' (Ross 1999: 305). If this view is accurate, explanations centered on government capacity are silent on the conditions under which a government would or would not use this capacity to implement industrial policies that would spur linkages. If, on the other hand, countries continue to grapple with the problem of linkages because the most fundamental technical requirements or conditions have not yet been met, another, most basic inquiry is why it seems so hard for these countries to meet such conditions.

My understanding is that these are the gut questions of domestic politics. Natural resource husbandry invariably interacts with politics, an aspect that has so far received less attention than it deserves in the literature on linkages. To the best of my knowledge, in the study of the politics of linkages – which constitutes the second perspective within the second strand of conditions – there are four sources that take as their point of departure a relationship between the type of politics being played out and the level of linkage development: Buur and Monjane (2017), Ovadia (2012, 2016), Hansen et al. (2016) and Dunning (2005). These studies place great emphasis on the political conditions they mention as shaping linkage dynamics. However, they do so at the expense of a focus on the technical requirements. As a result, despite their fresh and illuminating approach, the gap in our understanding of why linkages continue to be the most difficult conundrum in resource-rich countries continues to exist.

By now it has become clear that the existing literature on linkages has left some gaps in our understanding of the field. So far, some scholars have emphasized the technical requirements over political issues, others vice versa, each providing us with partial glimpses of linkage dynamics. I argue that an accurate and nuanced picture of the complex conditions under which linkages may or may not develop may require a perspective that encompasses both technical and political processes, and that the articulation of an overarching framework that integrates them both may usefully enhance our understanding of linkage dynamics.

III. ANALYTICAL FRAMEWORK

This chapter presents a framework for my analysis of backward and forward linkages in the commodity sector. The framework is built on the literature discussed in the preceding chapter, which looked at the conditions under which backward and forward linkages may succeed or fail. However, I make no apology for leaning toward studies that analyze country-specific conditions like knowledge, technologies, institutions, policies and domestic politics, nor for dismissing 'resource curse' explanations like shocks in the terms of trade, the Dutch disease and the enclave hypothesis, for the simple reason that they (the resource curse explanations) tend to assume that the conditions that prevent linkages from succeeding are insurmountable. Given their deterministic approach, they are less likely to offer clear implications for policies and are therefore of little value for this research.

The literature analyzing the conditions that shape linkages in specific countries has provided us with two perspectives. One view has been that the strength of linkages is a function of existing technical and technological capabilities, since they offer local firms the ability to upgrade and enter a given value chain. The second perspective posits that linkage formation is a function of key domestic interests and the power relations that are embedded in politics of ruling elites' survival. The assumptions of the two perspectives were tested and exhibited in several case studies (see Chapter 2), thereby yielding a number of valuable insights into our understanding of linkage dynamics. However, when the two separate approaches (technical vs political) compete, each provides a limited understanding of the channels through which 'one thing may lead to another' in the commodity sector.

It seems that in this situation the weakness of one view is the strength of the other. I contend that studying the technical conditions is as valid and useful as studying the political ones, as the development of linkages is shaped by both, and that the debate on linkages cries out for an integrated framework that combines them.

This chapter therefore seeks to develop a framework that allows a more comprehensive analysis of linkages. I start the chapter by outlining the theoretical underpinnings of the framework. Secondly, building on both the literature on linkages and the political settlement approach, I develop an analytical framework of the conditions that shape backward and forward linkages in the commodity sector. Lastly, I offer a graphic representation of this framework in the form of a model and specify the operational elements of the model that will inform data collection.

3.1 The theoretical underpinnings of the framework

This section discusses some of the theoretical assumptions informing my framework for analyzing linkages in the commodity sector. First, I draw on the conventional literature to highlight the main factors that have been considered as linkage shapers. Next, I introduce into the mix consideration of a steadily growing literature focused on the role of countries' politics in linkage formation. Finally I explain why combining these two approaches enhances our understanding of linkage dynamics in the commodity sector.

3.1.1 Conventional explanations for backward and forward linkages

Mainstream perspectives (Morris et al. 2011, Kaplinsky 2011, Djeflat 2016, to cite but a few) tend to argue that developing linkages is just a matter of having technical requirements or capabilities in place. Most of the literature assumes that the process of building capabilities is in itself nothing more than a series of technical steps. This view has dominated the literature on linkages since the late 1950s, when Albert Hirschman developed his 'unbalanced growth theory' of development.

To recap from the previous chapter, studies following this perspective hold that the existence of foreign direct investment (FDI) per se does not automatically generate linkages in host countries. Instead, there are three interrelated technical processes (later in this chapter I develop these processes as conditions) that need to take place before beneficial linkages can make their appearance.

First, linkages are likely to flourish in a state-led environment of support mechanisms for local firms, given that in many developing countries the knowledge and technologies to participate effectively in the value chain of the new export sector may be scarce. Local firms may have a low absorptive capacity and may also lack the financial means to acquire the necessary knowledge and technologies. Thus the amount and quality of support a government deploys to local firms is key to the development of linkages. Secondly, a government should not only devise a coherent industrial policy, but also implement it effectively so as to push offshore-based commodity lead firms to engage with local suppliers and/or supply their mining outputs to local markets or have them processed locally prior to being exported. Thirdly, the transfer of knowledge and technologies from a commodity lead firm to local

firms should take place so that the latter can enlarge their knowledge base and continually upgrade both within and outside the specific value chain.

The extent to which linkages can be developed and deepened therefore depends not only on local firms, but also on the strategies and capabilities of both the government and commodity lead firms, as linkages are more likely to be furthered if all actors are able to cooperate in developing a competitive value chain dominated by local firms.

Certainly, as pointed out in the previous chapter, the development of linkages may be more easily facilitated if the new export sector builds on pre-existing capabilities. To extend this argument, we might say that the further the distance of the new export sector's value chain from pre-existing ones, the more complex the development of linkages may be. In these cases, I argue, the three aforementioned state-led conditions become crucial.

In a nutshell, linkages are more likely to succeed if local firms have developed related capabilities or are able to engage rapidly in capacity-building. If so, fulfilling the technical requirements is the foundation for the development of linkages under any circumstances.

3.1.2 A new slant on linkage analysis: towards a political analysis

In the previous chapter, I pointed to a gap in the literature when it comes to the influence of domestic politics on the development of linkages in the commodity sector. One of four studies on this topic I flagged was that by Hansen et al. (2016), which analyses how competing interests and power relations can assist or obstruct the development of linkages in the commodity sector. This analysis leans on the political settlement approach, a useful perspective for analyzing the political economy of development in developing countries. Undoubtedly, as a new slant on linkages it is worth exploring this theoretical perspective for the analytical framework I am about to develop.

The political settlement approach has been appropriated by scholars such as Laws (2010) and Laws and Leftwich (2014) in such a way that its founder is rarely cited. Mustaq Khan appears to have pioneered the concept, defining it as 'the combination of power and institutions that are mutually compatible in terms of economic and political viability' (Khan 2010: 4). In essence, institutions and the distribution of power are supportive of each other, such that any changes in the institutional structure must always take into account the distribution of power in the society.

Khan argues that development is likely to occur if powerful groups in a given society can agree on the allocation of state resources. If there are powerful groups that are failing to obtain enough resources relative to their perceived holding power, then the political settlement is likely to cease. If that is so, then the 'developmental trajectories rest on deeper political agreements and understandings among key domestic interests, actors, and leaderships' (Law and Leftwich 2014: 1).

The political settlement approach is a quite broad one, and it has been laid out in detail in a number of works (to cite but a few, Di John and Putzel 2009; Khan 2010; Laws 2010; Laws and Leftwich 2014, Behuria et al. 2017). While it has been defined and used in several ways and with different degrees of theoretical relevance, the most illuminating use of the concept for this study is found in Whitfield et al. (2015) and Macuane et al. (2017, 2018).

Whitfield et al.'s work is of particular interest, as their path-breaking analysis of the 'politics of African industrial policy' has several strands that run parallel to the objectives of this study. Building on Khan, they link the political settlement approach to micro-level industrial policy outcomes and tease out some of the causal mechanisms that affect policy implementation, citing four country case studies to do so.

The political settlement approach takes it as given that developing countries have a clientelist political settlement as opposed to developed countries, which are said to have a capitalist political settlement. I have placed the latter category outside the scope of this study in order to focus on clientelist political settlement, locating the interest of this work squarely with developing countries, which are also those that are grappling the most with linkage problems.

According to Khan (2010), countries have a clientelist political settlement when significant holding power[9] is based on sources outside the incomes generated by formal institutions. This means that there is tendency for individuals or groups to exercise their power on the basis of informal organizations like patron-client networks. Here, as Whitfield et al. (2015) show, power is defined as the mechanism through which individuals or groups assert claims to ownership and income flows. Such power can be exercised in several ways, including the use

[9]Different groups want the equilibrium most favorable to themselves, but the likelihood of a group achieving the distribution it wants depends on its ability to hold out in conflicts, that is, depends on its holding power (Khan 2010: 6). Holding power is defined by Khan as the ability of an individual or group to engage and survive in conflicts. Thus, 'the enforcement of a particular institutional rule is likely to be more effective if the distribution of benefits under that institution is not contested by groups with holding power, and conversely its enforcement is likely to be weaker if powerful groups contest its enforcement' (ibid.).

of, or threats to use, violence. Thus, they conclude, powerful factions in the society exert certain kinds of control over certain political processes.

That is why transfers through patron-client networks are essential for maintaining political stability: they allow powerful individuals or groups to access the resources they claim (Khan 2010). The informal or clientelist distribution of resources, which may operate within and outside state institutions, becomes critical for redistributing resources to groups that hold power but do not have the political legitimacy to claim resources through formal institutions within the state (Gray and Whitfield 2014: 20).

One important observation to be made within the political settlement approach is that clientelism is not per se considered detrimental to economic transformation during the transition phase to capitalism (see Khan 2010; Whitfield et al. 2015; Behuria et al. 2017). It has been suggested that, while in certain clientelist systems there are incentives for investing in productive activities, in others such incentives do not exist. Thus, Gray and Whitfield (2014) observe, it is the type of clientelism that propels or obstructs a country to develop its economy. This has led the already cited scholars within the political settlement approach to argue that rents accruing from clientelist transactions may go beyond the objective of stabilizing the polity and be used to influence the process of technological learning, especially in developing countries where the market alone cannot influence such processes. If so, rent-seeking can be viewed as less harmful if it is diverted into productive activities (learning for productivity).

If economic transformation is dependent on differences in the type of clientelism, it is justifiable to ask, as do Gray and Whitfield (2014), what explains the variations in clientelism, and how do these variations affect the process of economic transformation? According to Whitfield et al. (2015), it is differences in the distribution of power in societies that account for variations in clientelism. Their work identifies two main dimensions through which the distribution of power can be understood: 1) the relative power of factions within and outside the ruling coalition; and 2) the relative power of domestic capitalists and the nature of their technological capabilities. These dimensions can produce different political configurations across developing countries, with implications for each country's economic transformation. Drawing on Whitfield et al. (2015), I elaborate on these dimensions below.

The relative power of factions within and outside the ruling coalition

As for the first dimension, the distribution of power outside the ruling coalition has important implications for a country's development. The stronger the political factions outside the ruling coalition, the more vulnerable the ruling elites are to any resistance to their implementation of institutional change, especially those that have the potential to change the distribution of economic benefits in society. In these cases, considerable resources are likely to be wasted in attempts to buy out political opponents or in acquiescing with internal distributional demands in order to keep the coalition together. The weaker the political factions outside the ruling coalition, the more stable the latter, and consequently the more likely it is to form longer-term developmental goals.

Important also is the distribution of power within the ruling coalition, both vertically and horizontally. In both modes of power distribution, the extent to which developmental goals can emerge is dependent on the degree of cohesion or fragmentation within the ruling coalition. As hypothesized by Gray and Whitfield (2014), the more fragmented the ruling coalition, the greater the degree of contestation, meaning that ruling elites must devote greater efforts to keeping the coalition together by trying to accommodate their powerful contesters. Accommodation could mean distributing rents or creating opportunities for rent-seeking instead of controlling it, which in turn would have negative implications for development. On the other hand, as Gray and Whitfield (2014) go on to observe, the more cohesive the ruling coalition, the lower the degree of internal contestation, meaning that ruling elites are in control of the distribution of rents and thus more able to change the institutions that affect the distribution of benefits.

The relative power of domestic capitalists and their technological capabilities

Within the second dimension of the distribution of power, two variables are found: the relative power of domestic capitalists, and the nature and extent of their technological capabilities. The power of domestic capitalists, measured by the degree of their political influence, refers to the extent to which local firms or industry associations are able to further their agendas through political processes (see Whitfield et al. 2015). Their political influence is said to stem from two sources. The first of these is their importance in generating significant government revenues and foreign exchange from exports: if ruling elites rely on other sources of revenue,

such as the natural resource sector or international aid, then domestic capitalists are likely to be ignored. Ruling elites would then have no incentives to 'engage in the hard task of helping domestic firms build technological capabilities and creating new institutions for implementing industrial policies' (ibid: 101).

The second source of the political influence of domestic capitalists, as described by Whitfield et al. 2015, is their importance in financing ruling coalitions, as ruling elites need a flow of resources to maintain their political organizations or to win elections. Thus, they observe, if ruling elites have access to other funds than those of domestic capitalists, the latter will be politically weak.

In short, 'domestic capitalists can be politically weak if ruling elites can operate without their support, or if they operate in productive sectors where they do not generate profits that could be used to buy political influence over policies and resource allocation' (Gray and Whitfield 2014: 20). In the same light, 'if a group of domestic capitalists are in industries that are not key economic pillars, ruling elites face few consequences for ignoring them' (ibid.).

The second variable within the dimension under consideration is the degree of technological capability of domestic capitalists. Lall's definition of technological capabilities, 'a firm-specific form of institutional knowledge composed of the combined skills of its staff members accumulated over time' (Lall 1996 apud Staritz et al. 2017: 6), is still useful. According to Whitfield et al. (2015), capitalists with greater technological capabilities are likely to use policy-generated rents to invest in productive activities and learning because they are more likely to succeed and become competitive. In contrast, capitalists with low technological capacities are less likely to use policy-generated rents to invest in productive activities or to maintain or upgrade their existing skills, and ruling elites are less likely to support them. However, as Whitfield et al. (ibid.) also point out, ruling elites are more likely to support domestic capitalists with moderate technological capabilities because they may be certain that the capitalists may profit and that the benefits of this will come their way as well.

I conclude this outline of the political settlement approach by pointing out that what makes it such a useful framework for conducting a political analysis is that, unlike many other approaches (such as institutionalism), which use the premises and other tools of economics to explain political dynamics, the arrow is reversed, by which I mean that, in the Political Settlement approach, the tools of political science are used to understand what happens in the economy. Such an approach draws deeply on the politics of development, and its insistence

on keeping the concept of power firmly at the center of the analysis enhances our understanding of the roles played by various groups, organizations and coalitions, and in turn their implications for the country's economic transformation.

3.1.3 Balancing the two perspectives

The first of the two perspectives described above places considerable emphasis on the technical requirements to explain why countries fail or succeed with a given value chain. The term 'technical requirements' refers to 1) the ability of local firms to acquire new knowledge or upgrade existing skills; 2) the ability of the government to devise a coherent industrial policy and implement it effectively; and 3) the commodity lead firm's degree of willingness to engage with domestic firms and transfer knowledge to them. Undoubtedly, without these processes backward and forward linkages are less likely to make their appearance within and outside the commodity sector.

However, while the organizational and operational skills of both governments and domestic firms and the strategies of the commodity lead firm are all important factors spurring linkages, it is a mistake to think that simply fixing them will solve all linkage problems. Measures like administrative capacity-building and specific programs aimed at strengthening local enterprises are well known across Africa, yet the capabilities that developing countries need in order to participate in commodity value chains are still lacking (see Staritz et al. 2017; Gray and Whitfield 2014). The problem with a purely technical approach is that it neglects the context in which technical processes take place.

This shortcoming has been identified by examining a range of case studies (see Hansen et al. 2016). Such a contextual perspective, which builds on the political settlement approach, considers the political context – and particularly the underlying power relationships that characterize it – as important factors that influence the development of linkages. Proponents of this approach argue that learning processes and technical capacity-building may take place only if there is a ruling elite with the incentives to support such processes. Such incentives depend as much upon the power balances between factions within and outside the ruling coalition as between the ruling elites and domestic entrepreneurs. However, I argue that in this approach the pendulum has swung far away from the technical approach, thus emphasizing the political factors at the expense of the role of technical requirements.

My point is that, in order to fully understand when and how linkages emerge, it is important to give the correct weight to each of the factors that determine whether a value chain will take hold or not. It is true that certain stages of the commodity value chain require complex and sophisticated technologies, but it is also true that the presence of a ruling elite willing to support the acquisition of such technology is key, particularly in cases where such technologies are new to local firms, or even to the country as a whole (see Staritz et al. 2017).

In the section that follows, a framework that combines the two perspectives is developed. But before going any further, it is important to mention that a framework that combines both technical and political processes is not entirely new, given that Whitfield et al. (2015) have pioneered such a course. Their work is built on the argument that the successful implementation of industrial policy is dependent on certain conditions (mutual interests, pockets of efficiency, learning for productivity), as well as on the politics (distribution of power) that makes those conditions possible. While following the logic of their line of thought, the conditions I come up with here differ from those in that study. My focus on the politics that make such conditions possible is narrower, as it is placed squarely on power relations between domestic capitalists and ruling elites, with augmentation of the relations between MNCs and ruling elites, rather than on power relations between factions within and outside the ruling coalition.

3.2 The analytical underpinnings of the framework: developing a point of view

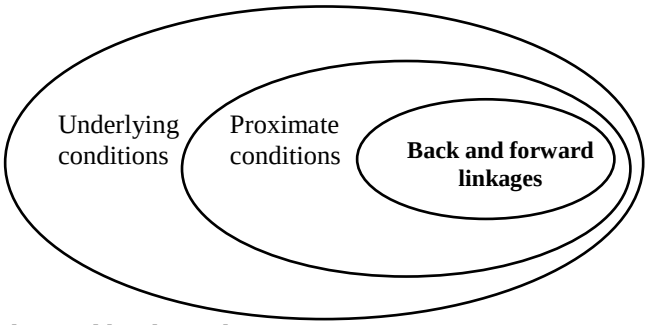
My starting point, then, is that linkage dynamics are by no means a purely economic process determined by technical requirements, as they are also influenced by the country's politics. However, this argument requires a nuanced look at just how technical and political processes influence the development of linkages. Backward and forward linkages are directly influenced by technical requirements, not by politics. The latter, I argue, is what creates or prevents the conditions under which those technical requirements can be fulfilled.

To put it another way, the argument is that the emergence and strength of backward and forward linkages is in the first place a function of the technical requirements or capabilities required for linkages to develop. However, whether these capabilities exist or not, and the likelihood of them being built, depend on domestic political processes underpinning sector-specific political settlements – that is, whether ruling elites promote redistributive or

productive activities. Thus, while one aspect of the problem is the technical requirements or capabilities that are necessary for linkages to flourish, the other is the political context that may or may not allow such capabilities to develop.

Earlier I called the technical requirements that shape linkage dynamics direct, as opposed to the indirect nature of the political forces. I will hereafter refer to them as 'proximate conditions' and to the politics that make them possible as 'underlying conditions', since the latter are located at a much deeper level and characterize the wider context in which the linkages exist, as depicted below.

Figure 3.1. Logic of how proximate and underlying conditions influence backward and forward linkages.



Source: elaborated by the author.

The concepts of 'proximate conditions' and 'underlying conditions' are not entirely new, as something akin to them has been pioneered by Sam Hickey (2013). However, in his framework Hickey relates both concepts to the politics that 'shape the emergence and maintenance of developmental forms of capacity and commitment' (ibid.: 3). In contrast, first, I find the etymological roots of the words 'proximate' and 'underlying' more useful to this model, as they reflect their common usage and everyday understanding. Secondly, in my use of both concepts, I refer 'underlying conditions' to the political aspect and 'proximate conditions' to the technical requirements pertaining to linkage development.

In the sections that follow, I unpack the terms 'proximate conditions' and 'underlying conditions' further. Before doing so, however, I outline a working definition of linkages for the purposes of this study, as it would be pointless to construct a framework without first setting out a conceptual perspective.

3.2.1 A conceptual perspective on linkages

Backward and forward linkages are formed when an economy moves from producing a single product to producing a wider range of products (Hirschman 1984; Kelly 2001). One thing

needs to be stated at the outset: I follow Andersen et al. (2015) in seeing the linkage concept as encompassing the exchange of information and knowledge, rather than being limited to just market-based transactions. Morrissey (2012) has vividly argued that linkages should not be confused with spillovers (transfer of knowledge), pointing out that the factors shaping linkages are different from those shaping spillovers. However, from my perspective the distinction, whatever its merits, seems like a quibble; both logically and intuitively, it is difficult to think of beneficial linkages without knowledge transfers taking place.

That said, the concept of linkages I consider here encompasses the broad processes through which local firms and industries upgrade their knowledge bases. Incorporating these learning processes into the analysis of linkages is helpful in understanding the quality of the linkages that are formed and developed over time in a given sector. This conceptual perspective allows me not just to capture how and how many firms access a given value chain, but also to ask 'once they have accessed [it,] how do they maximize long-term gains such as knowledge and spillovers?' (Keane 2008: 3). Thus, to maximize the usefulness of the concept of linkages being considered here, the process through which firms upgrade their knowledge base within the value chain and the extent to which knowledge migrates to other sectors is considered.

3.2.2 Proximate conditions

A common thread in much of the literature on linkages is the feeling that backward and forward linkages should be relatively easy to establish, even in a market dominated by multinationals. Certainly upstream, multinationals tend to outsource their non-core activities to local firms, resulting in a close pool of firms from which goods and services can be purchased. In the meantime, in the downstream sectors, all else being equal, local industries could easily have access to inputs at a relatively low cost, as there would be no need to import raw materials. However, a number of scholars have argued that these processes are far from being automatic and point instead to specific contextual features that may or may not be conducive to the emergence of linkages of that kind.

I have established that the circumstances that propel a linkage to succeed in a given sector include the interactions between the key actors in that sector and the nature of their strategies and capabilities. To be more precise, the argument is that backward and forward linkages are more likely to succeed if the relationships between key actors (the government, domestic

firms and MNCs) evolve to a level where: 1) local firms are capable of absorbing the knowledge and technology required for their own upgrade; 2) governments are capable of creating a supportive institutional and organizational environment for local firms to flourish and develop; and 3) MNCs are 'willing' to engage with both local firms and the government in developing a competitive supply chain where they can purchase goods and services and/or an industrial base where they can deliver their output.

These three specific circumstances are what I have identified as 'proximate conditions', or the immediate technical requirements that need to be met in order for backward and forward linkages to develop. Earlier I pointed to Lall's definition of technological capabilities as 'firm-specific'. However, it is important to note that proximate conditions do not simply refer to firm-level capabilities or to simple relations between firms; our analysis must also include the process through which these capabilities are built. As a process this is far from simple, since it involves the strategies and capabilities of all the other key actors in a given sector.

Following on from this, the conditions we need to study in an analysis of how linkages form can now be expanded to include not only the three sets of circumstances necessary for firm-specific capabilities to increase, but also the sector-wide processes through which this takes place. Building on this, let us therefore specify the components of my analytical category of 'proximate conditions' as: the scope of the supporting mechanisms; the depth of policy implementation; and knowledge transfer and information-sharing.

1) *The scope of the supporting mechanisms*. This is a function of the relationship between the government and local firms.[10] One circumstance that is particularly conducive to linkage development is when local firms have knowledge in an area related to that required to participate in the commodity value chain; it makes sense that this would facilitate uptake of the knowledge and technology required for their own upgrade. It has been widely assumed that in most developing countries linkages are poorly developed due to the weakness or even absence of such technical capabilities. As productivity growth in developing countries is usually led by learning rather than innovation (Khan 2000), the government must support local firms through policies or other means that will upgrade

[10] In this work, the concept of 'local firms' is used interchangeably with 'domestic firms'. As the case study is the coal sector in Mozambique, we will consider the narrow definition of local firms as set out in the country's Investment Law no. 3/93 of 24 June, which defines a local firm as one that is formed and registered under Mozambican laws, with headquarters in the Republic of Mozambique, and in which at least 50% of the capital share belongs to Mozambican citizens, companies or institutions, either private or public.

their knowledge base. The rents earned from the commodity sector may be used to create learning rents[11] by investing it in knowledge or other resources to boost the technological advancement of local firms in the up- or downstream sectors.

Thus local firms should not only be able to enter the commodity value chain, they should also have enough absorptive capacity to allow them to absorb new knowledge. This means that government support mechanisms cannot be seen as one-off events that simply boot firms into a commodity value chain. Participating in the value chain is not in itself gainful if firms are not able to upgrade further within that value chain over time or, better still, develop capabilities that may be applied in other sectors of the economy. Thus the long-term aim should be for local firms to diversify their client pools and become less dependent on the commodity lead firm.

Although the focus here is on the support the government should provide to domestic firms, it is worth noting that this can be a two-way street: the development of local businesses may benefit the government in a number of ways. For example, increasing the number of domestic firms and developing them may help the government achieve some of its political goals, such as an increase in the number of jobs. In addition, new businesses should increase government revenues as new taxpayers enter the stream.

2) *The depth of policy implementation* emerges from the relationship between the government and MNCs. Linkage development requires a government capable of formulating a coherent industrial policy and implementing it effectively, at least from a technical point of view. Most investments in the commodity sector come with promises of long-standing benefits, which include development in the downstream and upstream sectors. However, it is also to be expected that the government has its own local content targets, which it pursues. In these circumstances, a coherent policy and its effective implementation play key roles, especially in cases where MNCs renege on their promises to purchase local goods and services or to deliver their mining output domestically.

   Parallel to putting laws in place, cooperation between the government and MNCs is required before multinationals can facilitate the government's aim of building a strong and competitive value chain. The government, for its part, can try to create the necessary

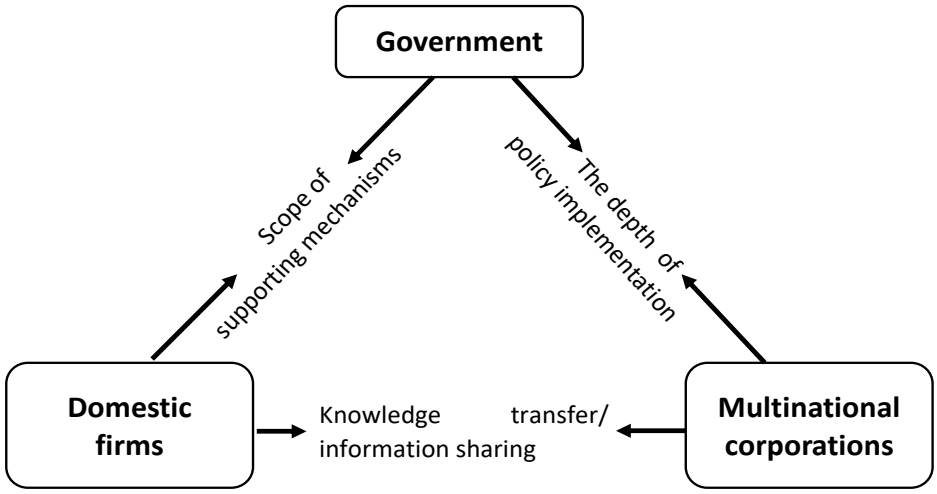
[11] By definition, learning rents are conditional policy-induced subsides allowing producers time to catch up. Learning rents include, but are not limited to, 'general and specific industry infrastructure; provision of access to adequate and low cost investment and working capital; [and] helping capitalists to obtain access to scarce land and natural resources' (Gray and Whitfield 2014: 21).

conditions for the commodity to be processed locally prior to it being exported. For the extracted or produced commodity to be used locally, the government and MNCs would have to work together.

3) *Knowledge transfer and information sharing* should result from the relationship between local firms and MNCs. Given that, in theory, it should be less costly to purchase goods and services locally than abroad, the commodity lead firms may want to facilitate the transfer of knowledge to local firms, so that the latter can provide goods and services that meet the required standards at a relatively low cost. The two should communicate well enough for them to be familiar with each other's strategies regarding local content, which in turn will mean that both parties understand what can reasonably be delivered (by local firms) and/or purchased (by MNCs).

In a nutshell, the assumption behind proximate conditions is that linkage development is conditional on the ability and willingness of the government to formulate and implement a coherent industrial policy and to create supportive institutional and organizational mechanisms for local firms to flourish and develop. This is coupled with the engagement MNCs must enter into with both local firms and the government in developing a competitive supply chain from which MNCs can purchase goods and services and/or developing a local industrial base where they can deliver their mining output. The proximate conditions just described are depicted below.

Figure 3.2. Representation of proximate conditions in a three-legged model.



Source: created by the author, inspired by Whitefield et al. (2015).

It should be noted that the development of these three sets of conditions is in turn dependent on the alignment of the strategies each player pursues. That is, in contexts or countries where proximate conditions were absent before the discovery of the mineral resource, the nature of the interaction between local firms, the government and MNCs will play a key role further down the line in setting these conditions, which in turn will shape linkage dynamics. For example, it is to be expected that MNCs will align their strategies with those of the government in order to stimulate backward and forward linkages. In the same light, it is expected that the government's support mechanisms will incentivize local firms to adopt long-term profitability strategies rather than short-term goals. Thus, if proximate conditions are met, then backward and forward linkages are likely to be formed and strengthened. The opposite, of course, is equally true: if such conditions are missing, linkages are likely to be shallow.

3.2.3 Underlying conditions

Ideally, any government may want to steer the commodity sector in a manner that allows it to generate linkages. However, whereas the government wants to extend its influence to both MNCs and domestic firms, either of the latter may also seek to influence the government in several ways. The government may want to exert its influence over MNCs in order to encourage them to engage with domestic firms while taxing MNCs appropriately so that learning rents can be created to support domestic businesses. MNCs, for their part, may want to influence the government to give them favorable tax treatment and greater control over natural resources. Domestic capitalists may want several kinds of government support, including an enabling environment that allows them to link up with MNCs or granting them import tariff preferences so as to enhance their competitiveness with foreign suppliers.

While these actors may attempt to influence each other, the success of these attempts is dependent on their relative power or specific features of the political landscape that may or may not allow the proximate conditions to emerge. Such features, coupled with power dynamics, are what I define as 'underlying conditions'. Thus, while the development of linkages depends on the fulfillment of technical requirements (proximate conditions), the latter depends on the 'underlying conditions', that is, the politics that are played out between the key actors involved in a specific sector, namely the ruling elites, domestic capitalists and

MNCs. In a nutshell, which actor gets what, when and how depends on how power is distributed among them.

While proximate and underlying conditions are both relational concepts, as they can only be understood in terms of the interactions between the key players in a given sector, the assumptions that underpin them differ. Proximate conditions characterize the specific features that emerge from the interactions between the government, domestic firms and MNCs in terms of their formal roles, technical capabilities and strategies. In respect of the underlying conditions, analysis goes more deeply into the level of politics so that the circumstances under which the government can either support the development of domestic capitalists or simply take a hands-off approach can be understood, as can the circumstances under which the government may or may not acquiesce in MNCs' demands in their quest for favorable treatment.

Unlike proximate conditions, the relationships that are characteristic of the underlying conditions are based on the power of each actor, rather than on their technical capabilities or business strategies. Moreover, the focus is on the ruling elites rather than the government. While the latter, as a machinery, is assumed to be an institution or entity that represents the will of the state, with predefined functions, here *ruling elites* are understood as those who wield power as a result of their position in government, where they occupy offices in which authoritative decisions are made (see Whitefield et al. 2015). When it comes to political analysis, the interests of those running the government (ruling elites) come into play, and the direction the government takes is likely to be influenced by those interests, which may differ from those of the general public.

Within the political settlement approach, the concept of a ruling coalition also comes into play and should not be confused with that of ruling elites. In Khan's work (2010), as in Whitefield et al.'s (2015), *ruling coalition* refers to both ruling elites and groups or individuals behind the rise of the ruling elites to power and their maintenance through the organization of political support for it.

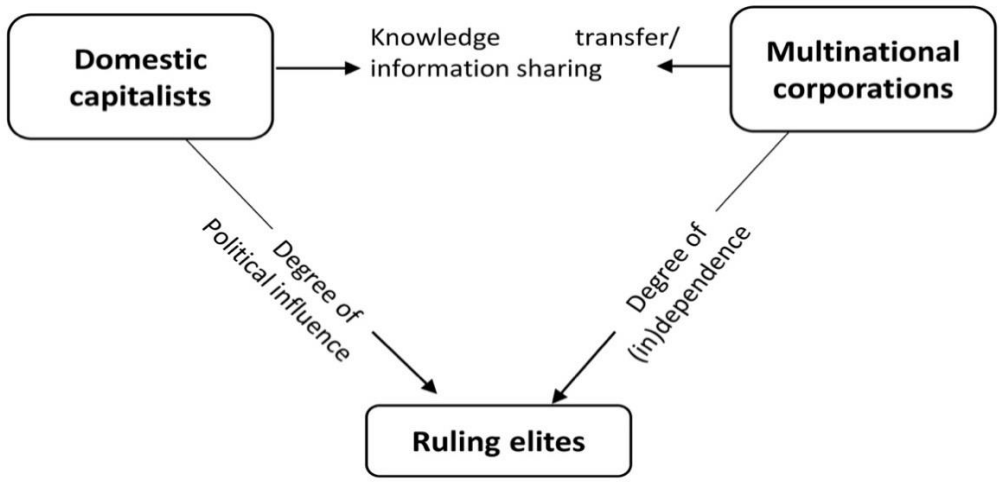
For the purposes of this research, 'underlying conditions' refers solely to the power relations between the ruling elites and domestic capitalists on the one hand, and between the ruling elites and MNCs on the other hand. These conditions can be broken down into just two considerations: 1) the degree of influence of the domestic capitalists on the ruling elites; and 2) the degree of (in)dependence of the MNCs from the ruling elites.

1) The degree of political influence that domestic capitalists have over the ruling elite depends on how much power they can deploy to influence political decisions in their favor. If domestic capitalists are an important revenue stream from which public expenses can be met, this will increase their leverage. Domestic capitalists may also have a favorable bargaining position if they constitute a key source of party funding for the ruling elites. We can see from this that having high technological capabilities per se does not make domestic capitalists powerful.

2) An MNC's degree of (in)dependence on the ruling elite depends in turn on the extent to which it is able to run its operations without the ruling elite's support. Let it be noted that MNCs, especially those operating in the extractive industries, can hardly operate without the support of the country's ruling coalition. This is needed in order to protect their investments, whether through policy decisions or the use of state security agencies when conflicts with local populations arise. Taking that into consideration, here the degree of independence refers to the extent to which MNCs are more likely to set their own local content agendas without great opposition from those who are running the government or the government itself. The liberty of MNCs to pursue their own interests is leveraged by the importance of the rents they can transfer to the state coffers or their ability to create new avenues to generate rents for the ruling elites. Rents accrued by the extractives and passed to the state are important to ruling elites because they can be skimmed off to benefit the ruling party and its supporters or be used for pork-barrel spending.

In short, whether ruling elites will or will not suffer the influence of either domestic capitalists or MNCs depends greatly on the rents they can generate for government revenues or to fund the ruling party. The greater the amount of money MNCs and domestic capitalists generate for either of these two purposes, the stronger they become. From the ruling elites' perspective, the less significant the rents that domestic capitalists and MNCs generate, the weaker the latter's influence. The described underlying conditions are depicted below (see figure 3.3).

Figure 3.3. Representation of underlying conditions in a three-legged model.



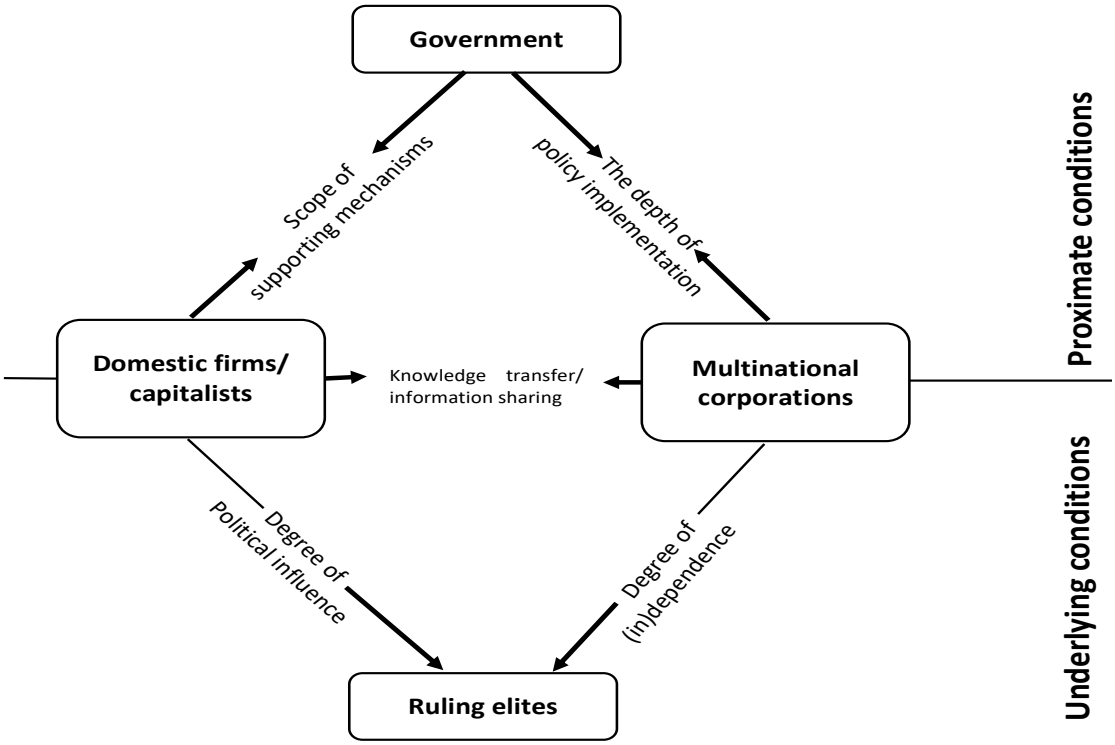
Source: created by the author, inspired by Buur et al. (2017).

Whilst these assumptions appear to be consistent, a few further points need to be made here. First, the degree of MNCs' independence from the ruling elites is beneficial to linkage development only to the extent that MNCs are willing to engage with domestic firms. Conversely, even if MNCs are highly dependent on the ruling elite, beneficial linkages will be spurred only if the latter have developmental goals. In cases where MNCs are highly dependent on the ruling elite and the latter have no developmental goals, then strong domestic capitalists are required to push the government to support them in a number of ways. That being the case, having a non-developmental ruling coalition is not a problem per se if domestic capitalists are politically strong.

3.2.4 Two-step flow model of linkage analysis

Both proximate and underlying conditions influence, in a series of sequential steps, the way linkages are formed in a given sector. For that reason, the proposition here is to integrate them into a single model that allows the analysis of linkages to be carried out in two steps. As mentioned earlier, proximate and underlying conditions are relational concepts, as they characterize the relationship between key actors that are relevant for sectoral analysis. For each relationship there is a particular condition that emerges, as portrayed in the figure 3.4.

Figure 3.4. Two-step flow model of linkage analysis.



Source: created by the author

For analytical purposes, the first step is to work out the extent to which proximate conditions have been met in a given sector. This requires mapping out the existing capabilities in the sector on the one hand and the strategies being pursued by the government, domestic capitalists and MNCs on the other, so that we can see the extent to which they match. The proximate conditions can then serve as a reference from which the existing sectoral capabilities will be assessed. This exercise should paint an accurate picture of both the health of the sector's linkages and the technical processes that underpin them.

The second step is to look into the politics – the underlying conditions – that make the proximate conditions possible. This requires an analysis of the interplay between the ruling elites, domestic capitalists and MNCs in order to understand who holds power and how this influences the development of the capabilities that are required for beneficial linkages to be built.

However, whether we start by analyzing proximate conditions or underlying conditions is a side issue – this depends on the questions being raised and the argument being made. What

matters is the analysis of linkage dynamics, taking into account both the economics and the politics that shape them.

3.2.5 Operational elements of the model

In each of the relationships between the actors in the model, there is a specific condition that needs to be analyzed. For that to happen, specific data will have to be collected in order to feed the analysis of each. A new analytical model can then be generated to provide the operational elements that will inform data collection. These elements are listed in Table 3.1.

At this point, it is also worth tapping into the concept of rents, given its relevance for the analysis of underlying conditions. The debates about rents and its typologies are widespread (see Khan 2000; Kaplinsky 2005; Lambsdorff 2007). I will not embark on a lengthy discussion of the concept here but limit myself to developing a concept of rents that will be useful for this thesis. My understanding of rents builds on Khan's work (2000), where rents are widely seen as representing incomes that are higher than would otherwise have been earned. In his conceptualization, rents include but are not limited to the 'monopoly profits, subsidies transfers organized through the political mechanism, illegal transfers organized by private mafias, short term super profits made by innovators and so on' (Khan 2000: 5). From this wide definition of rents, different types of rents can be deducted, such as monopoly rents, natural resource rents, rents based on transfers, innovation rents and learning rents.

In analyzing the underlying conditions, I use the concept of 'rents based on transfers' introduced by Khan (2000) and defined as the incomes created by transfers organized through the political mechanisms that often serve as the basis for primitive accumulation and, sometimes, the emergence of new capitalists. Therefore a conversion of public assets into private assets that takes place in these transfers may be either legal or illegal.

I associate 'rents based on transfers' with 'natural resource rents', which are widely defined as the gains from the natural resource exploitation that are split, in different degrees, between the host countries and the companies exploiting the resource (see also Kaplinsky 2005). Associating rents based on transfers with natural resource rents makes a good match for this research, as this deals not only with transfers of resources from domestic capitalists to ruling elites, the ruling party or the state (in the form of revenues), but also with transfers of rents accruing from the commodity sector.

Let it be noted, however, that the power domestic capitalists and MNCs may have is not just because they make transfers to one of these three actors, but also because of the relative importance of the rents they transfer. Such rents may be important if they constitute a key income (legal or illegal) that funds the ruling party or the state (whether or not in the form of revenues). If ruling elites have access to other funds independent from domestic capitalists or MNCs, then these last two actors are likely to be politically weak. Thus, the importance of particular transfers should be analyzed in relative terms (sometimes comparing them with other sources of rents), and not in respect of the amount of rents per se.

Table 3.1. Operational elements of the two-step flow model of linkage analysis

Conditions		Actors	Elements informing data collection
Proximate	Knowledge transfer and information sharing	Domestic firms	- Assess firms' access to credit; - Assess firms' possibilities for certification; - Measure the level of human capital (by level of education and professional orientation); - Examine the technology in use; - Assess the degree of product and/or customer diversification; - Assess the degree of dependency of suppliers on the commodity lead firm (measured by proportion of revenue sales to lead firm in relation to other clients).
		MNCs	- Determine the proportion of inputs purchased locally (measured by dollars spent) by a particular MNC; - Collect information on the percentage of nationals employed and their positions; - Enquire into MNCs' stance on local content/ local firms (as expressed in local content plan, strategy and practices).
	The scope of supporting mechanisms	Government	- Identify and examine institutional support mechanisms (laws, decrees and regulations); - Identify and examine organizational support (funding, training or other organizational support mechanism); - Appraise the modes or strategies used to support domestic firms (if supported).
		Domestic firms	- Assess the extent to which government policies benefit firms (from the firm's point of view); - Examine the type of support firms receive from the government agencies (if ever received); - Capture perceptions of the role the government has been playing in the development of domestic firms.
	The depth of policy implementation	Government	- Identify local/national content targets and/or constraints; - Consider the role of government agencies to enforce cooperation (if any) between MNC's and domestic firms; - Enquire into the collaborative measures with the commodity lead firm regarding local content provisions and their implementation;
		MNCs	- Examine the stance of the commodity lead firms towards stringent national content requirements; - Examine the extent to which the commodity produced is used as inputs to local industries; - Consider MNCs' views on government pushing for localization.
Underlying	Degree of political influence	Domestic capitalists	- Trace the emergence of domestic capitalists; - Identify the key source(s)of state revenue and their relative importance; - Identify the key source(s) for funding the ruling party and their relative importance; - Assess the relative importance of domestic capitalists as generators of rents for either the state or the ruling party.
		Ruling elites	
	Degree of in(dependence)	MNCs	- Assess the relative importance of a specific sector in the generation of rents for state coffers; - Enquire into the relative importance of a specific sector in the generation of rents for the ruling elite and its party; - Enquire into the relative importance of MNCs operating in that specific sector to the ruling elite
		Ruling elites	

Source: created by the author

3.3 Concluding remarks

The survey of the existing literature in the previous chapter shows that the analysis of linkages has followed two different trends, one that understands linkages as a primarily technical or economic process, the other building on political theory and placing politics at the heart of linkage dynamics. From the perspective of this study there is no right or wrong in carrying out an analysis of linkages using only one of the two approaches, except that it will result in only half the story.

The framework outlined in this chapter is an attempt to bridge the gap between economic and political analyses of linkages at the sectoral level. This perspective is built on the extensive literature on the political economy of development, which encompasses the debate on linkages and the political settlement approach. The framework takes into account the key actors whose capabilities and strategies are likely to influence the direction linkages take in the commodity sector. This contribution to the analysis of linkages does not necessarily bring new concepts to the debate. As mentioned earlier in this work, the two categories of concepts used in this work, proximate and underlying conditions, are taken from Hickey (2013). The actor-based analysis of this model (actor's role, capabilities and strategies) was inspired by a number of works, key among them being Whitefield et al. (2015) and Buur et al. (2017). That said, a merit of my model is that it brings together a number of different perspectives and concepts; to the best of my knowledge it is the first of its kind in the analysis of linkages at the sectoral level.

Another point of consideration that bears further scrutiny is an aspect relating to the actors included in the framework. Thus, I have treated 'government' as a monolithic actor, even though I recognize that a government, as the massive machinery of the state, encompasses many different actors with divergent interests and preferences. The same applies to MNCs, as I am well aware that they can be either commodity lead firms or suppliers. Some multinational companies are specialized in the supply of goods and services to different commodity sectors, but for the purposes of this study I use the term MNCs to refer solely to commodity lead firms. Finally, I recognize that this framework is not the only one possible and that it would not be surprising if alternative models emerged to supplement this one. Nonetheless, I trust that the two-step flow model for linkage analysis may be of some use to others who may want to analyze sectoral linkages, particularly in the resource sector.

IV. METHODOLOGY

4.1 The case study

Country selection

In spite of the fact that the sixteen years of civil war from 1976 to 1992 had destroyed the country's industrial base, after multiparty elections in 1994 Mozambique was rated the fastest-growing non-oil economy in Sub- Saharan Africa in the last decade, with an average real GDP growth rate of 7-8% for almost two decades. These growth rates have now dropped to 5% due to military hostilities that broke out again in 2013 and an economic crisis that has been triggered by the country's secret debt-taking, revealed in April 2016 (for details in this latter undertaking, see Macuane et al. 2017, 2018).

According to the 2015 World Investment Report, at $4.9 billion Mozambique was Africa's top recipient of FDI in the least developed country (LDC) category in 2014, followed by Zambia at $2.5 billion, Tanzania at $2.1 billion, the Democratic Republic of Congo at $2.1 billion and Equatorial Guinea at $1.9 billion. Together these five countries, which are all in the Southern Africa Development Community, absorbed about 58% of total FDI inflows into LDCs. However, FDI into Mozambique contracted, slumping to $3 billion in 2017 (see UNCTAD 2017: 47) and to $2.3 billion in 2018 (see UNCTAD 2018: 42), mostly due to the commodity bust and debt default. Despite all that, Mozambique continues to be among Africa's top recipients of FDI, with most of these investments going to the extractive industry and only a relatively small proportion into services and manufacturing.

However, despite the huge investments flowing into the extractive sector in a context of rapid economic growth since 1996, Mozambique is still among the ten countries with the lowest human development index (HDI) in the world, the second country with the lowest HDI among Commonwealth countries, and the country with the lowest HDI within the SADC region (see the 2018 UNDP report on the human development index and indicators). Within the region, a country with the highest flow of FDI into its extractive industry and the fastest growing economy but with the lowest human development index makes that country – Mozambique – an interesting case to analyze, especially in terms of the benefits that such investments in extractives generate. Whereas there are many ways in which the benefits from natural resources can be analyzed, the analysis of linkages is the most prominent because, as

Morrissey (2012) points out, the lack of linkages is the main reason why many countries have failed to benefit from their resource sectors.

Sector selection

In the analysis of linkages, studies can range from a single case study to cross-sectoral analysis. 'The advantage [of the latter] is breadth, whereas their problem is one of depth. For the [former] the situation is the reverse' (Flyvbjerg 2006: 241). Aware of the upsides and downsides of each of these approaches, this research opts for an intensive and in-depth study of a single sector, as the research analyzes the outcomes stemming from the relationships between different actors on a particular sector – the proximate and underlying conditions (see previous chapter). We are now confronted with the question of which subsector within the extractive sector in Mozambique would better address the research question in this study, given that the country has a large number of subsectors (commodities), including coal, gas, gold, rubies, graphite and many others.

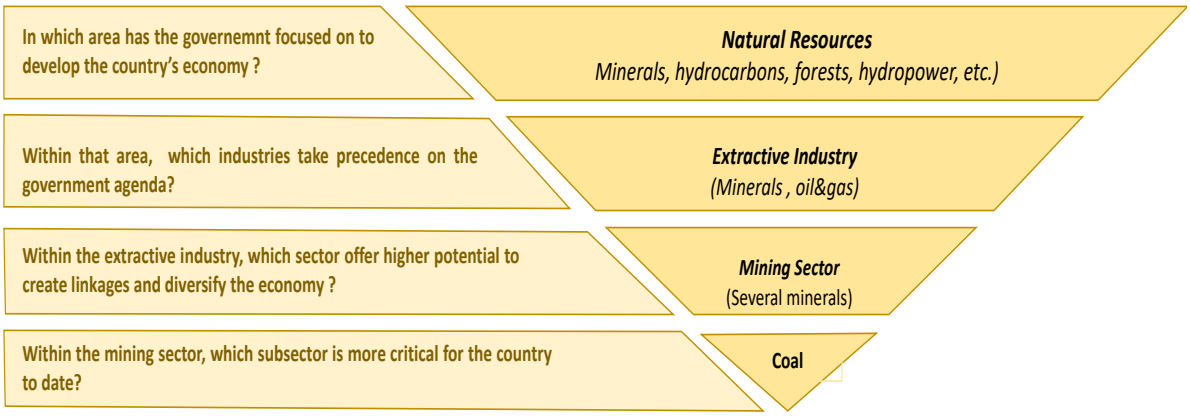
In the Mozambique extractive industry, coal and gas have been the two key resources to date, as they have generated more revenues for the government than any other sector, as I will demonstrate in chapter 8. While coal pertains to the mining sector, gas pertains to the hydrocarbons, commonly referred to as the oil and gas sector. This work will focus on the mining sector rather than on oil and gas because mining has a demonstrably greater potential to create linkages and diversify the economy. 'This is logical to the extent that the mining sector is invariably more labor intensive than the oil and gas sector, and has a more diverse range of intermediate inputs and infrastructure requirements' (Solomon 2011: 481). As Solomon goes on to observe, as does Morrisey (2011: 27), the development of industries catering for these intermediate inputs is a critical component of linkage creation and therefore of economic diversification.

Within the Mozambique mining sector, coal is the commodity of choice because: 1) it is the biggest subsector; 2) it has received more inflows of FDI on a large scale; 3) it is the country's most heavily exported commodity to date; 4) it has generated the largest revenues for the government; and 5) it has been able to reduce the country's trade deficit greatly, by more than 50%, therefore being given a priority on the national agenda. This can be added to the particular characteristics of coal, which makes it a suitable commodity for the generation of a myriad of feedstocks. Thus, besides the wide range of inputs required for its extraction (backward linkages), it is more likely to generate a variety of feedstocks (forward linkages)

than other commodities such as oil and gas. The type of forward linkage at stake here goes beyond the use of coking coal in steel production or thermal coal to generate power to include a variety of chemical products such as, but not limited to, liquid fuels, polymers and agricultural fertilizers, all them important for the country's development.

The process of narrowing the focus, or delimiting the sector to be analyzed, is depicted in the model below.

Figure 4.1. Delimitation of the sector.



Source: created by the author

4.2 Research method

This dissertation is a qualitative study, as it deals with data that does not lend itself to being counted or measured. Traditionally studies of linkages have used quantitative methods, particularly input-output analysis, from where they sought to measure sectoral interdependence, mostly by means of Leontief coefficients (see Yotopoulos and Nugent 1973). This research goes beyond the calculation of a sectoral linkages index that would merely measure the degree to which the coal sector is connected to other sectors. Instead it reaches for an understanding of the key processes that underlie the formation and development of linkages across sectors. The framework devised for the understanding of such processes across sectors, referred to as 'conditions' in this work, is applied to the coal sector in Mozambique. In so doing, I start by looking at the key features of the coal industry in Mozambique (see Chapter 5) and at the unfolding of Mozambique's linkage potential across sectors over time (see Chapter 6) before coming to grip with the analysis of linkage formation and development in the coal sector (see Chapters 7 and 8).

Although the study is eminently qualitative, it is enriched with a relatively small component of quantitative methods in the form of descriptive statistics. The latter are used extensively throughout the study to support claims about the facts I set out and to add evidence where the description itself is insufficient. Descriptive statistics are thus used to create figures that illustrate aspects of the economy such as the components of GDP, trends in coal prices over time, coal exports, coal production, the development of manufacturing or industrial production, and revenues generated. This allows the study to go beyond mere storytelling and provide a rich base of evidence.

4.3 Sampling and data collection

Quantitative data

To generate graphs, tables and other figures, a range of different sources inform the study. Internationally, it relies mostly on data from the World Development Indicators, the International Energy Association, Index Mundi and the World Coal Association, as well as other sources referenced throughout the study. Data at country level were also taken into account, since they may contain some elements not included in international sources. Sometimes, national data proved to be crude and often needed careful scrutiny, but it was considered better to have crude data than leave important aspects out of the analysis.

Qualitative data

Qualitatively, the literature review, documentary research, unstructured, structured and semi-structured interviews and on-site observation informed data collection. First, the study is based on a comprehensive review of the resource-specific literature and available documentation, such as laws, standards, guidelines and conventions related to the mining sector in Mozambique.

Secondly, interviews – structured, semi-structured and unstructured – were the predominant choice for collecting data and were employed at different stages of the research. Unstructured interviews – i.e. exploratory interviews – were employed in the preliminary stage of the research and were a central source of information in refining the research problem, drawing up the research question and framing the study's argument. At this stage, the unstructured small-n interviews provided a platform for stakeholders to talk about their experiences, and

to identify and discuss the key issues related to linkage dynamics in the country, especially where natural resources were at stake.

After the research question had been refined and the argument and analytical framework formulated and devised, I began conducting semi-structured interviews with different stakeholders: government agencies and ministries, mining companies, business associations and other private sector representatives. Along with the semi-structured interviews, structured interviews were conducted among supplier firms operating in Tete province with the aim of gaining in-depth information about the firms' capabilities (domestic and foreign suppliers) and the nature of their engagement with government institutions and the coal companies. This type of interview provided a broad grasp of firms' general modes of operation, technology in use and the main services provided by foreign and domestic firms, as well as the extent of job creation. This brought into focus the type of linkages that have been created in the coal sector.

At this point, it is worth noting that each method or group of methods used to collect data – documentary research, literature review, interviews and also observation – was aimed to address a particular working question. Each method or group of methods either supplemented or triangulated the others, thus ensuring and enhancing the validity of the findings, as summarized in the table below.

Table 4.1. Links between research question, means of data collection and chapters of the thesis

Research question	***Working questions***	***Means of collecting data***	***Outcomes (in chapters)***
How can we understand linkages formation in the commodity sector by examining the conditions that influence the way in which they develop?	How, broadly, has linkage formation been broadly understood in the commodity-based literature?	○ Literature review	Linkages and natural resources: a survey of the literature (Chapter 2)
	What are the conditions that underpin linkage formation in the commodity sector?	○ Literature review and theoretically informed analysis	Analytical framework (Chapter 3)
	How has the coal sector in Mozambique evolved over time, and what are its key features?	○ Literature review ○ Documentary research ○ Exploratory and semi-structured interviews ○ Observation	The context of the coal industry (Chapter 5)
	What are Mozambique's existing industrial capabilities, and how do they relate to the features of the up- and downstream sectors of the coal industry?	○ Literature review ○ Documentary research ○ Structured interviews ○ Observation	The path of Mozambique's industrial base (Chapter 6)
	What are the sector-specific conditions of the coal sector, and how do they exert an influence on the development of backward and forward linkages?	○ Documentary research, ○ Semi-structured interviews ○ Structured interviews ○ Observation	Evidence-based analysis of the proximate conditions in the coal sector (Chapter 7)
	How has politics shaped the ways in which backward and forward linkages develop in Mozambique's coal sector?	○ Literature review ○ Documentary research ○ Semi-structured interviews	Analysis of the politics – underlying conditions – shaping the development of linkages in the coal sector (Chapter 8)

Source: created by the author

Sampling

In preparing interviews, I started by using purposive sampling, which means that I selected my interlocutors based on who I deemed was most likely to provide the most useful information, especially in the selection of specific interviewees from government bodies, mining companies and business associations, as described in Table 4.2. I drew on all the different groups of stakeholders so as to ensure a good balance from a range of perspectives, as shown in the aforementioned table.

Once key stakeholders in the aforementioned categories had been selected and interviewed, the purposive sampling method was supplemented by snowball sampling, whereby additional contacts were obtained from interviewees. As Bleich and Pekkanen (2015: 9) observe, 'important actors approached with a referral in hand are more likely to agree to an interview request than those targeted through cold-calls'. This gave me access to other key actors whom I would not have known about or accessed in the first place, and it was an important technique for expanding the sampling frame, thereby ensuring representativeness.

For the selection of supplier firms based in Tete, I opted for a non-random sampling technique, given that a probability sampling technique would be harder to perform, as it would require what I did not possess beforehand, such as population figures, a list of the firms based in Tete and aprioristic knowledge of the characteristics of the population. Instead I used a sampling technique that would at least ensure that all elements of the population were conveniently eligible to be part of the sample through convenience sampling. Firms were then selected on the basis of access and/or their availability to be part of the sample. Using this technique, I interviewed 56 supplier firms based in Tete in two different periods: 22 firms in the first round in 2016, and 34 in the second round in 2018. The second round of interviews was necessary as the 'saturation point'[12] had not been reached in 2016. The interviews continued in 2018 and were only stopped when the redundancy was verified, as 'respondents [from interviewed firms were] describing the same casual process as previous interviewees' (Bleich and Pekkanen 2015: 10). This allowed me to weigh up the validity of the inferences I drew from the interviews with the firms based in Tete.

The table below illustrates the categories of actors who were successfully interviewed.

[12] At saturation, as referred to by Bleich and Pekkanen (2015: 10), each new interview within and across networks reveals no new information about, [for example], a political or policy-making process.

Table 4. 2 List of interviewees by category

1.Government bodies (7)	**Interviewees**	**Location**	**Date**	**Code/Ref.**
Ministry of Mineral Resources and Energy (MIREME)	Head of the Provincial Directorate	Tete	November 2016	GB-1
	Formerly Department of Coal	Maputo	June 2017	GB-2
	National Directorate of Energy	Maputo	March 2018	GB-3
Ministry of Economy and Finance (MEF)	Studies' Office	Maputo	May 2017	GB-4
Investment Promotion Centre (CPI)	Department of Economic Linkages	Maputo	February 2016 and April 2017	GB-5
	Head of the Provincial Directorate	Tete	August 2015 and Nov. 2016	GB-6
Institute for the Promotion of Small and Medium Enterprises (IPEME)	Head of Statistics Separtment	Maputo	July 2016	GB-7
	Provincial Directorate	Tete	November 2016	GB-8
National Statistics Institute	Department of International Trade	Maputo	January 2019	GB-9
District Government of Moatize	Administrator representative	Tete	November 2016	GB-10
Empresa Moçambicana de Exploração Mineira	Head of the Company	Maputo	February 2016	GB-11
2. Coal (mining) companies (3)		**Location**	**Dates**	**Code/Ref.**
Vale	Department of Institutional Relations	Maputo	July 2016	CC-1
	Department of Procurement	Maputo	May 2018	CC-2
ICVL	CEO	Tete	September 2018	CC-3
Mining Company (anonymous)	Informant	Maputo	March 2018	CC-4
3. Associations (7)		**Location**	**Dates**	**Code/Ref.**
Confederation of Business Associations	Provincial representative	Tete	September 2018	A-1
Small and Medium Enterprises Association (APME)	Informant	Maputo	May 2018	A-2
Mozambique Banking Association (AMB)	Representative	Maputo	2016	A-3
Association for Legal Support and Assistance to Communities (AAAJC)	Representative	Tete	September 2015 and September 2018	A-4

Potter's Association	Focus group	Tete	September 2015	A-5
Farmer´s Association	Focus group	Tete	September 2015	A-6
Environmental Justice (JA)	Representative	Tete	September 2015	A-7
4. International Organizations (1)		**Location**	**Date**	**Code/Ref.**
United Nations for Industrial Development Organization (UNIDO)	Country representative for Mozambique	Maputo	June 2016	IO-1
5. Experts/practitioners/academics (5)	Initials	**Location**	**Dates**	**Code/Ref.**
Specialist in resource-based and spatial development strategies	P.J.	JhB	From August 2017 (cont. exchange)	EPA-1
Lecturer at Wits University and specialist in industrial policy	N.P	JhB	From March 2018 (cont. exchange)	EPA-2
Specialist	E.B (informal interview)	Maputo	March 2018	EPA-3
Financial consultant	R.M.	Via skype	September 2018	EPA-4
Specialist in business development (Ozmozis)	K.P.	Maputo	February 2017	EPA-5
Former Rio Tinto Employee and current ICVL worker	(Department of Communication)	Maputo	June 2017	EPA-6
6. Firms operating in the supply sector of the coal industry (56)		**Location**	**Date**	**Code/Ref.**
Supplier firms operating in Tete	20 Local firms	Tete	Nov/Dec 2016 and Sept/Oct2018	SF-L
	36 Foreign firms	Tete	Nov/Dec 2016 and Sept/Oct2018	SF-F

Source: created by the author

4.4 Data analysis

Data analysis in this work consisted of searching the data to answer the working questions, and thus the research question. The first step was to organize the data by transcribing it and translating it into English where deemed necessary, as most of the interviews were conducted in Portuguese, and most of the documents analyzed (laws, national reports, etc.) were also written in Portuguese. This process eased the description of what I was observing in the data. Next came identification of the processes that were understood as informing each of the conditions described in the analytical framework set out in Chapter 3. To both identify and rank which information was more or less relevant for the analysis, I drew on the analytical framework previously mentioned that had been devised for the purposes of analyzing backward and forward linkages, as it offers guidance in respect of the type of empirical information that is required for the analysis to be undertaken.

It should be noted that the analytical framework applied here uses relational concepts (proximate and underlying conditions), which means they can only be understood and interpreted by analyzing the relationships between the key actors in a specific sector (see Figure 3.4). In this respect analysis of the data collected followed the framework guidelines, and I also made use of content analysis to identify patterns and connections in each of the relationships analyzed, especially when it came to the views of the interviewees. However, these views were balanced by including other categories of stakeholders not indicated by the framework, such as NGOs, donors, specialists and academics. Furthermore, I analyzed the extent to which the views of these stakeholders converged or diverged from the patterns already identified in the relationships between the actors indicated in the analytical framework. The end goal of this exercise was to ensure the reliability of the findings by balancing the different perspectives of different actors.

4.5 Limitations of the study

There were a number of challenges to conducting this research. Chief among them were the constraints on access to information, as this limited the scope of the research. Within the coal sector, of the four mining companies originally selected for the study, two of them (Jindal and ERNC) were unwilling to participate in it. Jindal never replied to my written requests and, when contacted by telephone, I was told that the company never gives interviews or shares

information with outsiders apart from the government. ERNC agreed initially to participate in the study but never agreed to an interview despite several attempts to obtain one. Despite the collaboration of the two coal companies (Vale and ICVL) that did agree to participate in the study, I was told that not all the information I wanted could be shared, which may have posed some limits on the scope of the analysis.

Attempts to overcome these limitations included contacting former employees of these companies or people who had 'inside information', not necessarily to share sensitive information, but to provide a more nuanced view of the issues of interest to the research. Gathering information in the ministry that oversaw the coal sector was another way of obtaining information that was not available from the coal companies. However, this did not prove a great success either, as the staff of the Ministry of Mineral Resources and Energy claimed they had no right to divulge the specifics of coal companies' activities, investments plans, local content-related issues and the like.

Thus, gaining access to information in the Ministry of Mineral Resources and Energy was also a cumbersome process. First, I had to obtain formal and written authorization to start collecting data in that and other ministries, a time-consuming bureaucratic process on its own. Secondly, even after such authorization had been granted, only limited information was provided, it being argued that some information was classified. Moreover, some relevant documentation that could have been valuable for this research could not be accessed because, after the Ministry of Energy and Ministry of Mineral Resources (MIREM) were merged to form the Ministry of Mineral Resources and Energy (MIREME), the Department of Coal, which had been part of a unit within MIREM, had ceased to exist. This meant it was no longer clear to MIREME staff which directorate had the power to grant access to documentation about coal. Attempts to overcome this limitation included interviews with staff who had worked in the former Department of Coal and other informants who spoke with me unofficially and shared relevant documentary information.

Another challenge was conducting the research during the period of the low-intensity civil war (2013-2016). Sites of data collection in the District of Moatize and surrounding areas were not absolutely safe, as they were slowly turning into war zones. Armed insurgents had attacked not only the District of Tsangano in 2016, but also the villages of Nkondezi and Monjo in Moatize District. In 2016 trains transporting coal from Moatize to Beira Port were also attacked by the insurgents. As a result, the authorities might have been suspicious of the

motives of anyone collecting data in those sites. Authorization had to be requested from the local government to conduct research, but such authorization was only granted verbally. For safety reasons, I was also given contact information of the provincial police spokesman for use in case problems arose, as the military and also policemen in disguise had been deployed to some areas in and around Moatize so as to prevent the insurgents' attacks. Nonetheless I felt free to do fieldwork, especially because I was carrying university credential, even though the latter did not necessarily make things any easier. That is, my university credential, in the form of A4 sheet, which could be used to facilitate access to information and research sites, was sometimes of little value, especially when my aim was to collect data from local populations in resettled areas such as Cateme and Mualadzi. Access to these sites was not too difficult, but only observation was possible because, to interview people further, a written authorization from the provincial government would have been required, and this was not granted.

Furthermore, despite the fact that I was carrying university credentials, people were reluctant to answer certain types of questions or to provide certain types of information, apparently because they did not trust the use the information would be put to. I could feel the reluctance of some interviewees to answer any questions that included the word 'government' or other politically linked variables. My motives were sometimes questioned, or my questions left unanswered. To overcome this, I used local people (from a local university in the city of Tete) as research assistants, not only for them to help in collecting data through structured interviews with firms, but also as a means to build trust with local firms and people in Tete. I also provided a written statement to interviewees guaranteeing that, in accordance with ethical research guidelines, no interview would be recorded without their consent and that the research report would anonymize sources. Despite all these measures, not all the people I approached seemed comfortable in engaging with the research. Others, despite their agreement to participate in the study, responded to the questionnaire evasively, thus reducing the reliability of the answers they provided. Aware of the limitations in accessing information, attempts to overcome such obstacles included exploring different sources of information and not depending only on human interaction in the form of interviews and fieldwork visits

4.6 Ethical considerations

Some of these challenges have implications for research ethics, particularly in respect to the context in which the research was carried out. Although Mozambique is formally a

democratic country, the courts, bureaucracy and academia are all greatly affected by politics and are controlled by the ruling party. Recently the regime has tightened its control over academics and researchers, often accusing them of being dissenters using intellectual freedom to spread insurgent ideas against the regime. As a result, those of us researching 'red-line topics' may face a range of threats of physical harm, and informants may also be punished for revealing certain information, especially when the findings of the research are critical of the government.

The corollary of this is that precautions needed to be taken in order to protect my informants and myself. The first major ethical issue was to keep informants anonymous so that they could not be affected negatively by the study when the findings came into the public domain. Secondly, since the study may attract a certain degree of publicity within the country, I have ensured that the focus is not on individuals but on the structures and processes that influence linkage dynamics in the country, even though individuals from within the ruling elite are inevitably mentioned from time to time throughout the study. In focusing overwhelmingly on processes and structures, I have nonetheless aimed to ensure that not only will the analysis bring no harm to individuals, but that it may also be of deeper and more lasting benefit to the broader polity.

Because of these safety concerns, information that seems sensitive, given the current political situation, has been omitted, or at least, certain things have deliberately written in a blurred way. This brings me to my final ethical consideration. I am well aware of the strong emphasis on transparency in qualitative research and the pressure this creates to make the transcripts of interviews available for data replication and so on. However, like Cramer (2015), I believe that people's safety comes before any other research objective and that it is my responsibility to protect my participants from any potentially unintended consequences stemming from this research. For this reason, I do not consider making my interview notes available to others. As mentioned earlier, I will preserve my informants' anonymity, and only those who did not mind being cited are indicated in the study. Nonetheless I have not used their names, but instead used the names of their companies and often the positions they held or hold. More generally, I hardly mention who said what – except in cases where it was not easy to disguise. In some cases, therefore, the data and the information provided in this study will need to be taken on trust by the reader.

V. THE CONTEXT OF THE COAL INDUSTRY

This chapter seeks to answer the question of how the coal sector in Mozambique has evolved over time, and what are its key features. While its focus is contextual, the prime objective being to outline contemporary trends in coal exploitation within the country, it also provides insights into how the coal sector is organized, who the key players are, the ownership structure of the investments in coal and, ultimately, the types of industrial capabilities that are needed for the coal sector to become better integrated into the broader economy. In doing so, the chapter constitutes the first step in attaining the overall objective being pursued in this work.

To begin with, the chapter places the Mozambican coal sector in the context of the coal industry globally. Given that the coal market is global, competition within it is also global, then a country's coal production, exports and consumption will be shaped by world coal trends, especially in countries like Mozambique, where much of its coal is produced for export. In this light it is safe to say that examining the dynamics of the coal sector in Mozambique without first considering the coal industry worldwide would severely impoverish our understanding of the country's coal sector dynamics.

The chapter is structured into four parts. In the first part I discuss what coal is and touch on its historical role in industrialization. This section also sketches out the key coal trends worldwide, including world coal production, consumption, market prices, and the social and environmental challenges the sector faces. The second section outlines the dynamics of the coal sector across Africa along the lines of the same key trends mentioned above, but including a look at some of the existing challenges to a 'coal outflow' taking place within the southern region of Africa. The third part zooms in further to focus on the coal sector in Mozambique. Here I look at both the history of the sector and new developments within it, as well as geological information, the nature and volume of investments, the prospects for infrastructural development and the key socioeconomic aspects related to coal. Lastly, the chapter offers an analysis of how global and regional dynamics shape the coal sector in Mozambique, and separates the constraints that are the results of these global dynamics from those embedded in the country's industrial policies. This will make it possible to understand the potential of the coal sector to sweep the country forward along avenues that lead to economic diversification.

5.1 Global Coal Context

5.1.1 Coal typologies and industrial uses

Coal is defined as a fossil fuel that was formed from the remains of prehistoric plants that died 100 to 400 million years ago (NEED 2016). Coal is believed to be the most abundant of the fossil fuels, with proven reserves estimated at more than 948 billion tons worldwide (Anglo Coal Australia 2007), equivalent to almost 150 years' supply at 2011 rates of consumption (South African Coal Roadmap 2011). Coal accounts for 63% of the proven reserves of fossil fuels worldwide, followed by oil and gas, which account for 18.2% and 18.1% respectively (World Coal Institute, n.d.).

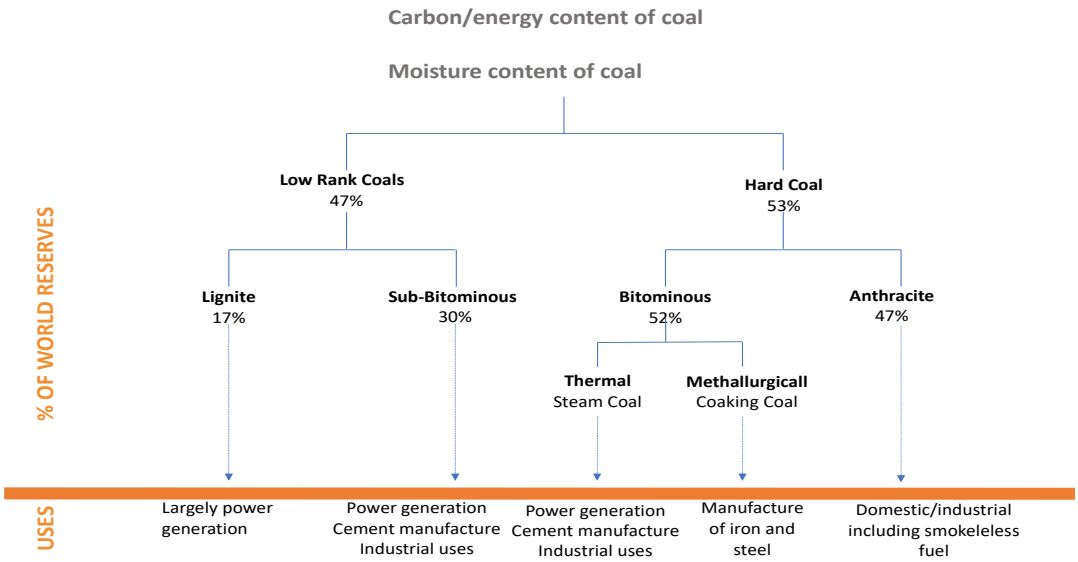
The energy derived from coal is said to stem from the energy that the plants absorbed from the sun all those hundreds of millions of years ago (ibid.). Since coal is considered a non-renewable source of energy due to the time it takes to form, consideration has increasingly been given to the sustainability of its exploration, as it will run out one day.

Coal comes in different forms that can be grouped into two broad categories: a) brown coal, which includes lignite and sub-bituminous coal; and b) hard coal, which includes bituminous coal and anthracite. Each of these subcategories represents different stages of coal formation; that is, over millions of years and under certain conditions of temperature and pressure, chemical and physical changes take place that progressively increase the organic maturity of coal from lignite to anthracite (Ackermann et al. 1998; Anglo Coal Australia 2007).

While lignite is ranked[13] lowest on the spectrum due to its low carbon and energy content and high level of moisture, anthracite is highest for the opposite characteristics, that is, a higher carbon and energy content and a lower level of moisture (see Figure 5.1).

[13] Coal is ranked by measuring its chemical proprieties (carbon, ash, moisture and volatile content) so as to determine its physical parameters and end use.

Figure 5.1. Categories and subcategories of coal and its industrial applications.



Source: World Coal Association (2017).

As indicated in the figure above, of the two subcategories of hard coal, bituminous is the most prominent and plentiful. There are two types of bituminous coal: thermal coal (steaming coal) and coking coal (metallurgical coal). While the latter is transformed into coke, a key input in steel-making, the former is used mainly in coal-fired plants to generate electricity. Coal also has many other industrial uses, such as smelting metals and the production of paper, bricks, plastics, limestone, cement and fertilizers. It is also used to heat homes and buildings (NEED 2016).

The multiple sectors in which coal can be used give the coal industry great potential to generate forward linkages. Similarly, the wide range of intermediate inputs that coal companies require to carry out their mining operations ensures the possibilities for backward linkages to be built. It is clear, then, that there are many ways in which the coal industry can be connected to the broader economy, not only in countries where it is exploited, but also globally.

5.1.2 Coal and industrialization: a story that matters

There is a widely held view that coal and cotton were the two essential commodities that fueled industrialization in northwest Europe, more precisely in England. Compared to cotton, coal appears to have played an important role in the advancement of the industry, particularly

in England (see Vries 2001). England became 'the first nation to mine and burn coal on a large scale and went on to spark a coal-fired industrial revolution that would transform the planet' (Freese 2003: 2). Freese goes on to observe that, because coal was cheap and cost-effective compared to other sources of energy, demand for it soared, such that several towns in England were lit by coal-powered uplighters. Wilde (2017) argues that demand for coal was also triggered by the development of the railways, which made it cheaper to transport great amounts of this 'sooty rock' to other regions and markets. Under such circumstances, the link between coal and the development of industry soon became evident.

The steam engine, one of the most important inventions of the Industrial Revolution for both industrial use and transport, increased the demand for coal. Also, as Wilde (ibid.) argues, the discovery of how to use coke instead of charcoal to smelt iron in 1709 soon turned iron into a major source of the demand for coal. Iron was increasingly used in the construction of railways, machines, tunnels and bridges, England being its major European producer at that time. While these narratives make it evident that coal was at the heart of the Industrial Revolution, other scholars (for example, Heilman 2014; Clark and Jacks 2007) disagree and argue that it is only in the popular imagination that coal lies at the heart of the Industrial Revolution, whether in England or elsewhere.

Leaving aside the debates over the contribution of coal to the Industrial Revolution, there are reasons to believe that coal has played a substantial role in the industrialization of a number of countries more recently, including the USA, China and India. Even though coal is what Freese (2003) dubbed 'a commodity utterly lacking in glamour', being dirty and old-fashioned, Chandler (1972) points out that bituminous coal, along with steam and iron, was responsible for the rapid growth of the US's manufacturing sector in the 1840s. Moreover, the opening of anthracite coalfields in Philadelphia, Pennsylvania and Virginia made possible the generation of affordable power, thus allowing the manufacturing industry to lower its costs of production and replace imported British goods. According to Reardon (2003), coal produced 54% of the electricity generated in the USA, leading Thomas (2012: 187) to claim that 'the USA is a nation built by coal […] and Washington DC is powered exclusively by fossil fuels instead of a more varied portfolio as of 2005'. In India, for example, according to Coal India Limited's profile of 2016, coal is the major source of power within the country, given that the electricity sector consumes about 75% of domestically produced coal.

At this point, there is little doubt that coal was and continues to be an important commodity for industrialization worldwide, despite the fact that carbon emissions are one of the most difficult issues when it comes to burning coal. Coal made it possible to accelerate growth in other sectors since its 'importance not only resides in its capacity to generate heat as fuel and cokes, but also in its capacity to provide steam power' (Vries 2001: 424). In China and India, two of the fastest growing economies in the world, the role of coal in their industrialization has been crucial, and the sector's potential to generate forward linkages has proved to be great in each case. Besides the emphasis on power generation, the growth of the fertilizer, cement, steel and many other industries means an increasing demand for coal. The key coal trends, presented below, provide useful insights into contemporary coal dynamics worldwide.

5.1.3 The economics of coal

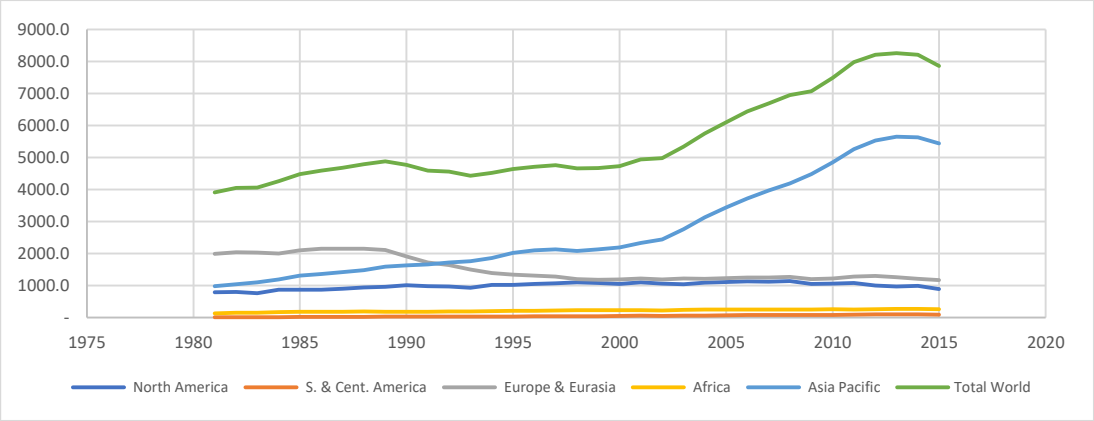
Coal production

Today China is the major producer of both thermal and coking coal. The 2016 IEA report stated that, between 2000 and 2015, China's share of the world's production of coking coal increased from 26% to 56.1%. The IEA also reported that in 1978 the 36 member countries of the Organization for Economic Co-operation and Development (OECD) accounted for 42.8% of the world's production of thermal coal, a share that had dropped to 18.4% by 2015. It appears that China and India – both non-OECD members – have not just increased their own production to meet their energy needs, but also become substantial markets for African coal exporters.

More significantly, however, world coal production plummeted in 2015, the first year since 1999 that production of all types of coal declined in the same year (IEA 2016). China remained the major coal producer worldwide, but production also fell considerably there. As for OECD coal production as a share of the world production, this fell from 56.5% in 1971 to 24.7% in 2015 (IEA 2016). It appears that OECD countries are not just setting quotas imposing restrictions on coal production to avoid over-production, they are also phasing out coal and increasingly relying on gas and clean sources of energy.

By comparing different regions, Figure 5.2 shows clearly that, followed by Europe and North America, it is Asia that has the major share of coal produced globally, with Africa accounting for less than 10%.

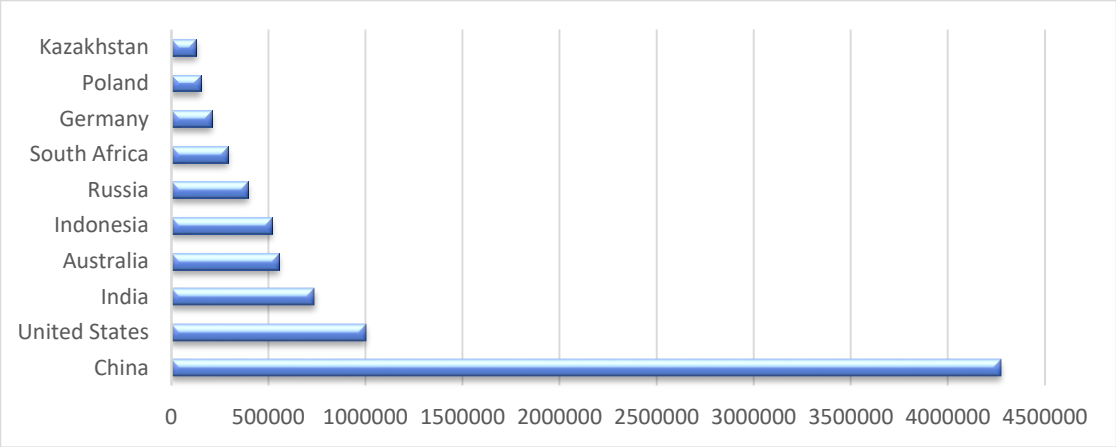
Figure 5.2. Trends in world coal production from 1981 to 2015 (in Mt).



Source: data from BP.

The figure above shows how world coal production follows the Asian trajectory, especially from 1993 onward, indicating that it is Asia that drives world coal production. When coal production in almost all other regions starts to decline, it does not move the needle on the world production. In contrast, as coal production rises in Asia, so does coal production worldwide, especially from the 2000s to 2012. Similarly, a decline in world coal production from 2012 to 2015 is matched by a decline in Asia's production. From this analysis, it becomes clear that variations in coal production in non-Asian parts of the world are having no significant influence on global coal production trends, unlike those in Asia. More importantly, when China is removed from the Asian equation, world coal production falls considerably and Asia no longer influences the global production trends. Thus China dominates coal production with a share of over 50%, as depicted in the graph below.

Figure 5.3. Ten major primary coal producers 2014 (in thousand short tons).



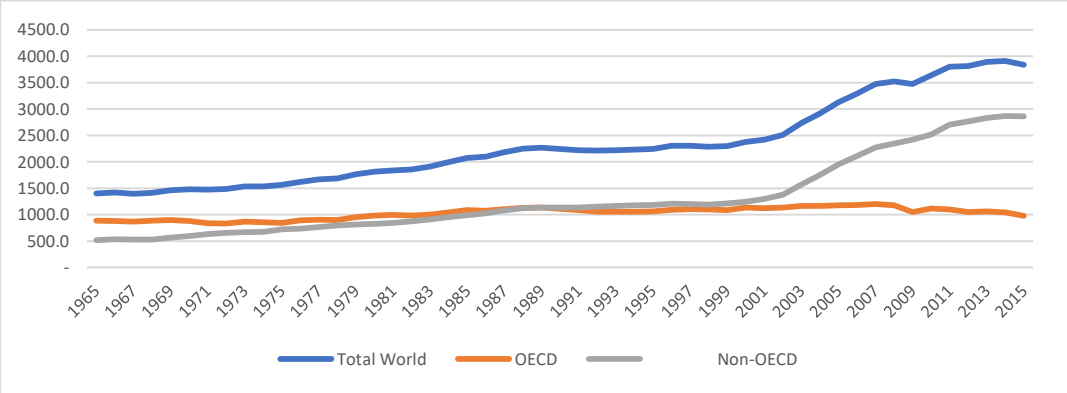
Source: data from EIA (2017).

Coal consumption

Although coal's share of primary energy consumption globally had fallen by 2.6% in 2015, it remains the world's second highest source of fuel (BP 2016; IEA 2016). It is widely agreed that the largest part of world coal production is used in power generation (steam coal) and steel production (coking coal). Data for 2016 from the World Coal Association and World Energy Council (2016) indicate that coal provides about 40% of the world's electricity. Importantly, the demand for energy has been projected to increase in both developed and developing countries, with the latter expected to be responsible for more than 50% of the growth in primary energy consumption and Asia taking a major share of that growth.

The pattern of coal consumption worldwide has shown remarkable changes over the past few decades. Several factors may have played a role in these changes, but among them is the fact that OECD countries are increasingly phasing out coal and opting for less carbon-intensive energy sources. Non-OECD members, on the other hand, are increasing their demand for coal in order to meet their growing energy needs. To put this in figures, since 1971 coal consumption in OECD countries has fallen by over 40% (BP plc 2017), while in non-OECD countries coal consumption for electricity and heat generation has more than trebled over the same period. The figure below depicts this trend graphically.

Figure 5.4. Coal trends in consumption in OECD and non-OECD countries between 1965 and 2015 (in Mt).



Source: dataset from BP Statistical review of world energy (2016).

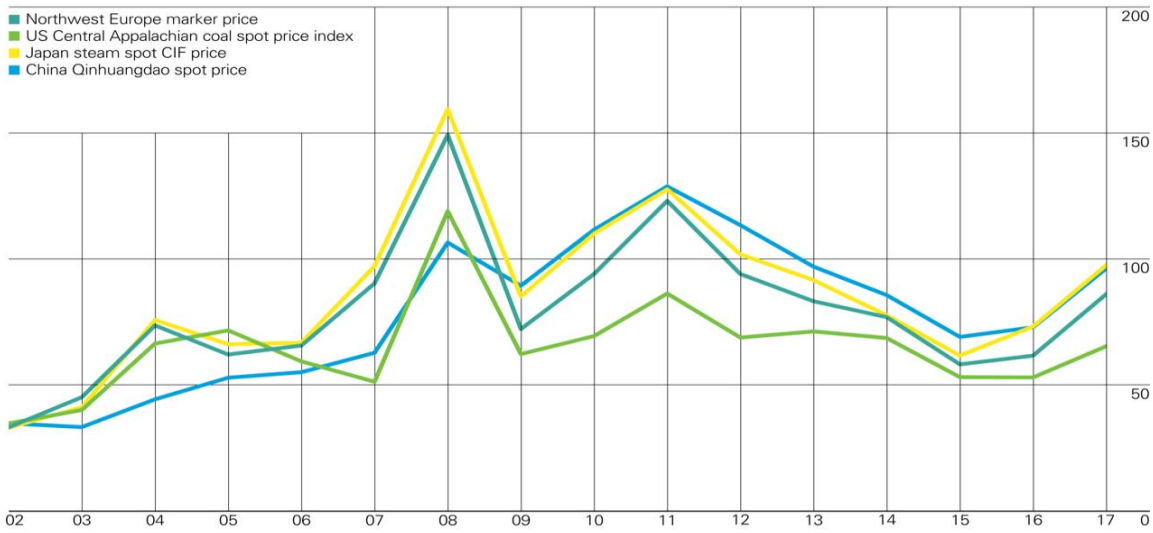
The so-called 'emerging economies' are undoubtedly the most influential in the observed patterns of coal consumption. Most of these economies are in Asia, with China being the

country that has most strongly influenced the pattern of coal consumption. In particular, 'China accounted only for 17% of world coal demand in 1980, but its share rose to 43% by 2008' (South Africa Coal Roadmap 2011: 6-7).

Coal prices

At least until recently, the coal industry worldwide has been challenged by the downward trend in prices since 2011. It is not surprising that prices have fallen, as it is well known that the prices of almost all types of commodities are volatile. What is surprising, though, is that the vertiginous drop has affected all types of coal and all markets, as shown in Figure 5.5.

Figure 5.5. Trends in prices from 1998 to 2017 ($/ton).



Source: dataset from BP Statistical review of world energy (2018).

The steep fall in coal prices has undoubtedly squeezed the profit margins of many coal companies across the globe and may even have made coal production an unprofitable business for some time. The reasons for the decline may vary from market to market, as well as depending on the type and quality of coal. But in general, according to the ETA (2014), behind the sharp fall since 2011 has been the 'lower than expected growth in coal demand due to better energy efficiency, competition from other electricity sources, and regulations to limit air pollution from coal' (ibid: 1). Furthermore, coal producers were slow to curtail production

in response to declining prices. The resulting oversupply meant that prices continued to fall to a point where producers found themselves in a gloomier situation.

However, according to projections from the World Coal Institute (n.d.) and ETA (2014), the price of coal will stabilize in the coming years. Indeed, prices have picked up since the second semester of 2016, and there is a tendency for them to keep on rising. Given that China continues to drive coal consumption and production, the spot-market coal price in the country has also driven coal prices worldwide. Coal prices in China reached their height in 2017 due to the increasing demand, the effects of which spilled over into other markets across the globe.

5.1.4 Social and environmental challenges

Coal production is widely seen as an attractive route to social and economic development. It has been acknowledged that coal has the potential to provide affordable electricity to the poor and that mining it offers employment opportunities to local communities (World Coal Institute n.d.). This means that coal-mining may be a source of income for rural areas and of substantial economic, social and infrastructural development in areas such as roads, transport, education, water and communications (ibid.: 7). 'Estimations are that coal employs more than seven million people worldwide, 90% of whom are in developing countries' (Anglo Coal Australia 2007:7).

While coal is the most abundant fossil fuel, being affordable and relatively safe and easy to transport and store (World Coal Institute n.d.), its mining has also had negative impacts on communities living in the vicinity of the mining. Moreover, coal extraction has sometimes led to conflicts over land use and acrimonious relationships with local communities (Anglo Coal Australia 2007). The effect of coal on the environment is another area of concern. For many years after a mine is closed, risks continue, including 'massive disturbances of large areas of land and possible disruption of surface and groundwater patterns' (WBG 1998: 282). In addition, stored coal generates dust, polluting the surrounding environment where people live. And even though coal is a cheap and abundant source of energy, carbon emissions from coal-fired electricity are said to be responsible for a considerable share of global warming.

As observed earlier in this chapter (see Figure 5.4), OECD countries have put the brakes on coal consumption, increasingly phasing out coal and opting for new sources of energy with relatively low carbon emissions. However, there has been a development on another front,

namely new technologies aimed at improving the efficiency of coal as a fuel. Such technologies, dubbed 'clean coal technologies', may well improve the environmental performance of coal by 'reduc[ing] the carbon emissions, reduc[ing] waste and increase[ing] the amount of energy gained from each ton of coal' (World Energy Council 2016:44). For example, 'the activated carbon injection (ACI) technology has demonstrated a mercury removal rate of 70% to 90%' (ibid.: 45).

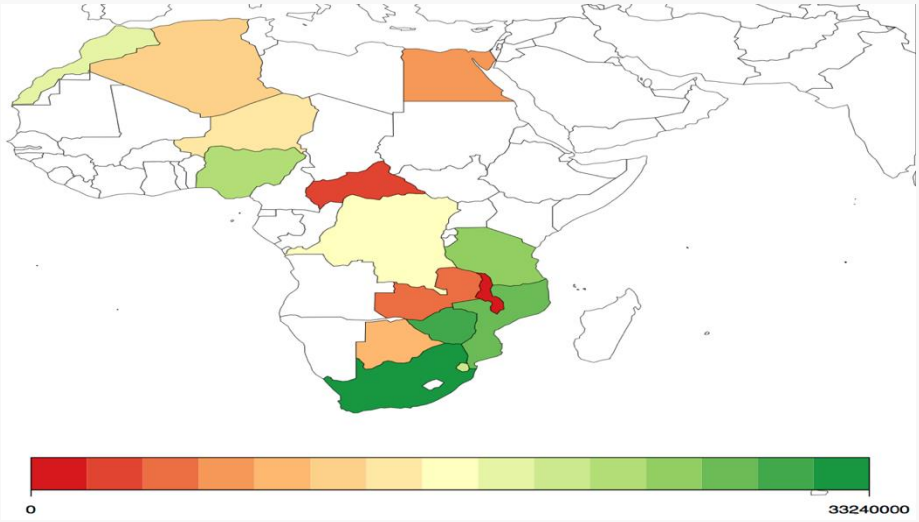
However, since deploying certain types of technology is dependent on the level of economic development, the environmental problem is likely to persist for some time. For example, African countries are opting increasingly for coal as a source of energy, yet are unlikely to be able to afford 'clean coal' technologies. 'Africa's carbon emissions from energy use increased by 0.8% in 2015 but the continent accounted for only 3.6% of global emissions' (BP 2016). Global campaigns advocating a reduction of carbon emissions have grown in strength considerably. This poses challenges for African countries whose energy needs are expected to be met using coal, which is quite abundant in the southern part of Africa, as shown in the section that follows.

5.2 The coal industry across Africa

5.2.1 Coal reserves in Africa

South Africa has the major share of Africa's coal reserves, accounting for 90% of total reserves in the continent. However, new developments in Africa's coal sector challenge this figure. While South African coal reserves were estimated at 55.3 billion tons in 1957, this figure was later downgraded to 33.8 billion tons in 2000 (Jeffrey 2005). Moreover, the most recent figures point to Mozambique having over 23 billion tons in Tete Province alone (MCMP 2013; Resenfield 2012; Selemane 2013). It is clear that there is a need for further examination and updating of datasets, as Mozambique now appears to have reserves almost as abundant as those of South Africa. Be that as it may, it is undeniable that South Africa has had the major share of Africa's coal reserves to date, as it can be observed from the map below.

Figure 5.6. Africa's Coal Reserves (in thousand short tons)



Source: produced using R (statistical package), based on data from EIA (2015). Different colors on the map represent different quantities of coal reserves for each country. The more intense the green, the more reserves the country possesses.

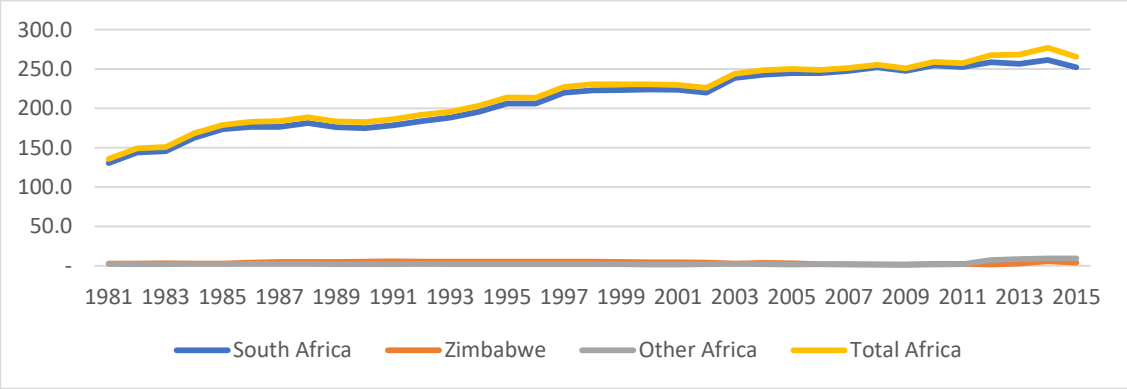
The map above gives a sense of how coal reserves are distributed across Africa. The map shows that South Africa has the major coal reserves in the continent, followed by Zimbabwe, Mozambique, Tanzania, Swaziland and Nigeria (in that order). Nigeria and Tanzania appear to possess almost similar levels of coal reserves, with Nigeria having the biggest coal reserves in West Africa. Within southern Africa, Malawi has the smallest coal reserves, while for Angola and Namibia no data is available.

5.2.2 Economics of coal

Production

Despite the huge coal reserves across the continent, by 2015 coal production in Africa accounted for less than 10% of global production, of which South Africa accounted for 94%. The figure below shows graphically how this may only just be beginning to shift.

Figure 5.7. Trends in Africa's coal production (in Mt).



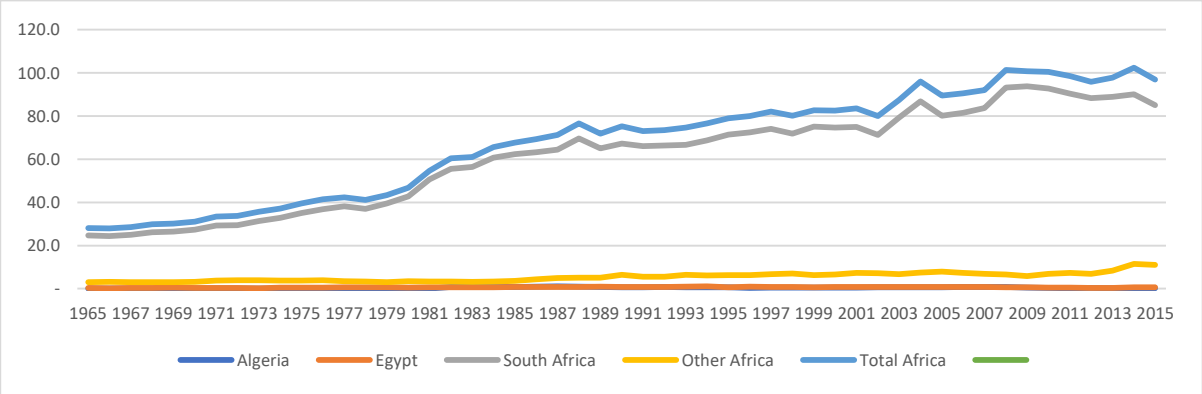
Source: dataset from BP Statistical review of world energy (2016).

The graph makes it clear that coal production in Africa is overwhelmingly driven by South Africa. But, like estimates of coal reserves, coal production figures in Africa may need updating, since Mozambique has already begun producing considerable quantities of coal for export, as explored in section 5.3 of this chapter.

Consumption

Africa accounts for less than 10% of the coal consumed worldwide. As discussed earlier, this is set to shift as OECD countries consciously scale down their demand and turn to renewables, while developing countries have no such intention, focusing instead on the affordability and reliability of this source of energy. The graph below illustrates the upward trend in coal consumption in Africa, with South Africa still overwhelmingly influencing it.

Figure 5.8. Trends in coal consumption in Africa between 1965 and 2015 (in million tons of oil equivalent).



Source: dataset from BP Statistical review of world energy (2016).

Unlike other African countries, coal appears to be the major energy source in South Africa, with 'more than 90% of the country's electricity, approximately 30% of the liquid fuel, and approximately 70% of its total energy needs being produced from coal' (South Africa Coal Roadmap 2011: 1). This could be why South Africa is the major coal consumer in Africa and the sixth highest coal consumer worldwide. As Baxter observes (2016), South Africa still plans to import about 5000 MW of energy generated from coal, despite its nuclear ambitions.

Summing up the key trends related to production and consumption, in South Africa both are far higher than in other African countries. Mozambique trails far below as the second major coal producer in the continent, whilst Zimbabwe is the third major producer and the second major consumer.

5.2.4 Coal outflow

Compared with coal consumption in the southern African region, a considerable quantity of coal is being exported. South Africa, Mozambique, Zimbabwe, Botswana and to some extent Tanzania have all been exporting coal for some time. However, a dearth of accurate data on coal production and exports in the region makes accurate comparison difficult. Be that as it may, within the region, while Madagascar, Mauritius, Namibia and Swaziland import all their coal requirements, Congo imports coal only to supplement its own production. South Africa is the main supplier of coal to other SADC countries, but Mozambique is the main supplier to Malawi and Namibia, and Botswana has replaced South Africa as the main exporter to Zimbabwe. As for coal exports to other continents, location is a major factor. For example, the Moatize coalfields are nearer to ports than other coalfields in the region, which gives Mozambique a relative advantage. Moreover, coal exports from landlocked countries have to depend upon coastal countries like Mozambique, which have railways and ports.

While location may be an advantage for countries such as Mozambique, the current condition and capacity of its transport system offsets this advantage, not just for Mozambique but for the entire region. Because so many of the region's coal mines are inland and distant from ports and export hubs, the difficulty of transporting coal from mines to ports remains one of the most difficult conundrums in southern Africa; transport is a critical part of the coal value chain, given that its share in the total cost of coal can reach 40%.

There are different ways in which coal can be transported, but rail appears to be 'the common one for long distance overland coal transport due to its high tonnage capacity and low rolling and wind resistance' (South Africa Coal Roadmap 2011: 53). However, railways in southern Africa are still operating below the required capacity, and the network lacks regional integration. The SADC Infrastructure Master Plan (2012) points out that most of the existing railways are quite old and were built to respond to the specific needs of the times in which they were built, needs that have now changed. Moreover, in the Infrastructure Master Plan, railways are said to have deteriorated not just due to the lack of investment and deferred maintenance, but also because of disruption and damage caused by armed conflicts, particularly in Mozambique and Angola. There is thus a growing recognition within the region that upgrading the existing railway lines and constructing new ones are needed to increase the viability and reliability of the railways, thus increasing their efficiency.

Thus there are plans to upgrade the export rail link from the Waterberg coalfields in South Africa to Richards Bay and to link Waterberg with Botswana by 2020, with a capacity to transport 10 to 20 Mtpa of coal exports from Botswana to Richards Bay. In the same vein, the Mozambican Sena railway that links the Moatize coalfields to Beira port has been upgraded, and the Nacala railway has been rebuilt. The latter is quite prominent in the region given the different zones it passes through. In Mozambique, the Nacala Development Corridor (NDC) extends from the port of Nacala on the Indian Ocean through Entre-Lagos to the Malawian border at Nayuchi. In Mozambique it covers parts of the northern provinces of Niassa, Nampula and Zambezia. In Malawi, it covers the whole southern region and the central region districts of Ntcheu, Dedza, Dowa, Salima, Lilongwe and Mchinjias, well as the islands of Likoma and Chizumulu on Lake Malawi. The NDC extends to the eastern part of Zambia, ending up in Lusaka.

To date, coal in the region is overwhelmingly exported through the Richards Bay Coal Terminal (RBCT) in South Africa, which has a handling capacity of 75 million tons per year (Mt/y). The 'most important route for coal in South Africa is the heavy-haul double line from Mpumalanga to RBCT, which is electrified for its entire line' (South Africa Coal Roadmap 2011: 54), even though coalfields in Mpumalanga are closer to Maputo than to RBCT. This proximity could be why the Maputo corridor in general, and the Matola coal terminal in particular, have slowly but steadily grown in importance as a possible alternative to RBCT.

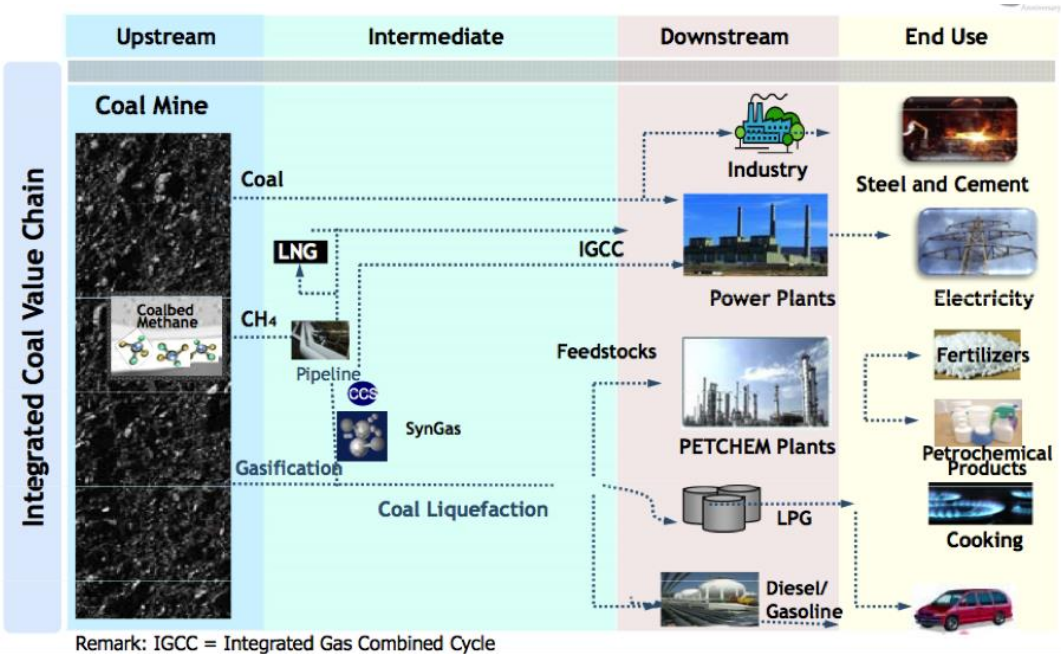
Moreover, Beira and Nacala ports are important nodes in the region, both playing an increasingly important role in exporting coal.

Clearly, the low capacity of railways and ports has been a stumbling block to the realization of coal's potential in southern Africa. Given that some upgrades to both have yet to be made, coal has also been transported to neighboring countries by truck, for example, from Mozambique (Tete) to Malawi and elsewhere, and from Tanzania's coalfields to Kenya. This is not only costly, it also comes at a cost to the environment, as it is mostly transported uncovered.

5.2.5 Socioeconomic impact of coal

Economically, coal has not only been a source of government revenue but also an important factor in spurring industrial development. In a nutshell, coal has a huge potential to develop both backward and forward links, as shown in the figure below.

Figure 5.9. Coal value chain: many critical feedstocks.



Source: P. Jourdan 2015.

In the upstream direction, coal companies need a wide range of inputs before they can begin mining. One would expect such inputs to be purchased in countries where the coal is being mined, thus giving leverage for local firms to develop and upgrade their knowledge. In countries like South Africa, with a long history of mining activity, benefits to local firms have

been reported (Morris et al. 2011), but in countries like Mozambique and Tanzania, where large-scale coal mining is still relatively new, linkages to local firms are rather limited (Buur and Monjane 2017)

Value has also been added to coal in Africa through downstream processing. In the downstream direction in southern Africa, coal is mostly used to generate electricity and, in a carbon-constrained world, there are growing prospects for power generation based on coal to supply the increasing demand for energy. There are other industries and sectors in which coal is an important input. After power generation the next largest value addition for coal is that produced by Sasol in South Africa, where coal is transformed into liquid fuels and also used to produce polymers (plastics) for use in packing, construction, electrical insulation and automotive transport. In Malawi, coal has been used as an input in cement manufacturing, textiles and soap-making, but it was also reported that Malawi has been exporting about 1000t of coal per month to Tanzania to supply a cement producer in Mbeya.[14]

Although coal has generated some visible economic outcomes, its mining comes at a price. People living in the vicinity of mining are not just displaced from their land, they also suffer the hazardous effects of mining. These include water pollution, denudation of fertile soils, environmental degradation and tree depletion. This has been the case in the Hwange coal fields in Matabeleland North Region in Zimbabwe, where Fortune et al. (2015) found that communities living around and along the Deka river in Zimbabwe, who mostly derive their livelihoods from it, can no longer drink this water nor use it for irrigation, as it salinates the soil and hence retards their crops.

Similar evidence was found in the Mpumalanga Highveld, which is the site of South Africa's most notable coalfields. As Munnik (2010) noted, Mpumalanga is considered an area of bad water quality (a pollution hotspot) due to coal mining. The air is also affected, with a high concentration of SO_2 near Witbank being linked to a worrying rate of respiratory diseases in children in the area. Coal mining-induced displacement and its negative effects on the environment have also been reported in Tanzania (see Jacob 2018) and Mozambique (in-depth analyses in the next section). These cases reveal the unpleasant outcomes stemming from coal mining that have plagued many communities across the continent, especially in the southern part of Africa, where coal seams are more abundant than elsewhere on the continent.

[14] https://www.mbendi.com/indy/ming/coal/af/ma/p0005.htm

5.3 Coal Sector in Mozambique

5.3.1 Geology and geography

Mozambique is already a big coal producer and is expected to become one of the ten major coal producers in the world within a few years. The country's coal deposits are situated in the provinces of Tete (Moatize-Minjova and Mucanha–Vuzi basins), Niassa (Maniamba/Metangula), Cabo Delgado (Lugenda) and Manica (Mepotepote) (Selemane 2013:3).

The main interest in coal is focused for good reason on Moatize, in Tete Province. Geological studies (Jourdan and Verniers 1981; Verniers 1977) indicate that most of the coal found in Niassa Province, especially in the Lunho Valley (Maniamba and Metangula basins), is of low quality, as it is bituminous coal with 20-40% of ash content. There is high-quality coal (k2; k4) across the Tulo valley and in the Lupurichi region in Niassa, but at depths of 1500 meters, making the seams costly to mine. In the same studies, it has been reported that the Lucimbeze region also has high-quality coal deposits, but they cover a small area, making them less viable for large-scale exploitation. These studies ended up suggesting that, in these regions, coal could be extracted by means of opencast operations and that the mining output could be put to best use supplying local industries.

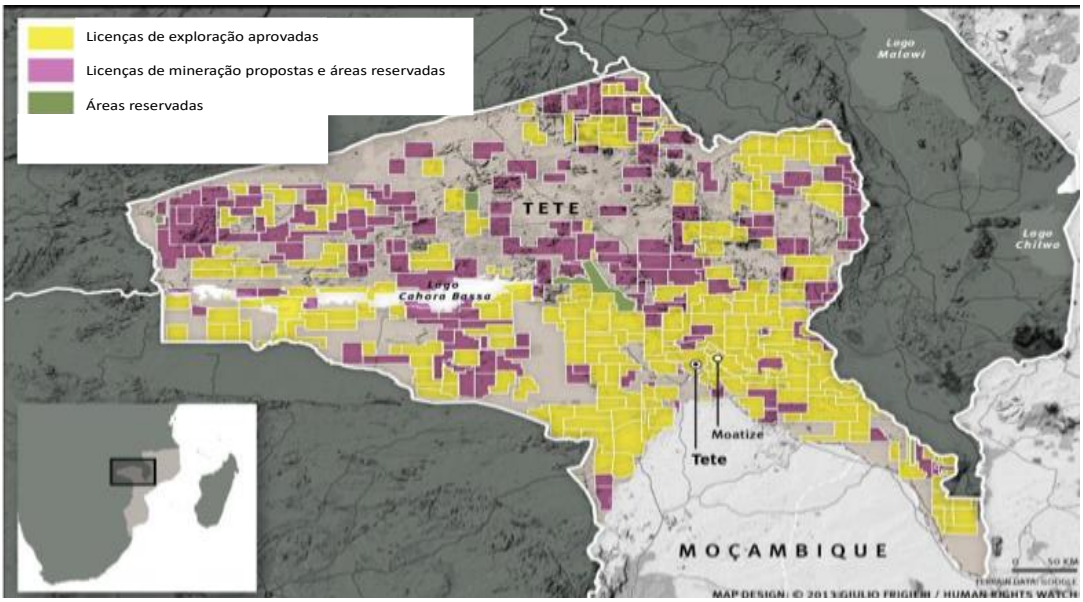
It should be noted that reports of low-quality coal in Niassa are inconclusive. As a matter of fact, in 2011-12 drilling programs were carried out by Vale, Rio Tinto and Essar Minas Mozambique with the aim of obtaining a real picture of Niassa's coal seams and their economic viability. Nothing conclusive has been reported since then, but the possibility of large-scale mining in Niassa still exists, given that on the other side of the border, in Tanzania, considerable coal reserves have been confirmed.

Tete Province, by contrast, has extensive and high-quality coal deposits. In terms of reserves, diverse estimates have been reported by different sources, but it is widely understood that the province has coal reserves of more than 23 billion tons. The Moatize coal basin alone, which is located about 20 km from the city of Tete, is considered one of the largest untapped coalfields in the world (GTK Consortium 2006). This basin, which covers an area of 250 km², is part of the Moatize-Minjova coal basin and has three sections: the regions of Revúbuè, Calambo and Benga (Telekhov and Zadara 1987). Other known coal-bearing sub-basins along the Zambezi graben include the Muaradzi, the Necungas-Meconé and the sub-basin of the

Malica River, close to the border with Malawi. Even along the border, in Goma and Nacali, the existence of extensive coalfields is confirmed (GTK Consortium 2006).

As can be observed in the figure 5.10, a considerable area of Tete Province has already been licensed (in yellow) or is about to be licensed (in pink) for mining. These two areas cover a large part of the province, and so far more than 114 coal-mining licenses have been granted to investors (either nationals or foreigners) to explore and exploit coal fields in this province.

Figure 5.10. Map of coal mining licenses in Tete Province, Mozambique.



Source: Human Rights Watch, 2013.

5.3.2 History of coal mining in Mozambique

Information about the presence of coal in Mozambique, especially in Tete, began emerging at the beginning of the nineteenth century, when British travelers and later Portuguese settlers developed mining activities in the region. One view is that the Portuguese settlers may have known about the existence of coal since the sixteenth century, when they founded the villages of Sena and Moatize (Vasconcelos 1995), but mining activities in the region are only known from the nineteenth century.

According to Jourdan and Verniers (1981), between 1929 and 1947, there was an energetic private-sector initiative to explore coal in the Lunho river valley in Niassa. But in 1948 the Portuguese colonial government revoked all existing exploration rights, and in 1949 it sent a brigade from the state geology and mining services to carry out its own reconnaissance of the Lunho coal basin. The results of these studies were never published, and interest in the region

faded. Ten years later the Portuguese government returned exploration rights to the dispossessed holders of title deeds, but many had already lost interest for the area.

As mentioned in the previous section, the bulk of the attention was overwhelmingly paid to the Moatize coal basin in Tete, different organizations carrying out geological studies and coal exploration there between 1870 and 1920. Exploitation took place by means of small excavations, that is, open-pit mining. Verniers (1977) and Vasconcelos (1995) point out that the Companhia de Navegação do Rio Zambeze and the Minière et Géologique du Zambeze were prominent among the companies active in Moatize at the time. These companies also mulled over the proximity of the iron deposits and the possibility of using the river to generate hydroelectric power to develop a steel industry in the region.

The Coal Development Project document of 1983 (hereafter CDP 1983) records that detailed geological studies were made by specialists from the German Democratic Republic (GDR) and USSR. In 1948 the Companhia Carbonifera de Mocambique (CCM) was created, and the records of the Direcção Nacional de Geologia e Minas indicated that coal of good quality was being produced at the time by CCM: more precisely, coal with 10% of ash content (CV-10), coal with 20% of ash (CV-20) and coal with 35% ash (CV-35). The coal was initially exported to Japan, but in the late 1970s and early 1980s it was being exported to Malawi, Zimbabwe, the Germany Democratic Republic and other countries. In Germany about 70% of the extracted coal was used in the metallurgical industry and 30% as fuel. Importantly, the exploitation of some mines, particularly those from the Chipanga seam, was rather limited due to the complexity of transporting the product and the overburden of deposits where coal was already being extracted.

According to GTK Consortium (2006), in 1978, three years after the country's independence, the government intervened in the CCM and created the national coal company CARBOMOC EE. Interestingly, about three years after this intervention, the production of coal plummeted, and soon, in 1983, the government came up with the Moatize Coal Development Program with the objective of producing six Mt/y of coal for export. As stated in the CDP (1983), although this quantity would be just 1% of global coal production, within the country this would have significant positive effects on the generation of foreign currency and jobs. The government was counting on its so-called development partners to fund the project, as the government did not have the financial means for its implementation. There is no accurate information on whether this project was implemented or not, but it is known that there, at a

certain point in time, in the middle of the 1980s, coal-mining operations came to a complete standstill amid the intensification of the civil war that engulfed the country for sixteen years.

5.3.3 The new era of coal mining in the Tete grabens

The new era of coal mining began in 2004, when the government launched an international bid for the exploration of coal in Moatize, signaling the state's intention to tap into its coal resources. This new era of coal mining was coupled with speeches from members of the government expressing boundless confidence that coal would sweep the country forward on the path to development. Potentially, the government's aspirations in this regard might have freed its citizens from their lack of hope and brought them confidence that the so-called war on poverty would yield results. Aiming to translate these aspirations into achievements, the government has already granted more than a hundred coal exploration licenses, even though production has only started in a few mines in Tete Province.

There are three major coal companies operating in Tete today that are worth mentioning, namely Vale, Jindal Africa, a subsidiary of Jindal Steel & Power Ltd, and International Coal Venture Ltd (ICVL). The number one coal investor in Tete is the Brazilian group Vale, especially when measured by its production capacity and the significant investments it has made in the country. Vale made its public debut in 2004, when it led the consortium that won the international bid to explore coal in Moatize. According to GTK Consortium (2006) it bid $122.8 million for the concession. By 2005 the feasibility study had been completed, and in 2006 drilling began. Vale, after being awarded a renewable mining contract for 35 years, started its operations in 2009 and started exporting coal from its Moatize mine in 2011.

With an initial investment of $1.26 billion, the forecast for coal production was of 26 Mt/y, and there were great expectations that many jobs would be created. However, as Campbell (2015) points out, the company was producing far below its capacity due to the inadequacy of the Sena railway line, which also had to be used by the other two coal companies to transport their production. To cope with these logistical issues, Vale developed the Nacala Logistics Corridor (CLN) with a total investment of about $4,444 billion (Campbell 2015; *The Economist* 2016). In doing so, Vale claims to have reduced its costs significantly by using the new line that links Moatize to Nacala Port.

According to Vale's report on its 2016 performance, 'production cost per ton of coal shipped through the Beira port was $197.3/t, while production cost per ton of coal shipped through

the Nacala port was $143.3/t in 2015' (pp. 77), meaning that costs had been reduced by 25%. By making use of its railway all the way from Moatize to Nacala coal terminal, Vale's production was ramped up. As reported in *The Economist* (2016), the company's new time frame for expanding production was from around 1.8Mt/y in 2015, to 10Mt/y in 2016 and to 18Mt/y by 2019. Vale's initial projection for 2016 was 20Mt/y.

Alongside infrastructure problems, Vale claims that the low levels of production in 2015 and in the first three quarters of 2016 were due to a downward trend in coal prices, which pushed relative costs up. By late 2018, the time of writing this thesis, prices had climbed to $270/t for coking coal after remaining below $100/t since 2015, forcing production to be ramped up. In fact, Vale has already made a move to develop phase 2 of Moatize, through which it expects to reach its 2019 production target of 18Mt/y.

When Vale first entered the high production cost phase in 2013 and 2014, the company put some shares on the market and was soon negotiating with the Japanese mining company Mitsui & Co. This now appears to be a 'done deal' after about three years of negotiations. As reported by Lazenby (2017), Mitsui bought a 15% interest in Vale's share of the Moatize coal mine, and it is also buying 50% of Vale's 70% share in the Nacala Logistics Corridor. Lazenby (ibid.) adds that Vale has already received $733 million from Mitsui and will receive an additional $2.7 billion after the deal is completed for both the mine and transportation projects.

Jindal Africa was the second largest coal project at the time of writing measured by production capacity. As reported in the online magazine the *Mozambique Resources Post* (2016), the group is engaged in mining operations, construction and steel and electricity production. By means of opencast operations, Jindal is exploring the Chirodzi mine, which has proven reserves of 700 Mt, and the life of the mine is projected at 25 years. Its annual production capacity is said to be 10 Mt/y, and the company claims to have produced 3 Mt in the first phase of 2012. Its first shipment of coal left Mozambican shores in the first quarter of 2013.

Like other coal companies, infrastructural problems have always been a stumbling block for Jindal in maximizing its mining potential, even though Chirodzi is said to be connected to the rail network. Amid the infrastructural constraints, the company had planned to triple its production in order to reach 10Mt/y by 2015 and then double that to 20Mt/y. These plans had been put on hold due to the fall in global prices. As my interlocutor from the provincial directorate of the Ministry of Natural Resources and Energy in Tete told me, the company

was producing far below its capacity, and the price fall was so extreme that income on coal exports fell below cost. However, as of October 2016, motivated by recovering coking and thermal coal prices, the company has resumed its operations.

The third of the three major coal projects is the Indian consortium of predominantly state-owned companies, International Coal Venture Limited (ICVL). This is made up of five companies, namely the National Mineral Development Corporation (NMDC), Rashtriya Ispat Nigam Limited (RINL), Coal India Limited (CIL), the Steel Authority of India Limited (SAIL) and NTPC. Within the consortium, as reported by Ray (2017), while SAIL holds a 45.63% stake, NMDC and RINL each hold 26%, NTPC 0.12% and CIL 0.26%.

ICVL became a relevant player in the coal sector after acquiring 65% of Rio Tinto's stake in the Benga mine, which was designed to have a capacity of 5.2Mt/y. The Benga mine was once owned 100% by Riversdale. In 2007 the Tata Steel Group acquired 35% from Riversdale, and in 2011 Rio Tinto, a British-Australian company, bought Riversdale's other 65% stake for $3.7 billion. Rio Tinto invested about $900 million in its newly acquired assets. It had estimated sales volumes of 2 Mt by 2014 and planned to increase production to reach 20 Mt/y. However, Rio Tinto's mining activities in Mozambique were short-lived. After three years it packed up and sold out with losses of billions. The widespread notion is that its costs were too high, especially those related to transport. Tinto's initial plan was to transport its coal via the Zambezi River, as the Sena railway line's capacity was limited to 6 Mt/y, which could not meet the growing demand of the coal companies.

However, as reported online by the news agency *Reuters* in March 2012, for environmental reasons the government rejected the idea of transporting coal along the Zambezi River using barges. Allegedly, Rio Tinto decided to sell its assets after seeing its plans frustrated. The *Mozambique Resources Post* reported in early July 2014 that ICVL had made a $200 million bid to buy the three mining assets owned by Rio Tinto. Barely two months later, the same magazine reported that ICVL had acquired a 65% stake in Rio Tinto for $50 million. The latter, according to the same source, had sold its assets for an astonishing price of close to 2% of the price it had paid Riversdale three years before. Within the country, this deal was seen as suspicious, and the figures were suspected of having been misrepresented. It was perceived as a maneuver for Rio Tinto to reduce its capital gains tax bill significantly. Whether such perceptions are well founded in fact is uncertain, although Rio Tinto and its former CEO and CFO have been charged by the US government with fraud for having initially inflated the real

value of the Benga mines assets to $3.7 billion and selling them far below that three years later. According to a 2017 press release of the US Securities and Exchange Commission, 'Rio Tinto's executives failed to observe their disclosure obligations by hiding from investors and auditors the fact that their acquisition of the Benga mine assets in Mozambique had been a failure and that nothing that had been expected from the investment was going to materialize'.

Whatever the contours of Rio Tinto's activities in relation to its investors and other stakeholders, the fact is that, to date, ICVL controls 65% of the Benga mine, and the remaining 35% is held by Tata Steel Group. Like the other two large coal projects, ICVL was running into high costs due to both falling coal prices and logistical problems. Campbell (2015) reports that the company had to restrict its production to about 3.6 Mt/y, of which 35% was coking coal, 10% thermal coal and 55% rejects. Campbell (ibid.) goes on to observe that ICVL was losing $7.5 million a month and that Tata Steel was already considering selling its shares. An article in *The Times of India* dated February 2017 reported that CIL and NTPC had decided to pull out of the consortium, but since ICVL was constituted by a directive from the central government of India, the two shareholders were still waiting for approval to exit at the time of writing.

Production was discontinued for some time and, according to an interlocutor from ICVL (interview ref. EPA-6), in order to meet the administrative costs the company was exporting its stockpiled coal to Malawi by road, as well as renting its rail wagons to Vale. The same source from ICVL said that the company had planned to resume its operations by June 2017, as the price of coal had more than doubled. However, it had not restarted its operations at that time because of some contractual issues with a new operator that were still being ironed out. The company ultimately resumed its operations and now plans to increase its production to about 11 Mt/y. Besides these three major coal companies, there were a number of smaller coal projects operating in the country, such as Minas de Moatize, operated by Bacon Hill Resources. There are many other coal projects that have just been approved and are apparently eager to start their operations (see table 5.1).

Table 5.1. Projects implemented in the Coal Industry of Mozambique over the last 10 years.

Projects	Annual production capacity	Actual Production volume	Investment
Vale, Moatize 1 and 2	22 million t/year	6.5 million t/year (2016)	$3.8 billion Nacala railway and port $ 4.4 billion
Jindal, Chirodzi	10 million t/year	3 million t/year (2016)	_____
ICVL, Benga	5.3 million t/year	3.6 million t/year (stopped in May 2016 and resumed in 2017)	50 million USD
Minas de Moatize	0.6 million t/ year	Stopped in 2015	35 million USD

Source: Cooperação Alemã 2018: 11.

5.3.4 Coal outflow

The striking question when it comes to the coal sector in Mozambique, then, is not where the demand for coal will come from, but how the product will reach the export hubs. Initially, as reflected in the Selemane (2013) report, government figures indicated that the major coal companies would be exporting 51.48 Mt of coking coal by the end of 2015, while of the 39.74 Mt thermal coal production target, only a small proportion would be for export. These expectations failed to materialize due to infrastructure bottlenecks that left companies producing far below their capacity. In short, the constraints on transporting coal due to the inadequacy of the infrastructure, particularly railway and port capacity, pushed the operating costs higher.

At least until recently, just before the railway linking Moatize and Nacala had been rebuilt, the most viable way to transport coal from Tete, where the major reserves are located, was through the Sena railway line to Beira port. 575 km long, this line was built in 1891 and started to operate in 1900. By 1920 it was already being used to transport coal from Moatize to Beira, from where coal was exported to Germany, Japan and elsewhere. This line quickly grew in importance when coal came back on stream a couple of years ago and became the backbone of the central region and Zambezi valley economy. However, its handling capacity of 6.5 Mt/y was not enough to meet the growing demand to transport coal to the port. As Resenfeld (2012) pointed out, the only other option for transporting coal was by road, which is three times the cost of rail, less reliable and not adapted to the quantities that need to be moved in the long run. The upshot of these problems was that the three major coal-mining companies considered building their own railway lines to export their production.

Even though the Sena line has been upgraded from 6.5 Mt/y to 20 Mt/y, it is still inadequate for the increasing demand of the coal companies. Vale ceased to use this line for some time in 2016 after developing the Nacala Logistics Corridor 'with an investment of $4.444 billion, which consisted in the construction of a line that runs from Moatize through Malawi to the coal terminal at the deep waters of Nacala' (Campbell 2015). The line, which is 912 km long, is a mixture of new construction and refurbishment of the existing railway and has a capacity of 40 Mt/y. 'Vale also finished a new coal terminal at Beira port in 2015 with a $300 million loan from the African Development Bank' (Deloitte 2016: 16). With all these investments, as Campbell (ibid.) reported, Vale planned to export 22 Mt in 2017, of which only 4 Mt would be transported along the Sena line, the other 18 Mt going to Nacala.

Figure 5.11. Mozambique's coal routes: Nacala Corridor and Sena line

Source: The Economist Intelligence Unit, 2015.

In Vale's report on its 2016 performance, it is stated that the development of the Nacala Logistics Corridor has allowed the company to increase its production and reduce its costs. Coal shipped through Nacala cost $107.3/t in 2016, while coal shipped through Beira cost 143.3/t. Thus, because of the development of the Nacala Logistics Corridor, Vale claims that the costs and expenses fell by 36% million between 2015 and 2016.

Jindal, the second major coal project to date, has also considered other alternatives to bear the cost of transporting coal to the coast. On its website, it claims to have submitted to the Mozambican government a study of the development of a coal slurry pipeline from the mining site to Beira port. A third rail line, which will link Moatize in Tete to Macuse in Zambézia Province, is under way. This is a project being developed by 'Thai Moçambique Logística in a joint venture with Thailand-based Italian Thai Development (60% share), Caminhos de

Ferro de Moçambique with 20% shares and local private consortium Corredor do Desenvolvimento Integrado do Zambeze (Codiza) with a 20% stake' (Campbell 2016). The line is expected to have a capacity of about 30 Mt/y. Another infrastructure installation under consideration was the Mutuali Development Corridor, with construction of a line between Nhamayabwe-Mutuali to link Sena and Nacala Corridor.

The size of production volumes is undoubtedly dependent on the railways' and ports' capacity to transport and ship coal respectively. The ongoing infrastructure projects seem to be a response to the growing demand from the companies exploiting coal in Tete. While the government, through the Integrated Development Projects (2010-2016) document, was eager to move coal by this means, Castel-Branco (2012) sees a risk, arguing that infrastructure that is so specific to mining will not serve anything other than external interests. In his view, the investments may turn into useless 'ghosts' once the mines are exhausted or lose commercial viability. Undoubtedly railway infrastructure is fundamental to the economic viability of the coal sector, but if Castel-Branco's arguments hold, such infrastructure may threaten the country's expected economic growth if the government does not intervene to ensure that other sectors benefit from it.

5.3.5 Socioeconomic impact of coal

Coal mining in Moatize is mostly located in densely populated areas. The downfall of the communities who still live or used to live (now having been resettled) in the mining areas of Tete over the past decade is a matter of deep concern. Whereas a plethora of literature has touted the positive impacts of mining on local development, the reality in Tete has shown to be complex and very different. Competing claims to land, the degeneration of living conditions and struggles to access water were some of the issues raised by the villagers in Tete during the interviews.

Aiming to balance competing claims to land and other resources that often lead to conflicts, in 2012 the government enacted Decree 31/2012 of 8 August, which regulates the resettlement process resulting from economic activities. The new mining law of 2014 also incorporates several provisions designed to protect communities when large-scale investments are at stake. This legislation stipulates that there must be consultation with communities before the start of any mining operations, and it 'specifies that a percentage of the revenues generated from

the mineral extraction must be channelled to the communities where the mining operations are taking place' (Mining Law, Article 20).

While these safeguards should guarantee that people living in mining areas enjoy better living conditions, their implementation has been one of the most difficult issues. In practice, each part of the process – community consultation, resettlement and beneficiation – has been quite contentious.

As for the consultation process, villagers claim that they were told that huge investments were on their way for the benefit of their communities. They received promises that new jobs would be created and that local farmers would have a market for their products, as these big companies would need agricultural products to feed their employees. In light of that, speeches from the government stated that communities had to cooperate in order for them to enjoy greater benefits and improve their living conditions. In addition, villagers were promised that they would be resettled in safe zones away from the mining sites and that fair compensation would be paid by the coal companies. These speeches created grounds for optimism on the part of the communities, but this only lasted until the resettlement process began.

The first and most contentious resettlement process ever reported in Tete involved Vale. Communities were given houses of such inferior quality that they soon started to crack and let the water in, showing that the principle of fair compensation was never put into practice. The first idea that started to gain ground in people's minds, especially those who used clay to make bricks (Potter's Association – interview ref. A-5), was that the communities had been either misrepresented or deceived during the negotiations. With the backing of community-based organizations, villagers are still pressing for all the resettlement processes to be reconsidered and are appealing for fresh negotiations. Complaints from villagers, particularly interviewees from the farmer's association in Tete (interview ref. A-6), about the land allocated to them for agriculture in Cateme (Vale's resettlement) and Mualadzi (Rio Tinto's resettlement) include the low fertility and long distances from sources of water. The land is also too far from the city, restricting old practices of going to the city to run their small informal businesses to feed their families. Moreover, those who used to make bricks from the clay deposits can no longer do so because the deposits have become inaccessible.

Even worse is the case of Jindal, which is mining near a community in the district of Marara. Even though this company has been extracting coal since 2012, there is one community living only 500 meters from the mine that has not been resettled as yet. Demonstrations have been

held to pressure the company into resettling people, but instead the latter's protests have been criminalized, and many people ended up being beaten and arrested by the police. The widespread perception captured during the interviews with local associations (interviews ref. A1, A4, A5, A6 and A7) has been that the government supports the multinationals and that communities are not paid a great deal of attention when their rights are violated. Thus, the legal provisions stating that those who have been resettled must enjoy better living conditions than before their resettlement appears to be rhetoric rather than reality.

Another point of consideration is the percentage of revenues earned from the coal extraction that should be channelled to communities where the mining operations are taking place. While the communities' representatives claim that they have never seen much of this revenue, the local government says it has been channelled to communities through the annual budget allocated to the District of Moatize to build schools, hospitals and social infrastructure. The representatives of community-based organizations such as Environmental Justice (JA) and the Association for Legal Support and Assistance to Communities-AAAJC are keen to trace the percentage of the revenues that should legitimately accrue to communities in order to understand whether this money is being channelled to them or not. To date there is no evidence of this, and it is therefore hard to determine what local tangible benefits, if any, have resulted from coal revenues.

Taxation in itself has been another area of contentious debates. Whereas it was expected that the government would tax these multinationals and use the accrued revenues to invest in other sectors of the economy, including social sectors, the widespread perception is that the country is not benefiting sufficiently from coal extraction because the government has failed to tax its investors adequately. On this point, Castel-Branco (2012) contends that the contribution of the largest mining companies is ridiculously negligible. The contribution of taxes over profits of the six largest mining companies is less than half of the workers' contribution (personal income tax). Data from the Mozambican tax authority shows that the contribution of workers in personal income tax (IRPS) between 2009 and 2013 far outweighed the contribution of mining companies in corporate income tax (IRPC) and taxes on production. Beyond these vast tax exemptions, according to Bucuane and Muelder (2007), these companies also enjoy the substantial benefits of consuming cheap energy as part of the deal, in which the government agreed to set a limit to the increases in electricity prices.

Critical is the fact that coal extraction is simply not benefiting the national economy as it was

expected to. Worse, it has actually had adverse effects on the local (i.e. Tete) economy. It is undeniable that the business environment in and around Moatize has registered some positive changes which can be attributed to coal mining. For example, according to data from the Investment Promotion Centre (CPI), private-sector investments in Tete increased from $1.6 billion in 2007 to $2.1 billion in 2010. The number of shops, gas stations, banks, hotels and so forth has more than doubled over the last five years, leading Tete Province to be dubbed the El Dorado of Mozambique (see Mosca and Selemane 2011) due to the richness of its coal resources and the opportunities that arose when coal started being exploited. However, only a small proportion of these investments, especially in the upstream sector, are owned by Mozambicans, as we will observe in the chapter that follows.

In the interviews conducted in Tete, it was frequently mentioned that there had been no direct economic benefits from coal exploitation other than a very limited number of job opportunities. In response to these allegations, repeated government speeches stated that the benefits from coal would take time to materialize and that people should be patient. Despite these speeches, data collected locally reveals that people have lost confidence in the government because initially the latter had promised benefits in the short run for those living in the proposed mining areas. Villagers were quite surprised that they were still seeing no such benefits after a decade of coal extraction.

5.4. Concluding remarks

This chapter has looked at key trends in the coal industry both internationally and regionally before zooming in on the dynamics of the coal sector in Mozambique. I have argued that to understand the sector's dynamics nationally there was a need to capture the key global trends. Behind this analytical choice is the argument that what happens globally inevitably affects the industry at the regional and national levels. This means that analyzing Mozambique's coal sector without taking into account the dynamics of world coal would just be misleading.

Globally, coal is thought of not only as sooty, old-fashioned and dirty lumps, but also as a commodity that offers a wide range of opportunities for countries to industrialize rapidly, as has been the case in the west in the past two centuries and is now happening in East and South Asia, particularly in China and India. The heavy reliance on coal was and continues to be due to the cheapness of accessing it and its reliability as a source of energy. However, coal has a

glaring drawback: it is an impure form of energy whose extraction and transformation damages the environment. As a result, OECD countries are increasingly phasing out coal and relying on other sources of energy such as gas and so-called green energy sources to continue protecting the environment. This trend also places pressure on other countries across the world to phase out coal and look to other sources of energy with lower carbon emissions.

The pressure to leave their coal resources underground due to the problems it causes to the environment is likely to weigh heavily on African countries with huge and untapped coal reserves, even though exploitation could transform their economic landscapes, as it did in Europe and is still doing in the USA, China and India. While some parts of Europe have run down the coal resources from which they built productive assets on the surface at the expense of the environment, the same affordable and reliable energy that allowed them to develop their industries is now seen as detrimental to the environment – so detrimental in fact, that developing countries are being 'advised' to rely on clean energy sources and leave their coal resources underground, as if it was not realized by the time Europe had become heavily reliant on coal that coal was bad for the environment.

Aside from the pressure from the climate change lobby, while coal was critical to the rapid industrialization of western economies and more recently of East Asia, in Africa development has dwindled to a trickle. In western economies (England and USA) and East Asia (China and India) coal has boosted growth notably in other sectors, but in southern Africa the prospects of industrialization based on coal are quite limited, despite its vast coal reserves, some of which have been tapped for decades. These undertakings suggest that there is something potentially troubling when it comes to the coal sector in Africa, as it remains underdeveloped. The major constraint in most African countries where coal is abundant that is preventing the development of the sector is the inadequacy of transport infrastructure. It is worth highlighting that efficient transport is what allowed Britain not only to export coal abroad, but also to power up regions within the country that were far from the coalfields so that other sectors and industries could benefit. In Africa, the weakness of the transport system – amounting to an absence of infrastructure – makes coal a far more expensive commodity than it need be.

Another point of consideration is the volatility of the coal price on the international market, with countries that rely heavily on exports being particularly vulnerable. While price volatility is less likely to cripple countries that consume their own coal, a basic line of inquiry is whether

African countries possess the industries and the technology to transform coal into other feedstocks, rather than using it for power generation purposes only. South Africa, the major coal consumer, producer and exporter in Africa, has been able to use its coal to produce several feedstocks, and it has a well-established industrial park that supplies coal companies with the inputs they need for their operations. The fact that South Africa also exports a considerable part of its coal makes it inescapably vulnerable to market fluctuations, though not as much as countries like Mozambique, which exports over 80% of its coal production. Together with Mozambique (as detailed in the chapters that follow), other coal producers in Africa are still struggling to link their coal sectors to other sectors of their economies.

Given that most of the coal extracted in Tete Province is for export, global fluctuations have a considerable impact on Mozambique's coal sector, including upstream. The 2011-2015 price plunge made coal production and exports unviable for ICVL and Jindal to the extent that they halted their mining operations, as their costs exceeded their profits. Vale continued with its operations but blamed the economic climate on its decision to drastically curtail its demand for goods and services. As a result, its local suppliers fell on extremely hard times and some even shut down, causing huge job losses.

ICVL and Jindal mining operations came to a complete standstill for more than a year, and with Vale claiming to have made no profits at all, government revenues accruing from the coal sector were eroded. Furthermore, the fact that countries outside Africa are increasingly phasing out coal may also bedevil the government's revenues, as the markets to which Mozambique exports coal are not immune to pressure from the clean energy lobby.

While global coal trends have greatly affected the viability of Mozambique's coal sector, domestic constraints such as infrastructure bottlenecks, low contributions to government revenues and conflicts between local communities and coal companies have also limited its potential. The inadequacy of the transport infrastructure between pithead and export hub increases production costs, which in turn reduces the coal companies' profit margins and with it the government's revenues. For what it is worth, the Mozambican government has never had the means to upgrade the country's railways, for which it would have to take out a loan. While relying on debt for developmental purposes is not a problem on its own, the fact that the coal companies enjoy greater concessions than many other sectors in transporting their coal to export hubs, whether Beira or Nacala, raises concerns about the viability of such infrastructural investments. If the contribution of the coal companies to the country's revenues

is so minimal, this suggests that the return on the investment in the railways from the multinationals extracting coal in Moatize is likely to be low. That being the case, Mozambique's citizens will end up paying the debt.

The antagonistic relationship between coal companies and local populations is another point of consideration. The violent protests against the coal companies in Tete are signals that people's expectations, most of them sparked by government speeches and promises, have not been translated into real achievements. The benefits of coal extraction, if any, appear not to have trickled down to local communities.

Insights from the literature suggest that the problems of mining, like those identified in the coal sector, are likely to be offset if countries are able to change the enclave nature of commodity exploitation by developing a variety of linkages. Building on this, the problems of coal mining, especially those resulting from price fluctuations, are likely to be offset if the government is able to tax these multinationals and invest in productive sectors (fiscal linkages), ensuring that coal companies purchase goods and services locally (backward linkages) and promoting the processing of coal locally prior to being exported or using it as input to domestic industries (forward linkages).

While fiscal linkages are dependent on the ability of the government to direct the revenues accruing from the coal sector into building productive assets, the development of backward and forward linkages has its own conditions. An initial condition is the 'degree of relatedness' or 'strangeness', which simply means that linkages are more likely to be strengthened if the type of industries needed by the coal sector are related to the country's pre-existing knowledge and technologies. Thus, the strengthening of linkages in and with the coal sector is dependent on the set of accumulated capabilities, including infrastructure, knowledge, and the range of existing industries and institutions. Whereas coal offers a wide range of opportunities to develop both backward and forward linkages, as shown in Figure 5.9, it should first be established whether Mozambique has accumulated the capacity to capture the value of its coal assets by developing linkages. The evidence suggests that capabilities related to infrastructure are still too weak. However, there is still a need for an in-depth analysis of the types of industrial capabilities that have been created over time within the country and how they sway the state of linkages in the coal sector in both upstream and downstream sectors. This is the aim of the chapter that follows.

VI. THE PATH OF MOZAMBIQUE'S INDUSTRIAL BASE

This chapter seeks to answer the question of what Mozambique's existing industrial capabilities are, and how they relate to the features of the upstream and downstream sectors of the coal industry. In so doing, the chapter looks into the history of the country's industrial dynamics so as to understand which industrial capabilities (products, services and institutions) the country has accumulated over the last forty years since its independence. I argue that the country's preexisting knowledge and past technological achievements have influenced the development of linkages. If so, then linkages within and outside the coal sector are more likely to be furthered if there is a knowledge base and a pool of resources that coal companies can tap into. By looking into past technological achievements, we can understand better how problems with linkages were characterized in the past, as well as the extent to which the current state of linkages in the coal-mining sector relates to those earlier problems.

The first part of the chapter traces Mozambique's industrial characteristics back forty years. In so doing it sketches the key issues of industrial dynamics in different moments of the country's history. The second part of the chapter maps out the upstream and downstream sectors of the coal industry to show how it is structured and its key characteristics. In the third part of the chapter, the focus is on the relationship between the country's industrial path and the observed characteristics of the upstream and downstream sectors of the coal industry.

6.1 Industrial conditions prior to the resurgence of the coal sector

The trajectory of Mozambique's political economy comprises three distinct historical periods: the colonization era, the anti-colonial struggle and the period after independence. The latter is the one that matters for the purposes of this section, even though I recognize that events in the two other periods have influenced the stage of industrial development we see in the country today. The post-independence period encompasses two different moments in the country's industrial development, the first being the socialist period, which is characterized by state-led growth strategies, the second the democratic period, which is mostly characterized by market-driven strategies and private-sector development initiatives. I will continue by describing these periods.

6.1.1 The downward spiral of the industrial sector: 1975-1990s

At least until the country's independence in 1975, scholars agree, Mozambique had a sizable industrial sector dominated by food-processing and textiles, which accounted for 50% of total industrial production in 1971 (Torp 1979; Wuyts 1989). There is also a consensus that the country was among the eight most industrialized countries in Africa, with more than 60% of its industrial production being directed to the domestic market and the rest being exported (Torp 1979; Krause and Kaufamann 2011). When it comes to the processing industry, there were some linkage effects in the domestic economy, since about 50% of the raw materials that were fed into the manufacturing sector came from the colony's agricultural sector (ibid.).

There was at that time a relatively diversified industrial base and some heavy industries such as cement, iron and steel (Sutton 2014). Indeed, between 1960 and 1974, besides production for export of, for example, sugar, cashews and cotton, Torp (1979) argues that the production of intermediate goods increased considerably in this period, including petroleum, paint, machinery repairs, fertilizer, motor assembly, and iron and steel rolling. However, he observes, production of this range of goods was dependent on imported raw materials and intermediate products, meaning that Mozambique's heavy-industry base was reliant on other countries for the means to dynamize it between 1960 and 1974.

Among other factors, the stress of the war[15] for independence with which Portugal was faced led it to adopt an 'opening-up policy' that allowed non-Portuguese foreign capital to enter the colony between 1960 and 1974. In the meantime, however, colonial policy did not allow the establishment of industries in Mozambique that could compete with Portuguese industries (Castel-Branco 2002). As a result, Torp (1979) explains, non-Portuguese foreign capital was controlled and directed to specific areas, for example, the international consortium that built the Cahora-Bassa hydro-electric scheme on the Zambezi River, as well as banking and areas that involved the introduction of new technology. Massive investments trebled the industrial sector in just few years, from 1960 to 1971.

In the early 1970s, as pointed out by Castel-Branco (2002), manufacturing output was not very high, mostly due to the crisis Portugal was facing at the time, along with the effects of Frelimo's liberation struggle. He observes that, even though the manufacturing sector's added value had remained stable at 9%, the share of services in GDP had increased to 60%. Services

[15] The liberation struggle in Mozambique ended with the signing of the Lusaka Accord on 7 September 1974 handing power completely over to Frelimo, and formal independence was declared on the 25th of June 1975.

contributed about 64% of total export revenues, with manufacturing representing only 23%. Moreover, the manufacturing sector had remained narrow, with 50% of manufacturing output and 7% of manufacturing exports being due to processed cashew kernels, sugar and molasses, tea and copra. Castel-Branco (ibid.) observes that by the end of the colonial era inter- and intra-sectoral linkages had become weak, and the manufacturing sector generally depended on imported equipment, parts, technical assistance, fuel and other inputs.

The status of Mozambique as one of the eight most industrialized African countries lasted until a few years before independence in 1975. After the war, between 1974 and 1976, Portuguese settlers started to leave: some were forced out, while others, fearing for their lives, decided to leave 'voluntarily' (see Torp 1979; Hanlon and Mosse 2010). These authors go on to observe that many enterprises were abandoned by skilled Portuguese settlers, who, it came to be realized, had deliberately and comprehensively destroyed Mozambican assets, such as machinery, just before they left the country. With many businesses abandoned, poorly educated Mozambicans were left to take control of relatively small enterprises, while the government intervened through the nationalization of large companies that had been left without management.

After independence, and under Frelimo's leadership, Mozambique adopted a socialist regime based on central planning and on the creation of a strong state sector, which came to be considered an arrangement that left too little room for the private sector to flourish. Be that as it may, given the crisis brought about by the Portuguese settlers' economic sabotage, which had gutted the industrial sector, the socialist government 'initiated the formulation of the accelerated industrialization program, which resulted in an increase of the manufacturing output by 25% between 1977 and 1981' (Castel-Branco 2002: 78). The excitement of these achievements may have served has an incentive for Frelimo to formulate and launch the 'Plano Prospectivo Indicativo (PPI) 1980-1990' in 1980, which was a socialist strategy with the goal of ending underdevelopment in just one decade through the implementation of huge state-led projects that would accelerate the development of heavy industry. However, Frelimo's boundless confidence in the PPI did not reanimate the industrial sector, and the economy continued to flounder. Mazula (1995) points out that between 1980 and 1983 exports decreased by about 53%, imports by 7.3%, and external debt rose considerably. Krause and Kaufmann (2011) suggest that between 1980 and 1986 national production decreased by about 30% and exports by 75%. By 1986, observes Castel-Branco (2002),

manufacturing output was 42% of the level achieved in 1981.

The civil war that began two years after independence, together with a multiyear drought in the early 1980s, was disastrous. In the war, economic and social infrastructure such as road networks, factories, schools and hospitals were specifically targeted, with the result that the existing industrial base was destroyed and, in terms of development, the war took Mozambique many years back. While the drought that swept the country in that period crippled food production, Wuyts (1989) observes that the war made it difficult to transport food within the country. As a result, the economy did not find its way back up, socialist strategy or no, and economic growth came to a halt. According to Cruz et al. (2016), in the mid-1980s Mozambique reached its lowest level of GDP since the 1960s, and the decline in per capita incomes was sharp.

In an attempt to deal with the structural problems in the economy, which were mostly caused by the war and failed state policies, in 1987 the Frelimo government – by then under International Monetary Fund (IMF) and World Bank (WB) tutelage – came up with the Economic Recovery Program (ERP), and later, in 1990, with the Economic and Social Recovery Program (ESRP). Wuyts (1989) observes that, by the time these plans were formulated, the country was already dependent on donor grants, and IMF and WB conditionality played an important role in the formulation of these programs and had considerable influence on its content. The push to shift resource allocation back in favor of private enterprise and the peasantry, and in favor of liberalization and privatization, became the main features of these plans and those after them.

The belief now was that, by shifting resources back to private farmers, the latter would foster rehabilitation of the country's productive bases. Simultaneously, the expectation that liberalization and privatization would pave the way for the private sector to flourish was based on an assumption that the state had undermined the private sector. However, during the ERP about 33% of the state budget had been allocated to the defense and security sector, with little attention being paid to the social sector. The ESRP was meant to rectify this imbalance and improve conditions in the social sector, but there was no sign of any improvement. By then defense was consuming about 40% of the state budget due to the war economy that characterized that period. As observed by Castel-Branco (2002), the manufacturing sector in Mozambique, at least between 1980 and 1990, was dependent on the export of a few products such as shrimps and lobsters, which accounted for 50% of exports. By 1999, he goes on to

observe, manufactured exports were dominated by oil derivatives, sugar, cotton fiber and copra.

In addition, under the economic reforms of the late 1980s, the government was pushed to privatize most of the state's assets (state-owned enterprises). In doing so, larger and more viable firms were sold to foreign investors and smaller and more obsolete firms (approximately 80% of the total) were sold, at low cost, to emerging Mozambican entrepreneurs who came largely from a group of managers of state-owned companies, veterans of the liberation struggle and traders (Pitcher 2003; Castel-Branco 2015). But giving loans to officials and newly emergent businesspeople with little or no experience in the world of business came at a cost: 'more than 40% of the firms went bankrupt within five years of privatization, more than half of the remaining were traded for cash or shares or transformed into warehouses, and the state could not raise the expected revenue from massive selling of its property' (Castel-Branco 2015: 29).

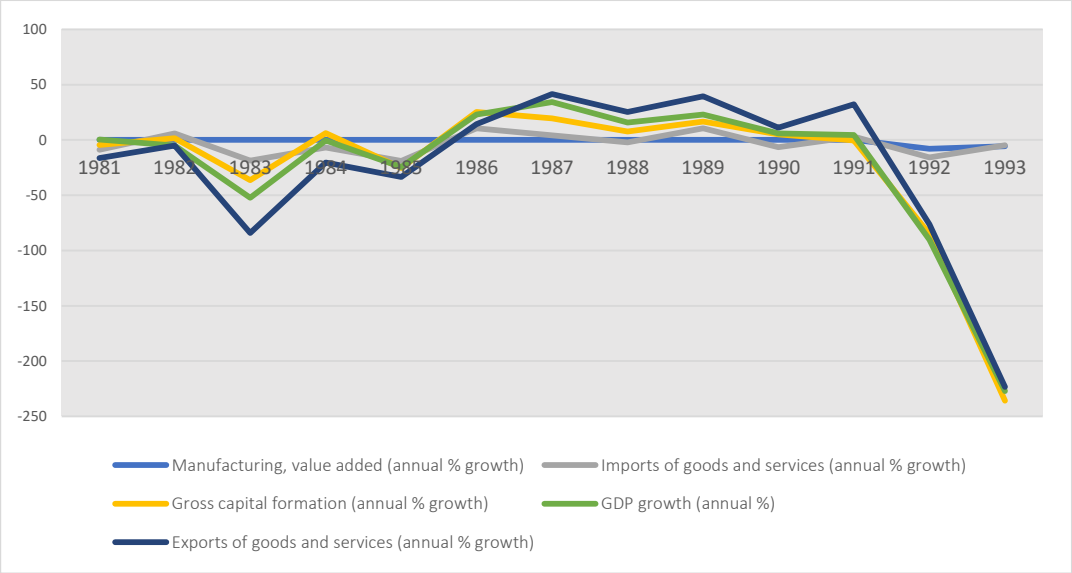
Alongside the gloomy privatization process, the measures of liberalization did not go according to plan either. A classic example is the cashew industry, as described by Krause and Kaufmann (2011). In the 1970s Mozambique was the largest cashew producer in the world, with a 40% share of global raw cashew-nut production. Under the structural adjustment programs (ERP and ESRP), the government was pushed to remove protection from the cashew industry, thus leaving its future to the vagaries of the market. By 2006, production was 33% of the 1973 level. Moreover, the volume of raw cashew nuts processed domestically dropped sharply, and by 2011 the country was processing only 10% of the volume it processed in 1973.

The metals and engineering sectors suffered a similar fate. Sutton (2014) observes that the Companhia Siderúrgica de Moçambique, a road-milling company, and the Companhia Moçambicana de Trefiloria, a drawn-wire producer, had been nationalized after independence and reprivatized in the 1990s. All attempts to turn these two companies around failed, and many years later, in 2007, they were acquired by a South African steel company. In the chemicals and plastics sector, some important nationalized companies, such as Mabor (manufacturer of rubber tires), went bankrupt and exited the industry.

All previous attempts at reindustrialization, including socialist strategies, liberalization and privatization, had just made things worse. The economy was shattered, and people with the skills and business experience needed for it to pick itself up were all but lacking. Annual

growth slowed in all key economic indicators related but not limited to the industrial sector, and there was a sharp decline in exports, gross capital formation and GDP growth (see figure below).

Figure 6.1. Trends in Mozambique's key economic indicators 1981-93.



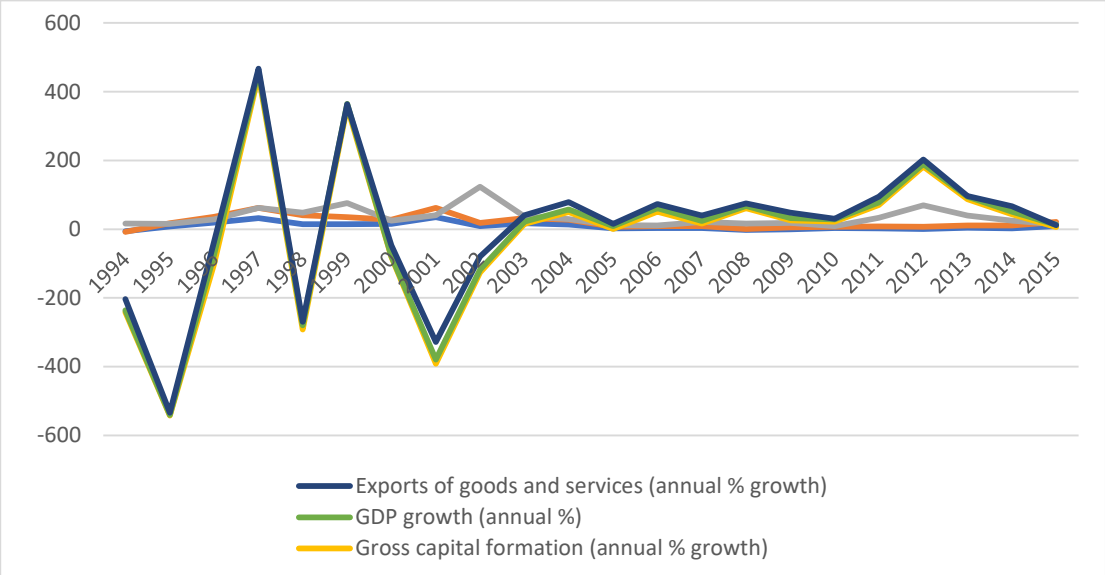
Source: data from World Development Indicators.

Under the circumstances portrayed in the figure above, discussions about linkages in the normal sense of the word find no ground; there were few or no industries for firms to be linked to. Even in the agricultural sector, which was already a relatively established activity, most of its inputs, such as machinery and tools, were imported from elsewhere.

6.1.2 The revival of the industrial sector and the emergence of opportunities for linkages

Amid this bleak picture, after the peace agreement that ended the civil war in 1992 and the first multiparty elections in 1994, Mozambique began registering such high levels of economic growth that, at least until recently, it became the fastest-growing non-oil economy in sub-Saharan Africa, with an average real GDP growth of 7.1%. Industrial production grew considerably over this period, with a positive effect on the overall economy, as illustrated in the figure below, 6.2.

Figure 6.2. Trends in Mozambique's key economic indicators 1994-2015.



Source: data from World Development Indicators.

The figure above shows that since 1996 improvements have been registered, but it was only after 2002 that the country's economy registered a positive and more or less consistent annual growth in key indicators such as GDP and exports, with a tendency to stabilize over time. As of 2012 exports began falling, meaning that production fell along with it, as did government revenues accruing from exports, with effects on GDP growth, which also declined in the period under consideration (see Figure 6.2). It should be noted that 2012 was the year when the political tensions that later led to armed conflicts came to the fore. Alongside a steep drop in the prices of commodities, these conflicts took place in parallel with a fresh economic crisis that resulted in the suspension of all loans by Mozambique's international partners in 2016. The latter's reason for the suspension was that the government had breached their trust by secretly taking out $2 billion in loans from Russian state-owned lender VTB and Swiss bank Credit Suisse (see Macuane et al. 2017, 2018).

Back in the 1980s and early 1990s, as already pointed out, it is impossible to talk about linkages in a landscape where there was nothing to link to. This dissertation agrees with Krause and Kaufmann that the concept of linkages came to be popularized, although misinterpreted, in the late 1990s when the first big investment project (Mozal) came on stream, bringing with it the first linkage program, which soon became a key reference both within and outside the country. Mozal, according to Buur and Monjane (2017), is an

aluminum smelter with an investment of $2.4 billion in a joint venture involving the Australian-based BHP Billiton Ltd, the Industrial Development Corporation of South Africa Ltd, the Japanese Mitsubishi Corporation and the government of Mozambique (the latter with less than 4%). Buur and Monjane (ibid.) observe that, until recently, Mozal was the single biggest FDI investor in Mozambique and was used as an 'ideal model' to show investors that investments in risky destinations such as post-conflict Mozambique were possible, as well as being a 'best practice' example of the promotion of linkages between FDI mega-investments and SMEs and local content development.

Mozal, which has been called 'one of the largest and most efficient smelters in the world and a technical benchmark for many smelters in the industrialized world' (IFC 2007: 10), was constructed in two phases: 1998-2000 and 2001-2003. Mozal's operations would entail millions of dollars of procurement, which in turn was meant to provide many opportunities for local firms. However, at the outset these opportunities could not be taken up by local firms because they were beset by too many problems. '99% of these firms had serious problems with product quality, 95% lacked experience and had very low profiles, 99% operated with old and outdated equipment, 90% lacked capacity and suffered serious management problems and 85% of these firms had a very low business attitude' (Castel-Branco and Goldin 2003: 24).

Aware of these shortcomings, Mozal, along with the International Financial Corporation (IFC), came up with a Small and Medium Enterprises Empowerment and Linkages Program (SMEELP), designed to ensure that Mozambique's small companies could participate in the Mozal value chain. The program was aimed at training local SMEs so that they could bid for tenders and meet the standards required by the project. Many local firms benefited from the SMEELP, and its relative success in supporting local firms during the construction phase encouraged the establishment of a similar development program to support local firms during the operational phase of the smelter. This was known as Mozlink I, a program conceived in 2003 with the aim of developing SMEs' capacity so that they could qualify as suppliers of goods and services to Mozal.

The relative success of the two programs (SMEELP and Mozlink I) encouraged other big companies such as Sasol, Cervejas de Moçambique and Coca-Cola, along with Mozal, to draw up a linkages program that came to be called Mozlink II. This program was intended to 'create market opportunities for local SMEs by capitalizing on the high-capital, long-term

industrial projects, [including] in sectors such as mining, natural gas, and others and have annual procurement needs in millions of dollars' (IFC 2007: 11).

Mozal (aluminum), along with Sasol (gas) and Kenmare (heavy sand), constituted the first generation of mega-projects. It was hoped that these investments would transform the general business landscape of the country, thus paving the way for a second generation of investments (such as coal) to become better integrated with the local economy. Thus the linkage development programs were not just focused on developing local firms' capacity to participate in the Mozal supply chain, they were also designed to capacitate them to a level where they would be able to take up the opportunities offered by other big projects, including those in the coal-mining sector.

While Sutton (2014) credits these linkage development programs with helping to establish a number of local firms, in turn creating employment for 1,190 people directly and a further 3,500 indirectly, Krause and Kaufmann (2011) contend that these programs had a limited effect in number, scope and structure, as there was no contribution to the development of an industrial cluster of innovative firms. Castel-Branco and Goldin (2003) had earlier found that these programs did not solve the root problem that affected the development of local companies, which was that a small number of specialized international companies ended up dominating the market, thus limiting the market opportunities for local SMEs. Moreover, attempts to strengthen local supply chains implied that the focus was all on developing backward linkages at the expense of forward linkages.

Even though Mozal had created more than two hundred suppliers of inputs to its operations in metallurgical services, transportation, auto-mechanical and electrical products and services, construction, security, cleaning, catering and laundry (see Buur and Monjane, 2017), the majority of such enterprises were linked in one way or another to South African companies related to the South African aluminium establishment in Richards Bay and elsewhere (Castel-Branco and Goldin 2003:6). Moreover, the adopted linkage model had very few spillover effects for the Mozambican economy more generally or domestic firms in particular. It is nonetheless undeniable that Mozal paved the way for some infrastructure to develop in the energy and transport sectors, in addition to the creation of around 1,100 jobs, even if linkages with the local economy as I define them in this work were rather limited. Mozal worked with suppliers in a broad spectrum of services, but most domestic firms supplied it with services (such as security, cleaning and transport), which offered less attractive avenues for spillovers

to take place.

Years after the linkage program had been implemented, the private sector more generally continued to face similar challenges as before, and the opportunities created by big projects continued to be hard for domestic firms to tap into. As Muanza (2012) observed, Mozambican firms were still far from benefiting from the opportunities created by FDI in mining and elsewhere in the economy. He argues that the private sector was operating in an economy characterized by a large informal sector, weak physical infrastructure and low levels of human capital. In his view, these shortcomings have made it difficult for local SMEs to maximize the opportunities offered by technologically advanced operations. In the same vein, Mandlate's (2014) argued that local firms were still struggling to meet the standards required by the large FDI projects such that to perform even the simplest linkages, such as cleaning, gardening, transportation and security, companies needed the support of local enterprise-development programs.

6.1.3 The industrial sector in the aftermath of a linkage development program

Both the government and the private sector recognize the problems and challenges that local firms face, and there have been a number of attempts to address them, including setting up dialogue platforms for stakeholders. Thus, in 2013 the Confederation of Business Associations of Mozambique (CTA) hosted a meeting with different stakeholders (government, mining companies, commercial banks, small business-owners and civil-society representatives) to ask how the mining industry could benefit national SMEs as the centerpiece.

Diligently, in 2013 and 2015, a policy-oriented study was commissioned in partnership with the CTA with the aim of analyzing the status of Mozambique's regulations related to local content (see Kaplan 2013). The results of the study did not go beyond the obvious: that there was no specific and coherent legal framework for local content in Mozambique. The recommendation that followed was that the country should have a specific law on local content. On 17 September 2015 the CTA organized the first international conference on national content, at which it aimed to disseminate, improve and harmonize the national understanding of local content. There were also discussions on how Mozambique's trade policy could support industrial development (see Monjane 2017).

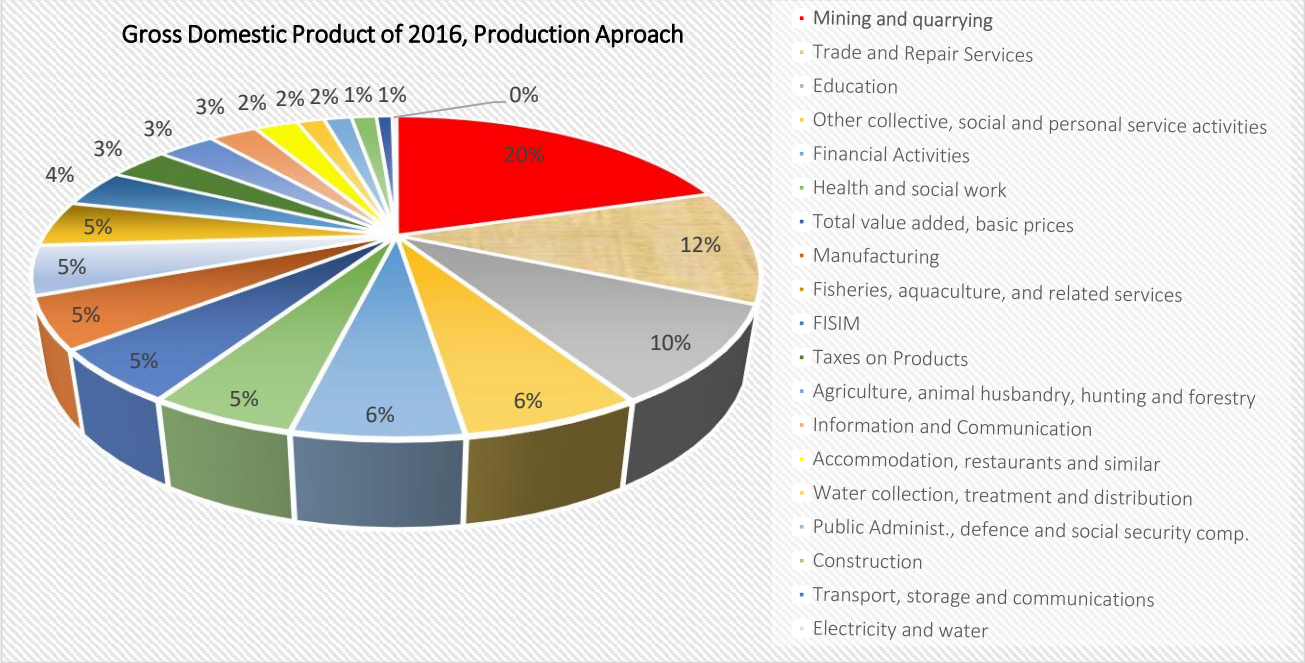
Despite all this movement towards the development of domestic enterprises, the reality is that it has produced minimal results. Data collected in the Ministry of Industry and Commerce (MIC) shows that by 2014 the industrial sector had 8722 companies, nine of which were big projects, but its production accounted for 74% of total exports. This data resembles that of a 2012 survey of manufacturing firms in Mozambique, which found that only 22 (3%) of the 761 companies sampled were exporters, with larger firms having a greater likelihood of exporting than smaller companies. If these findings are correct, and given that the majority of Mozambican manufacturing firms are quite small (with less than ten employees), it means that exports are driven by foreign-owned companies, who mostly export raw materials.

The 2012 survey of manufacturing firms just mentioned also showed that Mozambican firms produce relatively homogeneous products using outdated technologies and sell them mostly to private individuals in the same locality where the firms are based. In addition, the manufacturing sector is small and concentrated in just a few sectors in which raw materials and intermediate goods are imported, thus generating limited sectoral linkages with the local economy.

Castel-Branco et al. (2015) observe that the biggest projects in Mozambique are primarily concentrated on mineral, energy and forestry products, which in turn narrows the country's productive base. In just under a decade (2005-2013) five sectors registered higher growth rates than the GDP, namely the extractive industry (21%), transport and communications (12%), financial services (10%), agriculture (8%) and construction (8%). Taken together these sectors accounted for 70% of the annual growth rate in GDP during the period under consideration.

This is further evidence that the industrial sector is led by only a few big projects, which themselves have an undiversified industrial production profile, as the three figures below all illustrate. Thus Figure 6.3 shows that in 2016 the extractive industry had an overwhelming share of GDP, with trade and services accounting for 12% and manufacturing and agriculture 5% and 3% respectively. It must be said that the types of services provided by domestic firms are not industrial services and that trade is mostly based on imports and resale.

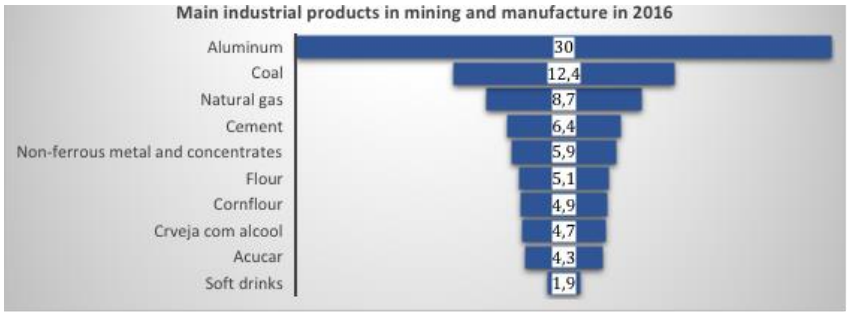
Figure 6.3. Gross Domestic Product in 2016: production approach.



Source: Mozambique Central Bank.

Industrial production, then, is limited to a small number of commodities. Figure 6.4 shows how the three major commodities produced come from the primary sector. Drawing on data collected at MIC (the Ministry of Industry and Trade), it is observed that the most striking features of the industrial sector are that about 80% of the workforce is unqualified and that production is dominated by one commodity: aluminum. Thirdly, the national industrial park was and continues to be overwhelmingly constituted by small-medium enterprises, which account for 90.12% of the total number of companies. Despite this ample proportion of SMEs within the industrial sector, their shares in production and exports are negligible.

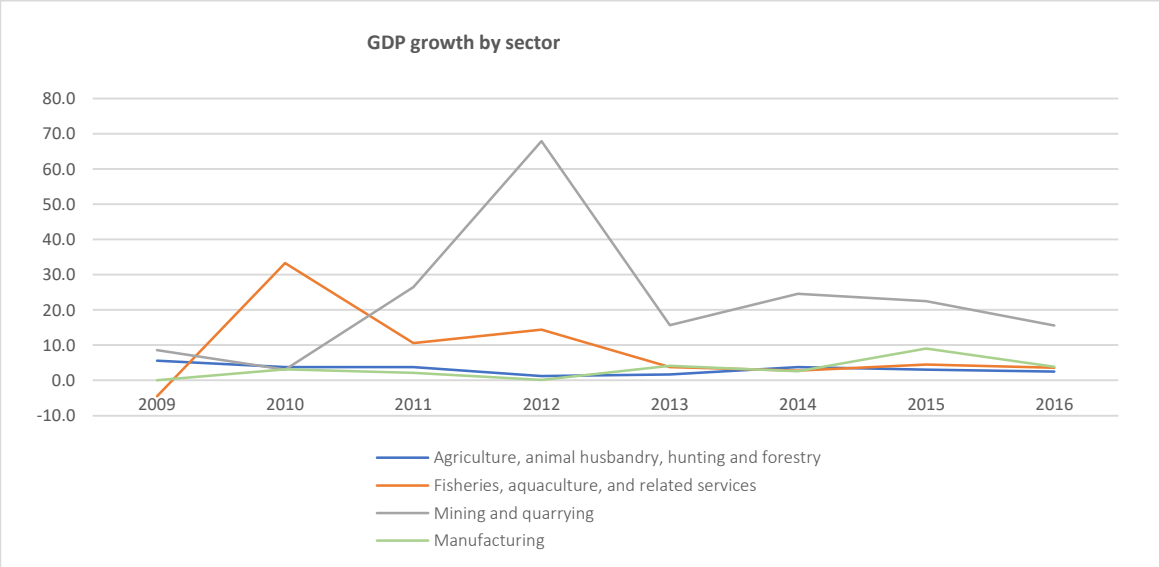
Figure 6.4. Main industrial products in mining and manufacture in 2016.



Source: National Statistical Institute.

The increasing role of the extractive industry in the country's economy is likely to lead to a process of deindustrialization, given the tendency of the commodities sector to leave other sectors worse off. One strand within the resource curse literature (e.g. Ross 1999; Collier 2003) suggests that, as natural resources grow in importance for a country, less attention is likely to be paid to other sectors of the economy. A closer look at Mozambique's growth in GDP over the last eight years (see Figure 6.5) shows that the contribution of the extractive industry has grown considerably relative to other sectors. Growth in the share of mining in GDP tends to be an inverse function of the manufacturing and agriculture sectors, although after 2012 the contributions of all sectors to GDP plummeted amid the political and economic turmoil (see figure below).

Figure 6.5. GDP growth by sector, 2009-2016.



Source: Mozambique Central Bank.

One tentative explanation for the growth in the contribution of mining to GDP, apparently at the expense of manufacturing and agriculture, is the lack of linkages. In theory, the right type of linkage tends to diversify the economy and develop the manufacturing sector, particularly in downstream sectors. However, there is a tendency for the country to narrow the range of its industrial base and to rely more heavily on fewer commodities, particularly those in the extractive sector. In fact, in the 2017 survey of manufacturing firms, which sought to cover the same companies as the survey of 2012, the findings suggest that, of 831 firms interviewed in 2012, 523 are still in operation but 216 had closed in the period between the two surveys (2012-2017). It is estimated that 4,376 jobs have been lost in the firms that closed, adding to

the loss of 5,100 jobs between 2012 and 2017 as a result of the decline in the average size of the firms in operation.

Earlier I argued that mapping out the overall structure of the industrial sector is an important part of understanding the background and environment specific to this sector. This was part of my larger argument that the more closely related a country's accumulated capabilities are to those required to establish backward and forward linkages with the new export sector, the more quickly and easily linkages may be furthered. If so, how the upstream and downstream sectors of the coal sector fit against the background of the country's industrial sector that has been described so far?

6. 2 The landscape of the upstream and downstream sectors of the coal industry

6.2.1 Features of the supply (upstream) sector

To describe the distinctive features of the upstream sector (supply sector) of the coal industry, I rely on the 56 structured interviews I conducted in Tete with suppliers to coal companies at different stages of the research (2016 and 2018). In total, 36 of the firms I interviewed were foreign and twenty local, each of them having their own particular mode of operating. In analyzing the supply sector I focus on five dimensions, namely the nature of the suppliers, the extent of their vulnerability to coal companies, job creation, technological upgrades and the degree of cooperation between suppliers. These dimensions, which relate to the performance of firms in the supply sector of the coal industry, are summarized in the table below and developed thereafter.

Table 6. 1 Key characteristics of the upstream sector of the coal industry in Mozambique.

	Foreign firms	Local firms	Observations
Nature of suppliers	Supply coal mining mostly with capital goods (mostly machinery) and consumables (drilling steel, spare parts, grinding media, resins, foam insulation materials, petrifying substances, chemicals and other specific exploitation materials).	Supply mostly with services (gardening, office supplies, hoteling, construction work, security, insurance and other services) and some consumables supplied by state-owned companies (electricity and fuel).	Foreign firms are also competing in the supply of general services such as catering, transport, hoteling and so forth. Besides services, local firms have supplied coal companies with imported consumables such as food products, office supplies and so forth.
Extent of suppliers' vulnerabilities to coal companies	Sales highly dependent on coal companies. On average, 70-100% of their sale revenue comes from their contracts with coal companies. Firms owe their presence in Tete to coal mining and have an undiversified pool of clients.	So far there is a heavy reliance on coal companies as suppliers, but there is also a tendency for these firms to move back to their traditional clients or others instead of relying solely on the coal companies themselves.	The coal bust of about four years that started in 2011 put suppliers under strain, as it resulted in many companies closing down or exiting the supply sector to coal companies, as the latter held out for fewer mining inputs (e.g.Vale) or interrupted their operations until the coal price revived (e.g. Jindal and ICVL)
Job creation	The proportion of national employees is above 70%, but in absolute terms the number of employees is not quite significant, as most of the firms are small branches/offices of multinational corporations and/or represent a particular brand locally.	Employs close to 100% of Mozambicans. The number of jobs created are higher, especially for low-skilled workers, in sectors like hotels, security, cleaning and construction, than it is in other type of services provided to coal companies.	———
Technological upgrade	Firms in the maintenance (diagnosis and repairing or assembling) work with high technology, and consumables they supply follow coal companies' specifications or needs.	Most firms are in services, and upgrades are more functional in type than technological. Firms tend to improve their service delivery as a way of maintaining their contracts with the coal companies, since a considerable portion of their revenue stems from that one source.	The Brazilian (Vale) and Indians (ICVL and Jindal) have different stringent requirements. Local firms tend to gravitate towards either higher or lower standards depending on the client's requirements.
Cooperation between suppliers	No collaborative measures or plans exist. Firms are focused on their own strategies without local firms being involved. High tendency for foreign suppliers to attract workers from local firms, as the former tend to pay better salaries than the locals do.	In the provision of some services such as mechanical work, local firms are subcontracted by their foreign counterparts. Local firms often lose their workers to the foreign firms.	———

Source: elaborated by the author based on fieldwork data.

6.2.1.1 The nature of coal suppliers

In Tete, suppliers to coal companies are both nationals and foreigners, but the latter take by far the major share of the supplied goods and services. Among the 56 supplier firms I interviewed, 36 were foreign-owned, mostly supplying coal-mining companies with capital goods (machinery, plant and other equipment) and consumables (drilling steel, spare parts, grinding media, chemicals and so on). This, it emerged in the interviews, is precisely the product group that national firms are unable to deliver effectively. National firms supply coal companies mostly with services such as security, logistics, accommodation, insurance, catering and other low value-added activities. The only consumables local enterprises are able to deliver in Tete are food and office supplies, but most if not all are also imported. Other categories of consumables that are supplied by domestic enterprises include electricity and fuel, which are supplied by two state-owned enterprises, Electricidade de Moçambique (EDM) and Petromoc. EDM has a monopoly on transmitting and distributing electricity within the country, while Petromoc is a distributor of petroleum products (petrol, diesel, kerosene, aviation fuel, lubricating oils, etc.) both within and outside the country (i.e. also in Malawi, Zambia, Zimbabwe and the Democratic Republic of Congo).

Among the national firms is one called Metalúrgica de Tete, which has been supplying Vale with metal structures. It is not the only one of its type in the province, but it has been able to compete successfully with foreign firms that provide similar services. It has been operating in Tete for some time and appears to have accumulated extensive knowledge related to the properties of metals. Similarly, Hotel Moatize, a resort owned by Mozambicans from Tete that provides accommodation, has also been successful in forming formal relationships and contracts with coal companies and their subcontractors, especially Vale, although it has only been operating for four years. However, these two businesses are exceptions, as to a large extent foreign firms supply even the kinds of services one might expect from local firms, such as transport, insurance, logistics and couriers.

6.2.1.2 The extent of suppliers' vulnerabilities to coal companies

Most of the supplier firms I interviewed, both national and foreign, started operating in Tete during and after Vale's exploration phase with the purpose of taking up the opportunities offered by Vale and later by Rio Tinto (now ICVL). Only a quite limited number of firms with the potential to supply the coal mines were operating in the country before the boom in

coal. Most of the firms operating in Tete owe their presence there to the huge investments in coal through which they expected to enter the coal production value chain. Not surprisingly, measured by their volumes of sales, most of the suppliers operating in Tete are to some extent dependent on the coal companies (currently in the exploitation phase), given that 70-100% of their sales revenues comes from that one source. In other words, because of their limited and homogenous pool of clients, both foreign and national suppliers based in Tete are vulnerable to, for example, global fluctuations in coal prices. As described in the previous chapter, the downward trend between 2012 and 2016 had devastating effects on business in Tete, especially in 2016, when the business environment in this part of the country reached its nadir. By 2016, ICVL and Jindal had interrupted their mining operations, and Vale had reduced its demand for goods and services. As a result, most of the local firms fell on extremely hard times, and a number of foreign suppliers based in Tete moved out.

For example, most of the hotels, whose installation in Tete was highly motivated by the coal boom, started to face problems after Vale's exploration phase. The demand for accommodation dried up, as Vale ended up building its own accommodation facilities for the majority of its workers. The sharp decrease decimated the once-busy hospitality sector. The manager of one of the three hotels from the sample list of firms said that it was only able to keep operating because its head office in Maputo was financing the losses.

The majority of the supply firms surveyed acknowledged how dependent they were on coal companies and their contracts with them. On that basis, some of the interlocutors said they were starting to diversify their clients, with a few reaching out to other big projects or companies outside the coal sector, such as Mozambique Leaf Tobacco, HCB, Petromoc, Siemens and RNC. However, coal companies and their subcontractors were still their most important clients.

Besides the coal price, another drag on the business environment was the low-intensity civil war being waged by Renamo between 2013 and 2016. Part of the fieldwork for this dissertation was conducted in Tete during that period, and military tensions between the government and Renamo were peaking in 2015 and 2016. Coal companies had suspended exports from Tete when Renamo threatened to sabotage the Sena railway, the only line at the time that could move coal from the pithead to the export hub in the port of Beira. In addition, military attacks on the Estrada Nacional (national road), which is the backbone of the country, as it is the only road that links all Mozambique's provinces from south to north, stopped trucks

bringing goods from the capital Maputo in the south to Tete and other regions further north. These military hostilities not only slowed the pace of coal production and exports, they also meant that firms in Tete were struggling to obtain what they needed for daily operations. As some of my interviewees from local firms operating in Tete mentioned (interview ref. SF-L), military hostilities also undermined their attempts to diversify their pool of clients, as potential clients (tourists, investors, etc.) had started to flee Tete for safety reasons, shrinking the already small market for their goods and services even further.

6.2.1.3 Job creation

Drawing on fieldwork data, it can be observed that business ventures stimulated by coal extraction in Tete have been able to create new temporary and permanent jobs, even though there are no accurate data available on the exact number of jobs created by supplier firms since the coal sector started to be explored and exploited. The number of jobs I have been able to identify as 'created' depends greatly on the type of goods and services firms supply to coal companies. The hotel, transport, security and maintenance (formwork and scaffold construction) sectors have offered more job opportunities, especially to the low-skilled, generally not less than fifty workers. However, it should be noted that in many of the firms operating in the aforementioned sectors, a considerable number of workers were 'temporary employees' whose jobs depended greatly upon the demand for the goods and services offered by their employers.

By the time interviews were conducted in 2016, complaints about job losses by interviewees from local firms were frequent, while those who held permanent jobs were afraid of losing them, as the coal companies were terminating a number of supply contracts. For example, the interviewee from ICVL (interview ref. CC-3) mentioned having terminated a contract with a plant process operator company and managed to do the work itself. Fewer chemicals and other products necessary for processing the mineral were needed at this time, as no operations were taking place. Thus, as coal companies tightened their belts, their supplier firms also had to introduce cost-reduction strategies. The exact number of jobs lost is unknown but is believed to be massive.

As for firms supplying coal companies with capital goods (machinery, plant and other equipment) and consumables (drilling steel, spare parts, grinding media, chemicals), the number of local workers in the firms I interviewed did not reach ten. This is not surprising,

as these firms overwhelmingly represent international brands. It was observed in the field that these firms have small satellite offices or branch in Tete to facilitate their contact with coal companies and to import machinery and spares for the coal companies strictly on demand. From this observation it was also realized that most of the staff of these offices are in administration and sales, sometimes with a foreign specialist who is usually the office manager. Among the national and foreign suppliers operating in Tete the percentage of Mozambican workers is relatively high, ranging from 75% to 100%.

6.2.1.4 Technological upgrade

Suppliers operate at different levels of the coal value chain, and the standards required to maintain this position differ accordingly. However, they depend not just on the type of goods and services provided, but also on the client. From the suppliers' point of view, especially domestic suppliers, the standards required are high, especially to supply Vale. This differentiation is important, as some suppliers explained that, while the standards required by, for example, Jindal were lower than Vale's, which increased their chances of entering the Jindal value chain, they nonetheless preferred to work with Vale because Jindal both delayed more on payments and paid less for the goods and services provided. Some of the suppliers see this company as an unreliable client to supply.

Regardless of suppliers' views on Jindal's payment practices, two observations from the field are worth noting, particularly in respect to domestic firms. The first is that suppliers in Tete tend to gravitate towards either higher or lower standards depending on their client's requirements. Secondly, given that maintaining high standards is costly, some domestic firms have opted to downgrade their processes, products and services as a way of reducing their operational costs and the final price so as to capture new clients or maintain their traditional ones, whose standards are lower than those required by coal companies. For example, some firms gave up supplying Vale because its requirements were seen as being too stringent, and they felt that maintaining their smaller and traditional clients was more rewarding.

However, other suppliers had found it generally beneficial to supply coal companies. Below are a few excerpts from interviews:

> Yes, mining companies are too pushy in terms of safety regulations, and we have to comply with their strictness, otherwise another company can take over. It helps us with improving our services (Security company manager, domestic firm, December 2016).

> There have been changes in efficiency. When these companies come up with concerns, they want prompt solutions. There has been too much pressure, but it has been positive for us. If we do not deliver as expected, we run the risk of losing our contract with them, and that would be very bad for the company whose sales are dependent on them (Manager of an insurance company, domestic firm, November 2016).
>
> We had to upgrade our equipment in order to meet the standards of the mining companies and, because of that, we have been able to get big new customers and take over additional activities within the same company. (Maintenance and plant equipment supplier, foreign firm, December 2016).

From the excerpts above, it appears that suppliers recognize the need to improve their managerial or technical processes constantly in order to keep up with the standards required in the coal industry, but foreign and domestic firms do it for different reasons. The latter have an incentive to improve their services and possibly upgrade them as a way of maintaining their contracts with the coal companies, since a considerable portion of their revenue stems from that one source. Foreign firms, on the other hand, find that meeting the standards coal companies require allows them to maintain their links with their purchasers and to reach out for further opportunities by tapping into new activities, both within and outside the coal value chain.

However, the pressure on suppliers to upgrade is experienced differently by foreign and domestic firms. First, it depends on what kind of technological and managerial upgrade is required. Secondly, it depends on the financial and organizational capacity the upgrade requires. Unlike foreign suppliers, which are mostly already wealthy firms with extensive experience in the supply of goods and services to mining projects across the world (mostly South African firms), domestic firms struggle to upgrade to higher standards or even to keep up with their current levels, as they simply do not have the finances. Upgrades that go beyond a certain level of investment are often out of their reach, as they seldom qualify for bank loans, or when they do the cost of the capital makes the loan prohibitive. This point is developed further in Chapter 7.

6.2.1.5 Cooperation between suppliers

Another point of consideration is the possibility of knowledge transfer between suppliers, especially from foreign suppliers to local ones. While some of the literature points out how

local firms may benefit from the presence of foreign suppliers through collaboration and partnership (see Liu 2008 and Mariotti et al. 2013), all firms interviewed in Tete mentioned that such collaboration did not exist. This is not surprising, as one would not expect foreign suppliers to support the development of domestic firms that would then compete with them.

What is observed is the subcontracting linkages, as a number of national firms in Tete do not supply mining companies directly but are subcontracted to do so by foreign suppliers. While this should not be contentious, as the subcontracting process could serve as an attractive avenue for local firms to absorb knowledge and technology and, over time, themselves become direct suppliers, in the sector supplying the coal industry things go the other way around. Some firms started off as direct suppliers to coal companies but were unable to secure their contracts, possibly due to the struggles over standards mentioned above.

One example of this last point is transport services, where local firms were given the opportunity to supply Vale. According to my interview with a Vale informant (interview ref. CC-1), most of the vehicles started having problems, as their maintenance was lacking and the standards required by Vale could not be kept, alongside the firms' inability to comply with safety regulations. As time and tide wait for no man, a well-established South African firm (Unitrans) took over from the national firm to supply transport services, including transporting workers to and from the mines. In a similar vein, in October 2017 Vale awarded a $445 million contract to the subsidiary of a Portuguese company (Mota-Engil Africa) for the supply of engineering services, including the transport of both coal and waste materials from its Moatize mines in Tete Province.

So, whereas one view has been that the presence of foreign firms in the supply sector benefits domestic firms, even though it may reduce their short-term productivity levels, since it can raise their long-term productivity rates (see Liu 2008; Marrioti et al. 2013), in Tete it is likely that the presence of foreign firms will drive local firms out of existence, at least as direct suppliers, even in supplying the most basic services. Besides their extensive experience in the supply of goods and services to the mining sector, foreign firms, most of them representing specific brands, are more resilient to market adversities; their Tete operations are small branches of multinational corporations whose strategies are based on long-term profitability.

Moreover, domestic firms have not been able to retain skilled workers compared to foreign firms. This emerged during interviews with employees in some of the foreign suppliers, who found the latter more attractive, as they pay better salaries, provide stable jobs and offer

training. This means that foreign suppliers have been able to attract workers from domestic firms and not the other way around. Thus, whereas hiring trained workers from their foreign competitors might have provided leverage to local firms to upgrade their knowledge, this is less likely to happen due to 'the growing level of informality local firms tend to operate under' (CPI representative in Tete, interview note, November 2016). The latter prevents local firms from retaining skilled workers, as informality offers neither job security nor career development opportunities.

These results resonate with those from the 2012 and 2017 surveys of Mozambican manufacturing firms, reflecting a tendency for the number of workers to fall between 2006-2011 and 2012-2017 except in foreign-owned companies. Generally, therefore, foreign-owned firms saw employment growth when compared to national firms. However, differences exist across sectors: a tentative explanation in the survey has been that sectors facing weak competition from imports have done well (bakeries and grain mills), while sectors with stiff competition from imports (apparel, metals and machinery) have been pushed to reduce their operations and/or produce more efficiently with less labor-intensive methods.

Whereas the aim in this section has not been to look specifically at employment growth, as no baseline data had been previously collected for comparative purposes, findings from the aforementioned survey support the picture that emerged in my interviews with suppliers in Tete. Given that there is a tendency for new foreign firms to emerge in the coal supply sector, particularly in those areas where domestic firms have shown inadequacies, and that labor migrates from domestic firms to foreign ones, a statistical relationship between foreign ownership and employment growth in the supply sector to coal mining is likely to be found, but at this point only an association between the two can be claimed.

6.2.2 Features of the downstream sector

The downstream sector, which entails the use of coal as inputs to other industries, is one to which less attention has been paid historically, despite the great potential it offers to power up existing local industries such as the production of steel, fertilizers, cement and even the sugar sector, where coal can be provided for the boilers, as it was the case back in the 1970s, when coal from Moatize was supplied to Sena Sugar States. The latter 'consisted of two agro-

industrial sugar complexes in Mozambique, at Luabo and Marromeu, on the banks of the Zambezi' (Torp 1979: 46).

While Vale exports its high-grade coking coal to China, Japan and India, ICVL exports to India. The CEO of ICVL (interview ref. CC-3) said that the company is willing to supply its coal locally, which would subtract the transport costs from their total costs of production. However, the company also believes that the local manufacturing sector is so small that it has no choice but to export its coking coal for steel production in India, although some of its thermal coal is stockpiled. From time to time, one company buys coal from ICVL to produce fertilizers, while another purchases thermal coal to supply neighboring countries such as Malawi, according to this interviewee.

Despite the limited use of coal locally to date, some initiatives have been launched to use the coal extracted in Tete to generate power in the near future. For example, there is a $1 billion project which involves Vale and the Saudi Arabian power company ACWA building a 300-MW power plant, 80% of which will be used in Vale's coal mine (Baxter 2016). ICVL has issued a tender for a company to build and operate a 200-MW coal-fired power plant at its mine in Tete, but the future of this bid is uncertain, as Electricidade de Moçambique (EDM) cannot guarantee that it will be able to purchase the power output. In the same vein, two other coal-mining companies, Jindal and Ncondezi, are planning to build coal-fired power plants at their mines. While Jindal aims to sign an agreement with EDM to buy about 150 MW (the *Mozambique Resources Post*, 2016), Ncondezi, in partnership with Shanghai Electric Corp., plans to build a 300-MW plant and is expected to expand it to 1800 MW with an eye to the regional market (Odendaal 2017). The feasibility study and all other requirements are said to have been completed, and an agreement has already been reached with EDM. Importantly, none of these projects has materialized to date.

Beside these future plans to generate power, so far much of the coal extracted in Tete has gone for export. However, there are prospects for using coal internally to supply domestic industries, especially since the government approved the special economic zone at Rovubue. In the latter, which has an extensive area linking Moatize and Chiuta, is a project for the construction of a factory to produce and smelt iron and steel. It is expected that the factory will source raw materials from both Chiuta (iron ore)[16] and Moatize (coal). However, these

[16] A 666 million Euro project has been launched to extract iron ore in the districts of Chiuta and Moatize in an area of about twenty thousand hectares. It is expected to start in 2019 and projected to extract 750 million tons of iron within 25 years.

are future plans. In September 2018 another new project was announced[17] by a Chinese-created cement production company established earlier in the year in Mozambique's port city of Nacala, Cimentos de Maiaia. This company has agreed to purchase 600 tons of thermal coal per year from Vale, with plans to increase that amount later in stages. Until these projects materialize, however, it must be said that the activities of the coal industry's downstream sector have been negligible. Very little coal is being supplied to local industries.

6.3 Linking the country's industrial base to the upstream and downstream sectors of the coal industry

This chapter began by arguing that making use of pre-existing experience to link up with the new export sector may be more effective than trying to develop new industrial capabilities from scratch. Drawing on this argument, I point to the 'degree of relatedness' between Mozambique's pre-existing technological capabilities and the capabilities that are required for firms to enter the coal-sector value chain. In other words, if the capabilities or industries that are necessary for entering the coal value chain in the upstream and downstream sectors are unrelated to the country's accumulated capabilities, then backward and forward linkages are likely to be met with difficulties. Such difficulties, however, are not insurmountable if the right conditions are present, as explained in my framework in Chapter 3.

By examining Mozambique's industrial base over time, I have established that the country had a sizable industrial sector in the colonial period, but that in the early 1970s this sector suffered the effects of the crisis Portugal was facing at that time. The colony had some leading industries in agro-processing and in some heavy industries such as cement, iron and steel. But when Mozambique achieved independence in 1975, its industrial production was already on a downward trend, and the economic sabotage wrought by Portuguese settlers between 1974 and 1976 dealt some crippling blows. After independence most industries were nationalized, but the industrial sector failed to find its way back up amidst a war economy and a string of natural disasters, despite a series of government-led strategies (PPI, PRE and PRES).

By the end of the civil war in 1992, the country's industrial base had been largely destroyed. Billions of dollars were spent in building and rebuilding roads and railways that had either

Government figures suggest that the project will create 2500 jobs in the construction phase and about 800 permanent jobs in subsequent phases.

[17] See https://furtherafrica.com/2018/09/06/vale-mocambique-sells-600-tons-of-coal-per-year-to-cimentos-de-maiaia/

been destroyed or never existed in the first place but could not be built during the war. The flow of foreign investment into the country in the late 1990s created inflated expectations of long-term benefits to the economy and great opportunities for the general business landscape. Mozal was the first investment of this kind, which indeed boosted the country's exports and created about a thousand jobs directly. However, its contribution to changing the business landscape has so far not met expectations, as the industrial capabilities related to those required to participate in the Mozal value chain are not yet there. To provide even the most basic services, domestic firms needed the support of the linkage development programs (SWEELP and MOZLINK I and II). The idea behind these programs was that firms would soon develop capabilities that would in turn facilitate their linkages with other big projects such as heavy sands and natural gas from Temane. However, reality has been slow to match the dream.

Despite a tendency for the country to focus on the extractive industry at the expense of related sectors, Sutton (2014) observes a growing demand for heavy construction work in railways, roads, airports, dams and production plants. In addition, the country has producers of steel, drawn wires, roofing sheets, electrical cables, engineering services, metal structures and chemical industries. However, in most of these industries contracts with big projects are overwhelmingly made with foreign companies based in the country, largely leaving domestic firms to develop their capabilities – if they develop any at all – by acting as subcontractors to major contractors (see Cruz et al. 2017). The challenges faced generally in the above industries are poor production technology, low levels of human capital and a production process that falls below international standards, particularly when it comes to environmental and safety standards (see Sutton 2014).

Nonetheless, over the past few years the government has pinned its hopes overwhelmingly on the extractive sector, with an observed tendency for sectors such as manufacturing and agriculture to be crowded out. Putting it simply, the industrial base is increasingly narrowing in favor of the extractive industry. Manufacturing, as reflected in the 2012 and 2017 surveys of Mozambique's manufacturing firms, is a shrinking sector, as most firms have exited the industry and others have been reduced in size. Most of the existing manufacturing firms are micro-and small enterprises of the type known as 'small-scale craftsman firms'.

Historically, the country lacked an industrial base to supply goods and services to the primary sector, nor did it process the latter's output prior to export. This explains why, to establish the

linkages with Mozal and other big projects that followed, domestic firms needed the support of the enterprise development programs mentioned above (Mozlink I and II), and even then success was limited. As a result, when the coal sector came on stream, domestic firms were not equipped to link effectively with it, and coal companies found that there was no domestic pool of resources and capabilities for them to tap into, particularly in the supply sector.

In fact, both foreign and domestic suppliers can be found in the supply sector of the coal industry, but the former dominate the supply of goods and services in number and scope. While foreign firms mostly supply coal companies with capital goods and consumables, domestic suppliers tend to supply coal-mining companies with basic services such as security, accommodation, insurance, gardening, etc. and to a lesser extent, just here and there, with consumables and capital goods. Actually, a great chunk of the amount coal companies spend with domestic firms goes on electricity and fuel, which are supplied by state-owned companies. Domestic firms are patently unable to compete with their foreign counterparts, and the latter seem unwilling to engage in any type of collaboration that involves knowledge transfer, since they would then create competitors for themselves.

There is, however, one characteristic that is common to the two groups of suppliers (domestic and foreign), which is that the revenues they earn from supplying coal companies hugely dominate their income streams, making them dependent on one (mostly Vale) or a very few buyers (including ICVL and other unspecified small projects). While it cannot be denied that a number of local jobs have been created as a result of coal mines' need for goods and services, the permanence of these jobs is bound up with the suppliers' ability to firm up their contracts with coal companies over time, as there is currently little potential for diversifying their client pools.

That said, the limited presence of domestic firms in the supply sector of the coal industry is linked to the absence of an industrial base that has characterized the country's economy over the past forty years. The existing knowledge base required by the coal industry, particularly in the supply (upstream) sector, is limited, leaving the field clear for more capable foreign firms, mostly from South Africa.

Unlike the supply sector, the downstream sector appears to have some industries (cement, steel, fertilizers, etc.) that could potentially use coal as input for their production processes. However, not much has yet been done in this regard. For example, coke is one of the key raw materials that Mozal uses in the production of aluminum ingots. Yet large quantities of coking

coal are extracted and exported, while Mozal sources its coke needs from the USA. Mozambique is also unable to supply Mozal's power needs alone, having to supplement it with supplies from South Africa. This seems hard to justify, as there are huge quantities of thermal coal in Tete being stockpiled and just 'waiting' to be used to generate electricity that could potentially supply heavy industries such as Mozal. Under these circumstances, one observation is that, while in the supply sector domestic firms can barely participate in the coal value chain due to a lack of capacity, in the downstream sector the issue appears to be more of a policy problem. I examine this phenomenon in the next chapter.

At this point, a few considerations are worth noting. First, it is hardly contentious to point out that the coal industry employs a significant amount of intermediate inputs from other sectors, thus offering great potential to expand domestic production in upstream sectors. However, four decades of experimentation with industrial policy have not yielded great results, and the country has not yet developed an industrial base that can supply a primary sector such as the coal industry. As a result, the coal companies' needs in terms of intermediate inputs have been met through imports, whether direct imports facilitated by logistics firms present in Tete, goods supplied by foreign firms with a base in Tete, or domestic suppliers that import products and sell them locally.

Certainly, the country's long history of being an economy of services, particularly in sending miners to South Africa and other neighboring countries and its strategic location within the region with access to the sea, have provided it with railways and a port infrastructure that facilitate the transport of coal from the pithead to export hubs and then abroad. Even though the railways and ports have their limits, causing coal companies to produce below capacity, the point is that, when it comes to the transport of coal, coal companies have been able to tap into the preexisting infrastructure, at least to some extent. Railways (transport) and ports (loading) are perhaps the most relevant preexisting pool of resources that have facilitated some beneficial linkages with the coal sector.

Secondly, as mentioned in the previous chapter, the so-called dirty and old-fashioned sooty rock has played an important role in industrialization worldwide, including in countries such as India, China and South Africa, due not only to its capacity to generate heat as fuel, steam power and coke, but also to its multiple uses in many other industrial applications. However, within the country the coal industry has not yet generated significant forward linkages, despite the existence of industries in which coal is or may form a proportion of their raw materials.

Therefore claims from coal companies such as ICVL that they have not supplied coal locally due to the absence of a market should be received with caution. It may be that domestic manufacturing firms are not reliable customers, but it is also true that ICVL is an Indian consortium of predominantly state-owned companies. It exports Mozambican coal to India because since 2016 the government of India has made policy decisions ensuring that their industries (power generation or steel industries) will have access to the coal produced elsewhere by Indian companies.

6.4 Concluding remarks

The coal sector has generated only a few backward linkages with domestic firms, as the latter lack the resources the former needs to tap into. In the meantime, forward linkages are also limited, and this is not solely due to a decimated manufacturing sector. I argue that it is also the result of other policy considerations, as I will discuss further in the chapter that follows.

For now, the fact that a number of countries in the region have not developed the capabilities the commodity sector requires to establish backward and forward linkages does not mean we should assume that linkages in specific sectors will just vanish. Equally, it would be a mistake to assume that FDI in the commodity sector will inevitably reinforce the existing patterns of linkages observed in the aluminum, heavy sand, gas and coal sectors. Even if the history of the country's industrial base explains why domestic firms have struggled to enter the value chains of new export sectors, different sectors may still produce different outcomes depending on certain conditions. These conditions have been set out in Chapter 3, and they should apply at the sectoral level.

Different sectors produce different outcomes because, first, some sectors have a greater potential to diversify the economy through linkages than others. Secondly, some commodities may be more or less beneficial than others, as the severity of the linkage problem may depend on the kinds of resources that take precedence on the governance agenda. Thirdly, while the same set of actors (government, domestic firms, MNCs and ruling elites) is found across all sectors, their interests may vary according to sector, necessitating consideration of different policy orientations and business strategies. Although the characteristics of the upstream and downstream sectors of the coal industry are a reflection of Mozambique's weak industrial base, linkage dynamics in the coal sector have their own peculiarities. If Mozambique's

capabilities in the coal industry are lacking more generally, and policy appears to be less than effective in that regard, what are the political and economic processes that sustain this state of affairs in the coal sector? The chapters that follow address this question in light of the empirical evidence.

VII. EVIDENCE-BASED ANALYSIS OF 'PROXIMATE CONDITIONS' IN THE COAL SECTOR

The findings of the previous chapter indicated that the capabilities local firms lack to participate effectively in the coal value chain were rooted in the country's long history of unsuccessful attempts to develop an industrial base that coal companies could tap into in order either to source inputs or to supply their coal. However, even if, as I have argued, the country's weak industrial background tends to influence negatively the breadth and depth of backward and forward linkages in a sector like coal-mining, this problem need not to be insurmountable, as long as certain conditions are met (see Chapter three).

In this chapter I therefore ask what are the sector-specific conditions of the coal sector, and how do they exert an influence on the development of backward and forward linkages? In order to address this question, I examine the three sector-specific processes referred to in this work as 'proximate conditions'. These conditions, which stem from the relationship between domestic firms, the government and multinationals, are explored here in light of the empirical evidence.

The first section of this chapter explores the first of these three conditions – the extent of knowledge transfer and information sharing – first by examining the capabilities of local suppliers within the sector. This is followed by an analysis of the strategies of the coal companies and their attitudes towards the development of a local supply chain. The section ends with a discussion of the mismatches between local firms and the coal companies in terms of their ability to build a competitive local supply chain. The second section examines the existing institutional and organizational mechanisms that are intended to support local firms and the extent to which such mechanisms are being implemented as intended. The section ends with an analysis of the discrepancies between the stated government support mechanisms and the widespread failure to take up such mechanisms by local firms. The third section explores how local content targets, as defined in government policies, have been implemented. For this purpose, I first examine the government's abilities and strategies to implement these local content provisions vis-à-vis the capabilities and strategies of the coal companies. This discussion highlights the degree of cooperation between the government and coal companies and the mismatches between them. The fourth section summarizes the findings of the previous three and pins down the implications that emerge for the development of backward and forward linkages in the coal sector.

7.1 Knowledge transfer and information sharing

Domestic firms are likely to succeed as either suppliers or processors of mining output if they have the capabilities required by the coal-mining industry. If these capabilities are lacking, as is the case for most domestic firms in Mozambique, then capacity-building is the key to the development of a competitive supply chain in which domestic firms can participate and over time be at the helm as suppliers. The increase in firms' absorptive capacity and the facilitation of knowledge transfers from coal companies to domestic businesses are two of the channels through which the capability gap can be filled. Another channel is information sharing so that coal companies know which sectors of the supply chain are stronger and which ones need more support. Similarly, access to information may give local firms a clearer understanding of which types of goods and services will be demanded by coal companies in the short, medium and long terms so that they can strategically respond to opportunities. That said, this section assesses the extent to which knowledge transfers and information sharing is taking place between coal companies and domestic firms.

7.1.1 The weaknesses of domestic firms operating in Tete

While the supply sector to the coal industry consists of both foreign and domestic firms, the latter have increasingly lost market opportunities to the former due to a number of weaknesses, including an incapacity to supply goods and services on a large enough scale, limited specialization, limited access to credit and a lack of certification. Drawing on information collected on firms that were defined as local (20 out of 56 sampled firms operating in Tete), interviews with the business association representative in Tete, specialists based in Maputo, the Association of Small and Medium Enterprises (APME) and the Mozambique Banking Association, I continue straightaway by describing each of these weaknesses.

The scale problem and limited specialization

Domestic firms supplying coal companies are mostly engaged in activities that add low value, that is, basic services such as security, cleaning, gardening, office supplies and so forth. These are the kinds of services whose demand in scale is relatively stable over time and does not require domestic firms to undertake huge investments to secure their position as suppliers,

except for the state-owned enterprises (EDM and Petromoc) that supply electricity and fuel. For example, the provision of maintenance services often requires firms to have a considerable number of workers and specialists available, as well as to invest in certain technologies. However, most local firms do not hire many people or invest much in technologies because it is not clear to them whether such services may be required in the future. To cite one concrete example, an interviewee from Vale's department of procurement (interview ref. CC-2) said that the company has about 2800 wagons and 300 locomotives and that it was looking for a domestic firm with the capacity to maintain these powered rail vehicles and keep them operational at all times. However, he continued, Vale found only a few small domestic firms here and there, none of which could manage the maintenance of more than a small number of wagons. Consequently, it hired a foreign company to take over maintenance of the whole fleet.

The representative of the business association in Tete (interview ref. A-1), who also runs a firm that used to supply coal companies with legal services, acknowledged that local firms are seldom able to provide goods and services on the scale demanded by the coal companies. Nor can they bear the costs of maintaining a subsidiary in Tete to provide specialized services when it is unknown when such services may be required. He felt that, in order to have a client base diversified enough to ensure their survival, local firms opt for the supply of general goods and services that can also be supplied to companies operating in other sectors. On the basis of this finding, it appears that investing in specialized services is therefore both risky and unaffordable for local firms operating in the supply sector of the coal industry.

Not all firms operating in Tete are interested in supplying coal companies anyway, especially those who once supplied Vale. The business representative mentioned above said that some firms struggled to survive in the market after their contracts were terminated by Vale, either because they came to the natural end of the specific purpose they were created for (i.e. to supply Vale with a specific service) or because the sophisticated methods of working they had learned were no longer of relevance in a local market that did not require the same high standards as Vale. In the same vein, three interview respondents from domestic firms (interview ref. SF-L) took the view that once one started supplying coal companies one became dangerously dependent on them, as energy and resources were drained in the effort to comply with the coal companies' stringent requirements.

Access to credit

The majority of small and medium enterprises are seldom able to access credit. From the point of view of the informant from the Small and Medium Enterprise Association or APME (interview ref. A-2), one of the obstacles is the high interest rate, which was above 25% at the time data was collected (in 2018), making it difficult to service the loan while maintaining profitability. This is exacerbated by the firm's lack of collateral, given that collateral serves as a guarantee for banks that the money loaned will be returned, which can reduce the interest rate. The informant from the Small and Medium Enterprise Association mentioned that some business people 'owned' only large parcels of land across the country that could potentially be used as collateral. However, since land in Mozambique is state property, banks do not accept land title deeds as collateral when considering credit applications.

While access to credit is a problem that affects most firms negatively country-wide, this general failure of the credit system to penetrate the small and medium business field applies equally to the supply sector of the coal industry. For example, findings from the 2012 survey of Mozambican manufacturing firms show that, when comparing different provinces, Tete is the province where firms are particularly constrained by lack of access to credit, and in interviews many of them pointed to the lack of collateral as a major obstacle.

My findings also resonate with those of Castel-Branco (2017) suggesting that over 65% of domestic firms in Mozambique never applied to a bank for a loan for two main reasons: the high interest rates, and the belief that their applications would be rejected due to a lack of collateral. For the small number of firms that had applied for bank loans, about 78% were indeed rejected due to a lack of collateral.

However, other stakeholders such as the Mozambique Banking Association (AMB) challenge the view that the lack of collateral is the reason for the denial of credit. On this point, an informant from the AMB (interview ref. A-3) explained that refusal of credit is linked more to the fact that many firms, even when formally registered, operate as informal businesses and that they often have serious accountancy problems. He felt that some firms may have the capacity to return the capital, but their disorganized accountancy practices and managerial problems prevent them from producing a convincing financial information package that demonstrates such a capacity. He contended that this is one of the reasons why banks are reluctant to grant credit to domestic firms: from the technical point of view, they do not qualify for bank loans.

A similar observation was made by another interviewee (interview ref. EPA-4), an independent Mozambican financial consultant who took a keen interest in the bank loan system. He argued that the lack of collateral was not the key issue in a successful credit application. In his view borrowers quite commonly pledge property to loan sharks, who are quite popular in Mozambique. In cases where the borrower fails to meet his obligations, the lender (the loan sharks) can then seize the pledged property for himself or sell it in order to get his money back. In his view, corporates (banks) operate on a different scale, with consideration mostly being given to the capacity of the firms themselves, through their operational cash flows, to pay back the loan. As he put it:

> Banks' business is money and not property… It is not in banks' interest to accumulate property as a result of unreturned loans… Firms' financial information is the most relevant, as it tells the extent to which they are able to generate enough cash flow to return the capital.
>
> (Interview note, September 2018)

The problem with local firms in general, which also applies to firms based in Tete, is that in the majority of firms financial information is technically weak and lacks credibility. According to my interviewee (interview ref. EPA-4), there are two reasons for this. First, firms tend to tamper with their financial information for tax-dodging purposes. Secondly, domestic firms, especially small enterprises, lack independent auditing, which could validate the financial information they produce. These two reasons increase the risks involved in giving them credit, thus making them less eligible for bank loans.

At this point, a relationship can be identified between the struggle of local firms in Tete to supply goods and services on a large scale and their exclusion from the credit system. As mentioned in the previous chapter, domestic firms supply coal companies mostly with imported goods. The importation of goods on a large scale requires firms to have a positive operational cash flow, which is not always the case with the small firms operating in and around Moatize. What happens is that, once coal companies formally agree to purchase a certain set of goods from a specific firm, the latter usually applies for a bank loan to finance the importation of the required goods at the required scale. However, the loan application process takes time and, according to a number of our respondents, there is a high likelihood that it will be rejected despite the existence of a contract. Signed contracts or agreements for future purchases between coal companies and domestic firms may serve as leverage to a

certain extent when domestic firms apply for credit, but the firms' inability to make reliable projections that clearly show how such contracts will generate enough revenue both to cover operational costs and to service the loan is what prevent them from accessing credit, which in turn makes them unable to supply the goods at the required scale.

Certification

Another point of consideration is the push for local firms to be certified so that they can compete with foreign firms in the supply of goods and services. However, certification comes at a cost, which many domestic firms simply cannot afford, especially those based in Tete. According to the informant from APME (interview ref. A-2), certification requires consultants to travel from Maputo to Tete to assess the firm, and firms under certification are required to cover the consultants' travel expenses, including their accommodation during the time they are in Tete, plus the fee for the certification process itself. Roughly speaking, according to our respondent, certification costs no less than $50,000 (fifty thousand dollars) (see also Simão 2018), and the majority of the SMEs do not have the financial means for this purpose.

The above account agrees with the Building Market Report (2014: 50) stating that, in spite of the support that the Public Institute for Quality Control and Certification (INNOQ) was receiving from the Spanish Agency for Quality Control, the European Union (EU) and the United Nations Industrial Development Organization (UNIDO) in order to increase its capacity, INNOQ was as yet still limited to Maputo. This being the case, local firms based in Tete whose certification is the key for them to enter (or maintain) the coal value chain will be peering into the gloom, as they can neither afford the certification process nor benefit from the government support mechanism for certification.

All the issues mentioned above that affect the performance of domestic firms in the supply sector of the coal industry are listed in the table below, to some extent an expanded version of Table 6.1, but now focused squarely on domestic firms.

Table 7. 1 Assessment of domestic firms' capabilities

Product group	Technology in use	Human capital	Degree of product and customers diversification	Large scale supply	Access to credit and certification
Capital goods					
Consumables	The kinds of consumables supplied require no high (or specific) technology, as local firms act as middlemen, importing goods and selling them locally.	Due to the nature of the supply, most of the people in supplier firms have generic qualifications (high school) and quite a few have university degree in areas that match with their position in the firms where they are employed. Most of them operate as sales persons, regardless of their academic background.	Firms are mostly unspecialized and supply coal companies with the kinds of goods (mostly office and food supplies) that can also be supplied to clients operating in other sectors or even to individuals. Most of the firms (mostly installed in Tete since 2009), measured by their volume of sales, depend greatly on their contracts with coal companies, despite having a relatively diversified pool of clients.	The demand for quantities of goods supplied by local firms (such as office supplies) is relatively stable over time. Specific goods (such as spare parts for machinery) are costly for firms to keep as it is unknown when such goods may be required by the coal company they would have been supplying.	Failure of the credit system to penetrate the small and medium business field. Firms have limited access to credit due to the lack of collateral; high interest rates; firms' inability to make reliable projections showing that their contracts with coal companies can generate enough revenues to service the loan; firms' unreliable financial information Most firms are uncertified and cannot bear both the costs of certification itself and the process they have to go through in order to reach the standards the certification requires. Most of the certification processes are concentrated in Maputo (the capital), increasing the costs of certification for those firms based solely in Tete.
Services	Low tech-firms, supplying coal companies with basic services (gardening, cleaning, logistics, consultancies, insurance, etc.) that require limited use of technology. Even in services such as construction, companies tend to buy new machines but old models or relatively new models but second-hand. For example, due to limited technology, cleaning services supplied by local firms are more about cleaning offices and less about engaging in pit cleaning, mechanical system cleaning, emergency spill responses, etc.	High degree of employment of low skilled people. The number of jobs created in services is higher (hotels, security, cleaning and construction) than in other kind of services supplied to coal companies. The service industry in Tete employs close to 100% of Mozambicans.	Companies tend to be specialized in specific services but mostly in the kind of services that require no huge investments or continuous upgrades in technology over time. There is a limited supply of industrial services. Dependence on contracts with coal companies is relatively high, as in most of the supplier firms their volume of sales to coal companies accounts to over 50% of the total volumes of sales.	The supply of highly specialized services is unaffordable as it requires firms to undergo huge investments in technology and human personnel (specialists). Such investments are risky for firms because they do not know when such services may be required, especially because of their dependence on one or few buyers/coal companies.	

Source: elaborated by the author based on fieldwork data.

7.1.2 The stance of the coal companies on domestic business

As stated earlier, the three major coal companies operating in the Mozambican coal sector are Vale, ICVL and Jindal Africa. The number one coal investor in Tete province is the Brazilian group Vale, especially when measured by its production capacity, volumes of exports and the size of the investment it has made in the country. In this section, I probe into Vale (extensively) and ICVL (to some extent), which are the two coal companies where data collection was possible, though with different degrees of depth.

Vale's stance

As far as linkages are concerned, Vale did not have a specific local content program at the time of writing (2018). Instead, an interviewee from Vale's Department of Procurement (interview ref. CC-2) stated that the company had a local content policy giving local suppliers priority as long as the quality of what they provided met certain standards. According to the interviewee, Vale has therefore developed activities to promote social and economic development, with a special emphasis on vocational training in areas such as carpentry, electrification, civil construction, cutting and sewing.

In Vale's 2013 report – *relatório de sustentabilidade* – the company claims to have spent over $1.4 billion by 2013 on the purchase of goods and services, with 75% going to local firms. However, the report is unclear whether this figure refers to the total spent over all the years since the project began until 2013 or refers solely to 2013. My critical observation on these figures suggests that the $1.4 billion Vale claims to have spent on goods and services is likely to be spent biennially or even triennially, rather than annually. On top of that, the 75% may not have been spent on firms owned by Mozambicans, as it is important to distinguish the latter ('local firms') from 'locally based firms'.

As mentioned earlier, Mozambique's Investment Law 3/93 of 24 June provides that a company or firm is Mozambican when it is formed and registered under Mozambican law, with headquarters in the Republic of Mozambique, and in which at least 50% of the capital share belongs to Mozambican citizens, companies or institutions, either private or public. A company or firm that does not fit these parameters is therefore not 'local', even if it has been operating in Mozambique for years and employs mostly Mozambicans. On that basis, it is likely that a great chunk of the 75% mentioned above is spent on firms operating in the

country and not necessarily on local firms, given that the majority of goods and services purchased by coal companies, especially the more valuable ones, are supplied by firms legally defined as non-local.

In the same light, data collected at Vale (interview ref. CC-2) reveals that in 2015-2017 the company spent about $130 million on goods and $300 million on services annually. However, these figures represent an average, as they vary according to the rate of production growth specific to the year. About $387 million a year – which corresponds to 90% of the total spent on goods and services ($430 million) – was stated by our informant from the department of procurement to be spent locally, but not necessarily with local firms. Again, it was hard for interviewees to say how much was spent solely on local firms, but large items were said to be spent on purchases from state-owned companies such as EDM (for electricity) and Petromoc (for fuel). In the three-year period under consideration, the company spent about $100 million a year on fuel and $30-35 million on electricity. These latter expenses correspond to about 35% of the total of goods and services purchased by Vale within the country and to 31% of the total amount Vale spends on goods and services more generally.

Estimates provided by our interviewee from Vale's Department of Procurement indicate that Vale is likely to be spending about $77.4 million annually on the purchase of goods and services from firms that are really local. This amount corresponds to 20% of the total spent by the company on goods and services purchased within the country. However, the accuracy of these figures is far from certain, as it was often hard for the interviewee to say with precision whether the suppliers were locally owned firms or just locally based.

According to both of our interviewees from Vale, the one from the Procurement Department (interview ref. CC-2), and another who is (or used to be) the manager of institutional relations (interview ref. CC-1), the strengthening of a local supply chain is a company policy, even though local capacity in terms of labor force and firms' performance fall far below Vale's required standards. They agree that local firms are weak, even in the provision of basic services such as vehicle or electrical appliance repair, causing the company to turn to foreign firms for these services. It also emerged from these interviews that, as part of the company's policy to support local firms wherever possible, there were attempts, for example, to train a local catering provider to participate in Vale's value chain. However, that provider could not keep up with Vale's minimum standards, and its contract was terminated. A similar situation was referred to over transport services, where Vale apparently initially gave a priority to local

firms, despite being aware of their operational limitations. As the manager of institutional relations (interview ref. CC-1) put it:

> Vale's expectations were that the contracted firms would upgrade their services over time by using the profits from the contract. However, as time went by, firms became less compliant with the stringent requirements instead of more, and the services provided tended to deteriorate. Vehicles were not maintained or not properly maintained, endangering commuters from and to the mining site.

He continued,

> Another product which Vale was pushed to purchase locally was meat (goat meat) based on the argument that Vale should not import what the local economy could provide. But Vale did not acquiesce in these demands because there was no accurate information about the health status of the goats.
>
> (Interview notes, July 2016)

Generally, on the basis of interviews with these two interlocutors, Vale's view is that the domestic capacity to supply basic goods and services is weak, unreliable and seldom able to supply large quantities at short notice. Vale's respondents mentioned that the company has been engaging with the Confederation of Economic Associations (CTA) over ideas for setting up a platform that would allow economic linkages to be created, but at the time the interviews for this study were conducted (in 2016 with the manager of institutional relations and in 2018 with the informant from the Department of Procurement) nothing had yet materialized, despite several meetings between the two sides. Vale's respondents felt that the CTA appears to be struggling to make the necessary investments to develop the enterprises on its own.

Regarding the employment of Mozambican citizens, Vale's respondent (interview ref. CC-1) claimed that 90% of their workers are Mozambicans and that they are distributed across the company's hierarchical structure. Also, as pointed out in Vale's sustainability report for 2013, workers apparently had an annual opportunity to take up in-service technical and managerial training within or outside the country, mostly in Brazil. Reportedly, the company had entered into a partnership with the National Institute for Employment and Vocational Training (INEFP), which supported the training of professional technicians.

From Rio Tinto to ICVL

Another large coal-mining company is the Indian consortium of predominantly Indian state-owned companies, International Coal Venture Limited (ICVL). As described in Chapter 5, ICVL became an important player in the coal sector by acquiring 65% of Rio Tinto's stake in the Benga mine in 2014, Rio Tinto's presence in the country lasting only three years. More importantly, a program aimed at developing local businesses existed at the time Rio Tinto was holding the Benga assets. Reportedly, the program aimed at supporting local people and local businesses so that they could participate in the coal value chain. Rio Tinto seemed to have worked with resettled populations to build their capacity in agriculture and other activities with a view to buying what they produced, which would have meant that local populations had a guaranteed market for their products.

A specialist in business development (interview ref. EPA-5) and a former Rio Tinto employee (interview ref. EPA-6) confirmed that at the time Rio Tinto was operating in the country it was keen on purchasing goods and services locally. Over 40% of the money spent on goods and services was said to benefit companies operating locally, who, however, were not necessarily domestic suppliers, and the goods it purchased were not manufactured in Mozambique. Firms that were really local operated mostly as 'middlemen', importing goods and selling them locally. Given that the bulk of the inputs used in coal mining were of foreign origin, interviewees were not impressed with the quality of the backward linkages that existed at the time. The picture that emerged was of a Mozambican business community that was keen to ensure that their firms won contracts with Rio Tinto, irrespective of the possibilities for learning and upgrading within the value chain. The former Rio Tinto employee felt that local firms' business attitudes were focused on short-term gains only, something that was reflected in the ridiculously high prices of their goods and services.

This former Rio Tinto employee (interview ref. EPA-6) also stated that when ICVL took over the Benga mine assets in 2014 the linkage program mentioned earlier ceased to exist, and by the time of my data collection (in 2018) it was not known whether the company had a local content program. It must be remembered, however, that ICVL's mining operations had come to a complete standstill in December 2015, six months after it had started operating, as the price of coal had plummeted. In early 2017 ICVL appeared to be negotiating new contracts with suppliers, with the resumption of mining activities imminent. Indeed, ICVL resumed its operations in the first quarter of 2018 after about two years of stoppage.

The CEO of ICVL in Mozambique, with whom a very brief interview was held (interview ref. CC-3), stated that the company had been keen to purchase goods and services locally had they been available, but in their absence the company had turned mostly to South African firms. He did not provide figures for a breakdown of the company's expenditure on goods and services between local and non-local firms, but complained that it was costly for the company not to have inputs available locally, especially when it came to maintenance equipment, as spare parts had to be imported, bringing production to a halt until they arrived.

7.1.3 A mismatch between domestic firms and coal companies?

Whereas cooperation and information sharing between domestic firms and coal companies is required for knowledge and technologies to be transferred, which would in turn increase the potential for domestic businesses to enter the coal value chain and upgrade their status within it over time, the evidence gathered for this research indicates that this is not taking place. Even though domestic firms appeared to show an interest in linking up with coal companies, a number of obstacles have held them back.

Domestic firms, with few exceptions, are far from meeting the standards required by the coal industry, even in the performance of relatively simple tasks such as transportation, catering, courier services and so forth. However, this is nothing new for the general business landscape in Mozambique and is therefore not the only problem. While some were firms struggling to participate in the coal value chain, cases where local suppliers had given up on supplying coal-mining companies were also reported, the main reason being that some coal companies took too long to make payments after goods or services had been supplied to them. Under these circumstances, domestic firms found it difficult to supply coal companies with new consignments of goods and services without the first payment being settled. This highlights that the lack of capacity is not solely technical and managerial but also financial, as mentioned earlier. Unlike domestic firms, foreign suppliers appear to be more resilient, as they are not dependent on prior payments to provide additional goods and services to coal companies. This fact, combined with the other weaknesses of domestic firms, has resulted in foreign suppliers becoming dominant in the provision of a wide range of goods and services.

Attempts to transfer knowledge from coal companies to local firms based in Tete have been reported. Whereas Rio Tinto's plan to support local suppliers was discontinued by ICVL,

Vale claims to have initially prioritized domestic firms wherever possible and even to have provided training to domestic entrepreneurs so as to teach them what it needs and how to meet the required standards. However, Vale's telling argument against domestic firms is that the latter failed to absorb the knowledge effectively, as a considerable number of firms were unable to keep up with the standards required by the industry even after receiving training and entering the coal value chain.

While the ability of domestic firms to engage in capacity-building with the support of coal companies is not completely absent, the latter appear to have lost hope that local firms will ever upgrade. The failure of domestic firms to meet the required standards in the provision of basic services, even after receiving training, has triggered skepticism among coal companies, Vale in particular, that a competitive local supply chain can be created. Nonetheless the coal companies still claim to have an interest in having a local supply chain, irrespective of the country of origin of the firms operating locally, as this would reduce their transaction costs.

While the coal companies with which interviews were conducted take the view that linking up with the domestic economy is in their interests, despite the discrepancies in standards, local business people feel that, even though they may not have developed the specialized skills needed, it is also true that coal companies often choose to work with their own suppliers rather than adjusting their procurement processes to accommodate domestic firms, regardless of their public statements expressing their intentions to stimulate linkages with local firms. While there is clearly a learning process that domestic businesses have to go through in order to participate more effectively in the coal value chain, my informant from APME (interview ref. A-2) claimed that many business people have lost interest in the coal market in Tete due to prior disappointments and broken expectations.

The learning stage that local firms need to go through is also costly and uncertain; coal companies would have to operate at a loss during it, and even then a date cannot be set for when such investments would begin to show their worth. In the words of Staritz et al. (2017: 7), 'it is costly for the investor to finance the period of implicit loss-making as it is not clear how long it will take to learn and thus raise the productivity to a level required to be internationally competitive'. This resonates with what one participant representing a mining company in Mozambique stated in the Energy Council Conference in Maputo:

> As much as we want to engage with domestic business, skills are unavailable locally […] and neither the government nor CTA should push companies to take the heavy burden that results

> from a weak private sector […] It is clear that there will be no manufacturing in Mozambique, at least not in the next twenty years.
>
> (Conference participant note, March 2018)

While these words relate to the mining sector overall, we see the coal sector in general and coal companies in particular imbued with it. Coal companies appear reluctant to finance this loss-making period, which in turn makes it harder for local firms to learn with their support. However, this is not to blame either party without first looking at the government's role, not just in promoting inter-industry relationships, but also its willingness and capacity to craft and implement policies aimed at supporting local businesses and developing linkages (analyzed in detail in the next section). Be that as it may, the evidence suggests that the kind of cooperation that would allow transfers of knowledge from coal companies to domestic firms to take place is lacking. It is hard to claim with a high level of accuracy that knowledge transfer is not taking place, but if it is, it does so in an ad hoc fashion that hardly allows its assessment to be pinned down in this work.

In spite of Vale's claims to have been transferring a certain level of knowledge to workers through training that takes place both within and outside the country, such transfers have their own limitations. For example, Vale claimed to have sent workers to Brazil to develop their skills as machinery operators. This narrow type of knowledge transfer can be helpful in cases where job mobility across sectors is greater, but such training can also be too specific, serving only the mining sector. Also, the tendency of the mining sector to pay higher salaries to technicians than employees in other sectors ensures that knowledge transfers from the mining sector to other sectors of the economy are less likely to take place.

7.2 The scope of the support mechanisms

Alongside the cooperation and collaboration between domestic firms and coal companies, the development of backward and forward linkages also rests on the extent to which the government is able to invest in the development of skills among its nationals that would allow them to perform the tasks required in the coal-mining industry and in related sectors. Most importantly, the development of linkages is closely associated with the government's provision of institutional and organizational support to domestic firms so that the latter can develop its absorptive capacity, which in turn will facilitate the acquisition of new knowledge

and enlarge firms' knowledge bases. The aim of this section is thus to demonstrate and discuss the existing institutional and organizational mechanisms that have been set up by the government to support domestic businesses and their outcomes.

7.2.1 The government's institutional and organizational support mechanisms

7.2.1.1 The institutional set-up

Government policies regarding the development of commodity-based linkages can be traced back to the late 1990s, when the first big investment project (Mozal) of $2.4 billion came on stream, entailing millions of dollars' worth of procurement and thus providing linkage opportunities to domestic firms in the supply sector. As discussed in the previous chapter, domestic firms were straining at the leash to link up to Mozal's value chain, but they could only take up few of these opportunities because of a number of obstacles ranging from the use of obsolete technologies to a lack of experience of the business world. As a result, the Mozlink program was conceived to support domestic businesses in a context in which legislation on local content was almost non-existent. Mozlink was the first formal linkage program within the country, and it soon became a reference point both within and outside it.

From the experience of business linkages with Mozal, echoed after a study commissioned to analyze local content came up with its findings, a number of subsequent business meetings pointed to the need for local firms to receive organizational and institutional support. As described in Monjane (2017), there was therefore a big push towards a law on local content, as the private sector believed that a law would serve as an instrument to incentivize multinationals to engage with local firms and ensure that the multinationals in the commodity sector did not renege on their obligations. Even though by the first semester of 2019 there was no specific law on local content for the mining industry, some provisions related to local content are spread out across the legal landscape in different pieces of legislation, including the Mining Law of 2014 (Law No. 20/2014 of 18 August) itself. At first glance, such provisions give a sense that the political will to benefit local firms and domestic entrepreneurs existed.

With regard to backward linkages, Article 34 of the Mining Law of 2014 makes the government responsible for creating a mechanism for involving national firms in mining projects, and the state must progressively promote its own level of participation in mining ventures. In order for this provision to be more than mere intention, in some cases the

government has specified the conditions under which local firms may become involved in mining projects. In fact, the law stipulates that, after a mining agreement between the government and the holder of a mining license (mining company) has been reached, the contract must include a clause indicating the minimum of local content and local employment (paragraphs b and c, no. 2, article 8). Thus, it is mandatory for mining companies to purchase goods and services locally, unless they are not available at the required quality and in the required quantities (Article 22 of the Mining Law). Another condition is that local goods and services must be purchased if the price does not exceed that for available imported goods by more than 10%.

Beyond the promotion of local firms as sources of supply for mining companies, there are also provisions regarding the employment of national citizens. Through its Geological and Mining Policy (Resolution No. 4/98 of 24 February), the government favours the continued training of human resources at all levels, but with a focus on the secondary and tertiary sectors. Related to this, the government also has a role in strengthening the Geology and Mining Institute at Moatize in training technicians so that they can fulfil the complex tasks that will be required in the mining sector. In the same vein, Article 33 of the Mining Law states that mining companies must ensure the employment and training of Mozambicans in their areas of activity. Specific labour regulations give more detail when the employment of locals is an issue, provision that goes beyond the mining sector.

This well-intentioned legislation was not in itself a motivating force for the lead commodity firm to engage with local firms, as the latter's weaknesses continued to preclude them from participating in the commodity value chain, especially that of the coal sector. Moreover, the fact that provisions on local content are dispersed across sectors is an added burden on enforcement logistics and costs, especially due to the widespread perception that the commodity lead firms are reluctant to engage with local firms. These factors, among others, drove a push for a specific law on local content and the creation of an administrative body that would be responsible for enforcing it. The most recent draft of the law on local content, which has not yet been made public, made its way through the cabinet in 2018 and is now on its way to the parliament for approval. This law, if approved, is likely to have as its objective the stimulation of local production and creation of jobs, increasing participation by the national industry on a competitive basis and the creation of an enabling environment for the development of national businesses, thus boosting innovation and technological development.

Importantly, whereas the mining law stipulates that MNCs must purchase goods and services from local firms, in the perspective of the forthcoming law on local content it is no longer relevant whether a supplier is a national or a foreign firm. Instead, what matters is the use of 'national or local factors' of production. The approach to local content is that supplier firms must incorporate a percentage of local factors of production, which means that suppliers must use national inputs in whole or in part to produce goods and services that will later be supplied to multinationals. The law does not stipulate a minimum percentage of national factors of production, as these depend on each sector's dynamics. Specific sectors will therefore set their own local content targets. Moreover, it will be mandatory for all multinationals to have a local content plan that includes transfers of knowledge and technology to Mozambican workers, the recruitment and training of Mozambican workers, and a plan to build the capacities of local suppliers.

The interviewee from the Studies' Office (interview ref. GB-4), which is the member of the committee that was appointed to coordinate the drafting of the local content law within the Ministry of Economy and Finance, remarked that this drafting had seen considerable involvement from the private sector, among other stakeholders. The informant added that private-sector representatives recognized that in the commodity sector it would be difficult to supply goods and services using local factors of production. Therefore, the law would leave room for goods or services to be imported for a specific project or activity if they were impossible to produce either locally or by using national factors of production. However, in aiming to secure preferential treatment for domestic firms, even regarding imports of such final goods to supply companies operating in the national market, the preference should be given to domestic firms.

While the above legislation appears to mirror the government's stance that the country owns the minerals and therefore has the right to extract value from the mining sector, as well as to incorporate as much local content as possible, additional actions have been taken through specific government agencies to support local firms, as I show in more detail in the section that follows.

7.2.1.2 Organizational support mechanisms: the role of IPEME and CPI

In Mozambique, two government agencies have the responsibility for creating an environment in which local firms can flourish: the Institute for the Promotion of Small and

Medium Enterprises (IPEME) and the Investment Promotion Centre (CPI). While the former falls under the auspices of the Ministry of Industry and Trade, the latter has a more complex history.

IPEME was created in 2008 through Decree 47/2008 of 3 December as a vehicle for the implementation of the Small and Medium Enterprise Strategy and to incentivize business development. IPEME has its headquarters in Maputo and representatives in other provinces, including Tete. One of the aims behind IPEME's creation was to build capacity in particular areas where local firms are weak, such as financial, managerial and technical capabilities. Another aim was to facilitate their certification. Third, as part of its role in creating linkages between SMEs and between them and megaprojects, IPEME was also intended to assist in the diffusion of information to both local firms and multinationals in terms of opportunities created by the latter and the goods and services that could potentially be delivered by local firms. The role of IPEME is therefore not solely to promote linkages, but also to facilitate the transfer of knowledge to local businesses.

According to the interviewee from IPEME in Maputo (interview ref. GB-7), one idea that was being mulled over, together with the World Bank, as part of IPEME's strategy to support domestic firms was the creation of a 'business center' as a private entity to serve as a platform for local firms to offer their goods and services to large-scale projects. The idea was that commodity lead firms such as Shell, Mozal and Anadarko, along with the government, would invest in the center as shareholders, where they would purchase goods and services from the domestic firms engaged with the center. In 2016, when I was collecting this data, there was no firm timeframe for when this idea would be put into practice, and by the time of writing in 2018 nothing had yet emerged.

Moreover, the aforementioned interviewee from IPEME also mentioned the existence of a budget line for supporting domestic businesses, and that IPEME was part of the body that makes decisions on the allocations of these funds, though there was no information on how many firms had benefited from it. However, whereas this budget line was mentioned only by an informant in IPEME headquarters in Maputo, my interviewee in its branch in Tete (interview ref. GB-8) was adamant in his responses that no such budget existed at the provincial level. But he was enthusiastic about the idea of supporting the development of microbusinesses and start-ups, especially in helping them develop a business plan to present with funding applications, whether to the private sector (be it bank loans or other lenders or

donors) or the state. The respondent from IPEME in Tete (interview ref. GB-8) said that, currently, most of those who approach IPEME have their eyes on the 'district development fund'[18] as a source for funding their businesses, as there is no need to provide collateral in order to access it.

CPI was created through Decree 14/93 of 21 July to advise the Ministry of Planning and Finance in matters related to investments. In February 2005, under Armando Guebuza's presidency, the Ministry of Planning and Finance was split into two new ministries, namely the Ministry of Finance and the Ministry of Planning and Development. The latter became responsible for matters related to investments, and CPI was placed under its aegis. In 2015, under Filipe Nyusi's presidency, the two ministries were merged again, this time forming the Ministry of Economy and Finance. Throughout these changes, the role of CPI has remained stable: that is, it coordinates the processes of analyzing, evaluating and promoting investment projects.

In September 2017 it was announced that CPI, the Export Promotion Institute (IPEX) and the Office for Economic Accelerated Development Zones (GAZEDA) had been merged to form the Agency for Investment and Export Promotion (APIEX). Speeches by the government indicated that the merger of these three government agencies would optimize the government's role of promoting and facilitating investments and thus improve the business environment. 'Greater synergies on areas that have considerable impact on the country's economy were expected to be created' (Frey 2017).

However, while APIEX was expected to start operating effectively as a unique body six months after its creation, by the time data collection was conducted (from 2016 to 2018), the three formative government agencies were still operating separately in practice, as internal issues had yet to be settled, especially when it came to human resources relocation, as the staff were reportedly downsized from 160 to 60 (see Monjane 2017). In other words, until the merger materialized, CPI, along with IPEME, continued to be the vehicle through which the government provided institutional and organizational support to local firms so that they could make use of the opportunities offered by the multinationals.

[18] The government of Mozambique provides each of the 128 districts of the country with an annual budget equivalent to $420,000, with the aim of reducing poverty at the local level. People who struggle to access bank loans can benefit from this fund to finance their business plans, and the capital is paid back without interest.

Besides providing institutional assistance to investors for the approval of investment projects, CPI supported business organizations through the identification and dissemination of investment opportunities, promoted programs to assist Mozambican firms to increase their capacity and also promoted business linkages between national and large-scale projects operating in Mozambique. Given its various competences, this government agency acts as a one-stop shop for investors.

CPI has been quite active in its role in linking local firms to large-scale projects since the time the first linkage development program (Mozlink I and II) was conceived. From the employee I consulted at UNIDO's country office in Mozambique, I learned that CPI is currently hosting a UNIDO (United Nations for Industrial Development) program called SPX[19] (Subcontracting, Partnership and Exchange). As stated on UNIDO website,[20] the program has existed for more than 25 years and has been implemented in more than twenty countries, but its implementation in Mozambique only started in 2011/12. The program aims at helping local firms to take advantage of opportunities that emerge in the commodity sector, the focus being on industrial subcontracting, outsourcing and supply chain opportunities.

On UNIDO website, SPX is described as a technical cooperation program aimed at linking local firms to the supply chains of large companies, given that the latter, especially those operating in the commodity sector, require high standards which are hard for local firms to meet by themselves. To this end, in serving as an SPX center under the UNIDO program, as also described in its website, CPI has been profiling potential local suppliers, identifying the specific problems they face using benchmark assessments, and assisting these firms to develop their technical capabilities so that they become more competitive as either suppliers or sub-contractors on big projects.

According to the UNIDO representative (interview ref. IO-1), the decision to pick CPI to host this program, rather than the Confederation of Economic Business Associations (CTA), IPEME or the Industrial Association of Mozambique (AIMO), was not automatic. The original idea was that the program should ideally be hosted by the private sector, which it was designed to support, but the reality did not conform with this, and the private-sector representative (CTA) appeared to have little interest in the program. AIMO had neither the

[19] The SPX program is seen by many as a continuation of the Mozlink linkages program.
[20] https://www.unido.org/our-focus/cross-cutting-services/partnerships-prosperity/networks-centres-forums-and-platforms/subcontracting-and-partnership-exchange

technical capacity nor the human resources to host the program. IPEME was then considered the government agency that could host it, given its role in promoting domestic enterprises. However, the interviewee cited above went on to cite an assessment conducted by UNIDO and hired consultants revealing that IPEME did not have the wherewithal to host the program either and that their personnel showed no inclination to manage it even after training. CPI was the only government agency that had demonstrated a capacity to host the SPX program, probably due to its accumulated experience in managing similar programs, namely Mozlink I and II.

CPI, together with the UNIDO team, organized two workshops at the time (no specific day was mentioned), one in Tete and the other in Maputo, to facilitate and assess the level of engagement. According to the UNIDO representative, Vale was among the companies that had shown some interest in the program, and domestic suppliers in Tete and Maputo saw an opportunity to link up with big projects. SPX, said the UNIDO representative, soon became accepted as a valid alternative to Mozlink for developing business linkages within the country. In fact, he continued, in 2014 the cabinet validated the SPX methodology and adopted it as a government instrument to develop domestic business, including approval of its subsidization.

Interviewees from both CPI in Maputo (interview ref GB-5) and UNIDO (interview ref. IO-1) claim to have profiled 600 domestic enterprises nationwide using the benchmark assessment to assess the capabilities of these firms from the technical, financing and human resources points of view. According to CPI informants from both Maputo (interview ref GB-5) and Tete (interview ref GB-6), the process of collecting the necessary information from domestic firms did not go without its challenges. Chief among these was the reluctance of domestic firms to provide accurate information about their business ventures. Interviewees from CPI believe that this reluctance has to do with tax-dodging or with the fact that most local firms do not always run their businesses strictly in line with the law. Local firms feared that the information elicited by CPI for its database could be leaked to the tax authorities. That misinformation has the potential to make the CPI data so unreliable that the support mechanisms that have been designed on its basis are less likely to produce desirable outcomes.

Be that as it may, of the 600 local firms that CPI and UNIDO claim to have surveyed, only 10% met international standards, while the others lacked the technology and skills necessary to access market opportunities. Complaints from domestic firms that they struggled to access finance resonate with findings discussed elsewhere in this study. However, as pointed out

earlier, many firms had informal internal processes and accountancy systems that precluded them from consideration for formal funding by financial institutions. CPI interviewees in both Maputo and Tete mentioned that their agency, along with its partners, provided only technical assistance to potential suppliers to coal companies.

CPI nonetheless worked with these companies, providing them with technical support and introducing them to potential buyers of their goods and services. Within SPX there are 17 big companies (buyers) and 600 firms (suppliers). Data provided by the UNIDO representative (interview ref. IO-1) suggest that, to date, 25% of the supplier firms have succeeded in establishing linkages with big companies[21] and 62% have enlarged their opportunities, though these have not yet been translated into any real successes, and that only 13% showed negative performances. The amounts these 17 buyers spend on goods and services from SPX supplier firms (about $4.5 million) represent only 5% of their total purchases of goods and services, meaning that over 90% of the purchases made by the buyers are from firms outside the program. This means that SPX has generated about $4.5 million since 2013 in return for an investment of about $750,000 since 2011. Interlocutors from both UNIDO (interview ref. IO-1) and CPI in Maputo (interview ref. GB-5) felt that SPX has therefore exceeded expectations of it by far and that the program has demonstrated a great potential to generate more money for the benefit of local suppliers. However, their views are not free from further scrutiny, as the subsection that follows will show.

7.2.2 The mismatch between the government and domestic firms

Thus, institutional and organizational mechanisms for promoting domestic businesses do exist, and government speeches (as expressed in the government's policy stance) have extolled its support for the development of SMEs, even if the reality is not quite what has been portrayed. Despite the legal provisions related to local content in the mining law showing a government determined to link local firms and multinationals and to ensure the employment of national citizens rather than foreign ones, the views shared among the local firms under consideration (i.e. interviewed firms) and the Small and Medium Enterprises Association alike are that problems have arisen with the implementation of this well-intentioned legislation, and that enforcement of its provisions is a serious stumbling block. This has not

[21] They used 17 big projects, among which Vale was prominent. Initially, Rio Tinto was involved in the program, but its successor ICVL discontinued this participation.

only prevented new linkages from emerging, it has also precluded the strengthening of the few linkages that exist in the supply sector to the coal industry. Interlocutors from the Ministry of Economy and Finance (interview ref. GB-4) and IPEME (interview ref. GB-5) are less convinced that the problem is that simple and point to the attitudes of domestic business owners, who are seen as bottom feeders with short-time horizons.

Be that as it may, the provisions on local content within the mining law appear to have neither boosted local businesses nor facilitated their links with the coal sector on the expected scale. On the contrary, some of the conditions set out in this legislation with the intention of developing local businesses have actually had adverse outcomes. For example, one provision in the Mining Law states that preference must be given to local firms if they offer products and services of good quality at competitive prices. As far as quality is concerned, the abstruse point is how quality is defined and who defines it. The reality is that it is left up to the coal companies to decide what quality is and what is reasonably deliverable by local firms. Given that coal companies generally perceive domestic firms' capabilities as weak and their goods and services as falling below the required quality standards, there is little room for domestic businesses to enter the coal value chain on the expected scale. Furthermore, domestic suppliers, who have to import the goods they sell, find that their prices cannot match those of their foreign competitors. As a result, these two conditions have done nothing to ensure the participation of local firms in the coal value chain.

One observation is that the implementation of the local content provisions, as laid down in the Mining Law, did not fail simply because of the government's inability to enforce it, but also because the conditions set for local firms to participate in the value chain did not match the reality, as such conditions required basic capabilities that local firms do not possess. In the supply sector to coal companies, there are no nationally manufactured products that can compete with foreign ones, and the goods local firms import to sell locally – such as, but not limited to, drilling steel, spare parts, resins, foam insulation materials, petrifying substances and so forth – often become more expensive (especially after adding taxes and a profit margin, as well as taking into account the exchange rate) than those supplied by the foreign-based brand owner.

The changes in perspective in the forthcoming law regarding how local content should be included took into account these shortcomings, and the committee that coordinates the making of the law is confident that this time local content quotas will be enforced. For that purpose,

in the proposed law on local content it is stated that a specific body will be set up to control and monitor local content and make sure that the law is implemented as intended: the National Inspectorate of Economic Activities (INAE). However, the law's implementation strategy is still unclear, particularly in terms of what strategies will be adopted to overcome the country's 'historical legacy' of weak law enforcement and how the benefits (both breadth and depth) achieved by the law will be measured.

As for the organizational support mechanisms, one observation is that IPEME and CPI do not work in a collaborative manner, even though they are both government agencies whose roles overlap to a certain extent when it comes to supporting local firms in breaking into commodity value chains. For example, whereas CPI already has a database of potential suppliers, the goods and services they provide and their rates when compared to international standards, in December 2017 IPEME signed a memorandum with the Confederation of Economic Associations (CTA) requiring the latter to register firms on a database from which it will be possible to identify those that need support. In other words, these two agencies are each separately developing a database with the common purpose of exposing domestic firms to potential buyers and identifying those firms that may need support to upgrade their technological capabilities and become competitive. In other words, these two government agencies are themselves misaligned.

Thus, whereas IPEME and CPI claim to be supporting the development of domestic firms, the views of domestic firms operating in Tete differ. While less was said about CPI, APME and a number of local firms I interviewed see IPEME as an irrelevant, corrupt and moribund government agency; it was unclear what it did in practice, other than make things more difficult rather than easier for local firms to break into the linkages market. They agreed that IPEME was composed of bureaucrats who had no understanding of the private sector they were meant to be supporting. Instead, as argued by the interlocutor from the Small and Medium Enterprises Association (interview ref A-2), IPEME appeared to be competing with the very enterprises it was supposed to support. Behind this view was often the belief that IPEME's bureaucrats owned businesses that certainly claimed the support of the public institution they represented.

Moving beyond these two government agencies, a commonly held view among local firms is that the government has paid a great deal of attention to coal companies at the expense of the locals. Taxation was cited as a particularly contentious example; firms felt that coal

companies enjoyed tax breaks even in importing certain goods, while they, as local firms, had to carry a heavy tax burden. These firms felt that their high taxes forced their prices up, making them less competitive. This is true to the extent that, for example, normal firms have to pay 32% of corporate income taxes, while megaprojects more generally, including the coal companies, pay taxes at a much lower rate. The same applies to the importation of goods whereby megaprojects, including the coal companies, benefit from the absence of duties on imports of goods and services in the exploration phase, while firms have to pay import taxes that are above 10% depending on the kind of goods being imported, to which 17% in Value Added Tax (VAT) is added.

In addition, given the comparatively high corporate tax rate in Mozambique, as Hassan (2009: 283-393) observes, 'the non-integration of corporate and personal income tax system has led to double tax of equity incomes, which creates incentives for lending rather than equity investment'. The result of this tax structure is the 'discouragement of investment in processing industries because the heavy taxation of imported inputs adds to production costs or reduces the competitiveness of products manufactured in Mozambique' (WTO 2017: 45). This incentivizes under-investment by domestic entrepreneurs, thus limiting the expansion of economic activity in the prefabrication and processing industries.

Moreover, imports of goods to supply coal companies include agricultural products, which has also been quite contentious, as it does not mirror the government's rosy picture that the exploitation of coal would give local farmers a market for their products, given that these big companies would need to feed their employees. Instead the farmer's association in Tete (interview ref. A-6) found it difficult to engage with the coal companies, Vale especially, as the latter required certified products or had other specifications which they found hard to understand or fulfill. This association felt unsupported by the government for failing to facilitate links between the coal companies and the farmers.

The general sentiment of the interlocutors from the sampled firms in Tete (interviews ref. SF-L and SF-F) was that firms were not prepared to engage with the coal industry and that this could be why the coal companies ended up relying overwhelmingly on foreign suppliers. Their views are also that the government had failed even to train its people so that they could take up the opportunities offered by the mining companies. People from neighboring countries such as Zimbabwe and Malawi were mentioned as being better prepared to fill the jobs available, both in contracted firms and coal lead firms. Although the regulation relating to

employment gives preference to Mozambicans over foreign citizens, the former still lack essential skills required to perform complex tasks in the coal-mining sector.

At this point, the evidence suggests that the strategies of local firms and those of the government are misaligned. Those firms the government claims to be supporting complain that they have never received such support. Drawing on this, it appears that the institutional and organizational support mechanisms are not achieving their purpose. As a result, local firms in Tete are left to navigate the business environment without a rudder, which in turn provides no incentives for them to invest in long-term profitability strategies. While the existing legal provisions related to local content could help them break into the market with linkages in the coal sector, the weak implementation of these safeguards has held them back. Another clear example has been a stipulation in the Mining Law that any contract between the government and an MNC must include a clause indicating the minimum of local content and local employment. However, the contracts are not publicly available, so nobody really knows what percentages of local content have been fixed and what has been done in order to achieve them.

Put simply, most of the firms interviewed in Tete were unaware of any support mechanisms created by the government, including the existence of any type of fund available to support them. Instead of receiving government support, firms claimed that they were subjected not only to high taxes, but also to excessive inspections from government officers demanding kickbacks in order to turn a blind eye to whatever was found to be out of order. This simply increased the costs of their business, making them even less competitive in a market already dominated by foreign suppliers. Under these circumstances, an important line of inquiry is whether local firms have a structure of incentives that leads their managers to focus on long-term development rather than short-term profitability. With no clear support from the government, long-term profitability strategies that involve learning processes have proved costly for local firms, especially given the lack of their financial capacity.

7.3 The depth of policy implementation

So far it has been observed that government support for domestic firms to build their absorptive capacity is essential before they can enlarge their knowledge base and become more competitive in a market that is currently dominated by foreign suppliers. But these

processes are more likely to take place if the government can ensure that coal companies comply with legal provisions related to local content requirements, while encouraging them to engage with domestic industries in the upstream and downstream sectors. In this section I examine the local content targets that have been set, if any, and show how both actors – the government and coal companies – engage with each other in relation to these targets.

7.3.1 The government stance on local content requirements

The existing provisions on local content, and the big push for a specific law on local content, seem to reflect a recognition that there can be no economic development to speak of if mining is not linked to the rest of the economy. The government's policy stance, as laid down in the country's mining law (Law No. 20/2014 of 18 August), has been that the country owns the minerals and therefore deserves the right to extract value from them, including having as much local content as possible. But, as has become clear by now, these processes are not automatic but are dependent on the government's capabilities and strategies to implement safeguards against the coal companies' profit-maximizing strategies.

Under Mozambican law (Land Law no. 19/97 and Mining Law no. 20/2014), the land belongs to the state, as do the natural resources underground. The government is undoubtedly the landlord and seemingly in a position to negotiate contracts on its own terms. However, the investments that are necessary in the coal-mining industry are on such scale that the government has no choice but to rely on foreign direct investment. Coal companies are not just capable of mobilizing capital, they also have the expertise and technology to carry out coal-mining exploration and exploitation. The lack of technical and financial capacity within the government to tap into its own coal resources comes at a cost. Coal companies have so far been quite successful in negotiating contracts on their own terms (like favorable tax treatment) and have been able to strengthen their control over coal resources due to the asymmetric nature of acknowledgments reflected in geological data about coal assets. This is the case because the government has no means of quantifying its coal assets in either physical or economic terms, so it ends up by relying overwhelmingly on the coal companies' reports.

While this may have prevented the government from collecting fair revenues (see Castel-Branco 2012), thus offering less attractive avenues for fiscal linkages, there is still room for the development of backward and forward linkages, an area that goes beyond tax management, although it is influenced by it. This means that the government can still use its

position to encourage, or at best ensure, that coal companies comply with national regulations on local content.

When it comes to linkage creation, most of the rhetoric (as expressed in the mining law, Law No.14/2014) and apparent efforts (as expressed in the proposal for a local content law) are overwhelmingly focused on creating backward linkages, the area in which domestic firms can most easily participate without having to make huge investments, as it is now well known that most of the domestic suppliers are dealers who import goods and sell them locally, rather than investing in productive activities. In this context, the creation of linkages is narrowly thought of as domestic firms taking up existing opportunities to sell imported goods or provide general services such as security, gardening, catering, logistics and so forth. While the private sector used to put pressure on the government to ensure that the market created by the exploitation of coal benefited domestic businesses, the coal companies have raised concerns about how far the government can push them to purchase goods and services that the local economy cannot produce.

The country's mining law (Law No. 20/2014 of 18 August) provides that in all mining contracts between mining companies and the government of Mozambique local content targets must be defined. However, as mentioned in the previous section, this process is opaque; there is no evidence of the existence of such targets because the mining contracts under consideration are not publicly available. In the new law on local content, one proposal is that each sector must set its own local content targets, but there is no information on how this is going to be done. On this point, the interlocutor from the Ministry of Economy and Finance (interview ref. GB-4) remarked that this had created some animosities, as the mining companies generally view the creation of sectoral local content targets with skepticism. Mining companies in general, argued the interviewee, have sought to influence local content requirements by arguing that services are below the required standards and that almost all the goods they require can be purchased directly from the supplier without a local middleman. This argument is perceived by the interviewee under consideration as reflecting reluctance on the part of coal companies to engage with domestic businesses.

As for forward linkages, which have not been an area of particular interest to the country's private sector, the government, through the mining law (Article 57), encourages the processing of minerals locally prior to export, or even the use of minerals as raw input in local industries. However, the companies extracting coal in Tete are export-oriented; all their

coking coal production is exported, and their thermal coal is mostly being stockpiled because its low price on the international market keeps it economically unviable to export. For that reason, there are a considerable number of plans to burn this coal to generate power, as mentioned in the previous chapter. However, these projects seem to be part of these companies' strategies to maximize the returns on their investments in Tete rather than an outcome of the government's policy on local content. For example, as an interviewee from the Provincial Directorate of Natural Resources and Energy in Tete pointed out (interview ref. GB-1), coal companies such as Jindal and Condezi, unlike Vale, have no choice but to use their coal output for domestic power generation, as the areas they are exploiting do not possess much high-grade coking coal.

An informant from the National Directorate of Energy (interview ref. GB-3), a unit within the Ministry of Natural Resources and Energy, mentioned that although there were projects that aimed to generate power from coal, most of them were struggling to raise funds for their materialization. This is partly because the World Bank, along with other international funding agencies, have apparently blacklisted all projects involving coal due to the global shift towards the phasing out of coal in favor of so-called clean energies. Indeed, international newspapers[22] report that the World Bank has announced that it will no longer finance fossil fuel-based energy after 2019. This statement poses threats to the projects that aim at tapping into coal to generate power, especially if funding depends on external institutions, as appears to be the case for a number of projects up the government's sleeve.

7.3.2 Coal companies' views

From the coal companies' perspective, their willingness to engage with domestic firms in the supply sector is limited by those firms' lack of capabilities. Pressure to engage with domestic businesses is said to exist, but Vale's interlocutor from the Department of Procurement (interview ref. CC-1) said there is little reason to expect that domestic firms will be able to supply them more effectively in the foreseeable future. This interlocutor recognized, however, that there have been some changes in Tete in the form of an increase in the range of services that coal companies can purchase from both local and locally based firms. Nonetheless, the goods and services on offer are limited in number and scope. For example, from the coal companies' perspective, even though the capital goods and consumables they require for their

[22] https://futurism.com/world-bank-stop-fossil-fuel-financing-beginning-2019/

operations are mostly imported, the locals could do the maintenance on heavy equipment if the skills were available, but in Tete they are not.

An interlocutor from a mining company, whom I met in the Mozambique Assembly 2017 organized by the Energy Council summarized the dilemma involved in bringing domestic firms into their supply chain:

> We continue purchasing the same goods as before, but now with Mozambicans as middlemen, who charge unreasonable prices […] and this increases our operational costs.
>
> (Interview ref. CC-4, March 2018)

He continued:

> We do this for the sake of a good relationship with the government. There is no way you can operate in this industry if the government is against you […]. They can make your life difficult or signal their discontent by making things unworkable for you.

These quotes suggest that coal companies do sometimes engage with domestic firms in order to keep the government 'happy' and to signal that they are open to doing business with nationals.

When I probed into how coal companies engaged with the government agencies responsible for supporting SMEs (CPI and IPEME), none of our respondents from the coal companies (neither Vale nor ICVL) gave any credence to these two government agencies. For example, the interlocutor from Vale's Department of Procurement (interview ref. CC-2) claimed to have been in touch with CPI only to provide some information it required to feed into the SPX program and nothing else. He said that Vale was aware of the SPX and even participated in one or two of the engagement workshops organized by CPI and UNIDO, but he knew little about any further developments of the program.

As for IPEME, my interlocutors from both Vale (interview ref. CC-2) and ICVL (interview ref. CC-3) claimed never to have worked with it. Vale in particular does not believe that IPEME can help domestic firms meet its stringent requirements, which is why the company prefers to work directly with domestic firms on the ground and tell them what it needs and expects from them. Another view shared by both coal companies was that they preferred to work directly with domestic firms because trying to access the latter through government

agencies that claim to represent them introduces the risk that people working in those agencies may push forward their preferred connections or their own companies.

> If you approach some government agencies and tell them that you will need particular goods and services in the near future, it opens a space for them to come with their own firms rather than those that can really do the job but have no [political] influence.
>
> (Interview note, Vale's Department of Procurement, May 2018)

The above observation points to a lack of trust in government agencies, IPEME in particular, and its agents. In fact Vale, in the absence of a useful linkage program, claims to have its own platform through which domestic firms can bid for opportunities as suppliers. According to the interlocutor from Vale's Department of Procurement (interview ref. CC-2) the company does incentivize foreign investors to partner with locals, but it can be observed that the incentives to enter into such partnerships have a different reason from that set out in the government's policy stance. The interviewee observed that some firms that aim to operate in Mozambique as suppliers to Vale faced several bureaucratic barriers to setting up their businesses. Even after a firm has been registered and operating, there are other issues to consider that may hamper its performance as a supplier to Vale. As our interviewee put it:

> Some foreign suppliers struggle to get things done when they operate on their own, regardless of their capabilities […] because they are not familiar with the modus operandi of the business environment in Mozambique.
>
> (Interview with Vale's Department of Procurement, May 2018)

Under such circumstances, one view is that having a local partner who knows how the system works and how to navigate the corridors of influence would be beneficial to foreign firms who aim to operate in the supply sector. It is in this sense that coal companies incentivize foreigners to partner with locals.

The making of a new law on local content has been contentious, and generally the coal companies doubt that such a law on its own can solve the problem of a weak private sector. They were concerned about pressures to purchase locally and the idea that foreign suppliers may be obliged to set up a company within the country, preferably in partnership with domestic business people. Generally, both Vale's (interview ref. CC-2) and ICVL's (interview ref. CC-3) respondents stated that they have a number of suppliers that are not

based in Mozambique and that they doubted that such suppliers would set up a business in Mozambique simply to supply one or two coal companies. Both shared the view that there are unclear aspects to the new bill, particularly when it suggests that firms supplying large-scale projects, irrespective of their origin, should incorporate national factors of production. In their perspective, it is still unclear what the implications are in practice and how they will be accommodated, particularly since there is no manufacturing sector to speak of in Mozambique.

7.3.3 Mismatches between the government and coal companies

Developing backward and forward linkages in the mining sector is an aspect of the government's formal policy stance. Provisions related to the development of such linkages are found in the Mining Law and in other pieces of legislation across the legal landscape. Moreover, a bill on local content was drafted and handed to the cabinet (council of ministers) for further consideration in 2018 and is now on his way to the parliament for debate and, possibly, for approval. The idea of creating a specific law on local content stems from the notion that current provisions related to both backward and forward linkages are descriptive instead of prescriptive, motivating instead of expressing a sense of obligation. The intention of the law is to solve these problems and ensure that the mining companies in general and coal companies in particular will have no choice but to engage with domestic firms where possible.

To date, the existing provisions on local content have hardly been implemented. One of the reasons for this is that the legislators erroneously assumed that domestic firms have the capacity to participate in the mining value chain and to compete with foreign suppliers. Whereas the government cannot oblige coal companies to purchase goods and services the economy does not produce, the incentive for coal companies to engage in the capacity-building of local firms is weak. The government agencies created for the purpose of facilitating linkages between domestic firms and the mining companies have rendered themselves so irrelevant that collaboration between the two (government agencies and coal companies) is almost unknown.

From the other side, the interviewee from IPEME in Maputo (interview ref. GB-7) argued that all their attempts to establish cooperation with coal companies had failed and that Vale

was unwilling even to sit around a table with it to discuss possible avenues to incorporating domestic firms into Vale's value chain. As a result, and seduced by an Anadarko announcement of $2500 million in business opportunities for domestic firms (see Simão 2018), IPEME is switching its focus away from business opportunities in the coal sector to those that are about to emerge with the exploitation of gas further north in the country. In fact, cooperative mechanisms were said to exist already between IPEME and the companies involved in the exploration of natural gas, namely ENI, Shell and Anadarko. Expectations are that local firms will receive support from these big companies, as IPEME's belief appears to be that, unlike Vale and other coal companies, it is in these big oil and gas companies' interests to develop a highly capable local supply chain. These views may indicate a tacit acceptance from IPEME that its attempts to create linkages with the coal sector in general have failed.

While both the government and the mining companies more generally agree on the need to develop linkages in principle, particularly in the upstream sector, there are some disagreements on how such linkages should be pursued. The coal companies agree with the idea of domestic firms being given a preference in importing supplies when they are not found locally, but only reluctantly, as they claim that they can manage the imports themselves at far better prices than when working with domestic middleman firms. From the coal companies' perspective, given that specialized goods and services such as heavy equipment, stationary engines, engineering services, spare parts and magnetic separators are not available in the country, the government should remove these purchases from the local content clause.

7.4 Concluding remarks

This chapter has looked empirically into the extent to which proximate conditions – knowledge transfer, state mechanisms of support and effective implementation of law or policy – have been met in the coal sector, assuming that the existence of this set of conditions would allow backward and forward linkages to emerge.

One requirement for linkages to be created lies in local firms' capacity to absorb knowledge that may be transferred from the commodity lead firm to them, which would in turn allow firms not only to enter the value chain, but also to maintain their place there and even to upgrade. This study found that domestic firms based in Tete face challenges that prevent this from happening, namely: 1) obsolete technologies; 2) an incapacity to supply goods and

services on a large enough scale, 3) managerial and accountancy problems; 4) a lack of working capital; 5) an opaque and expensive certification process; 6) exclusion from the world of formal credit; and 7) a lack of technical expertise, which is associated with low levels of human capital. These shortcomings do not mean that there are no linkages at all stemming from the coal sector, only that the types of linkages that would be beneficial to the local economy have mostly been created with foreign suppliers, which are naturally unwilling to transfer knowledge that would enable potential competitors.

Even though coal companies such as Vale and ICVL have sourced some of their inputs in the domestic market, a considerable proportion of the amount spent in this market is on locally based firms (foreign firms registered in Mozambique), as opposed to local or domestic firms (firms owned by Mozambicans). There are a few local firms supplying goods and services, but the major share of the money spent with them in making purchases of goods and services goes to the government through large state-owned enterprises that supply electricity and fuel. Most importantly, the avenues available to small domestic firms to build their capabilities with the support of the coal companies are quite limited, and I found no evidence of collaborative measures between the two sides. While coal companies such as Vale claim that domestic firms are too slow to learn and to respond to the company's needs, some local firms in our sample felt that the coal companies are simply unwilling to work with them and therefore set standards that are hard to meet for firms with low levels of technological capabilities.

Given the struggle of local firms to participate more effectively in the coal value chain, our framework points to the pivotal role of the government in supporting such firms' acquisitions of knowledge and technology and in facilitating the creation of linkages. By looking empirically at the extent to which domestic firms have received institutional and organizational support for their development, the available facts show that the government has managed to set up institutional and organizational mechanisms to support local firms in the development of key capabilities and access to credit, and also that it did create a platform for dialogue between local firms and large-scale projects being implemented within the country, including coal projects. However, the general view from below reveals that these mechanisms are malfunctioning, as those who should benefit from government support claim they have never received any, whether from CPI, IPEME or any other public entity.

The evidence also suggests that CPI and IPEME are themselves misaligned in their aim to support domestic businesses, with an observed tendency for them to operate more in rivalry with each other. There is a consensus among almost all our respondents from the private sector that IPEME is moribund. In short, there is no evidence that the government is supporting local firms in a way that would help them leapfrog into the dominant position as suppliers in the coal sector. Even though positive outcomes resulting from the linkage program (SPX) have been reported, the program covers only about 5% of existing SMEs countrywide, and there is no evidence that firms that have benefited from the program are linked to the major mining sector in Mozambique, the coal sector. And while the domestic private sector pins its hopes on the local content bill that has made its way to cabinet, these firms may be grasping at straws as they peer into the gloom.

Finally, our investigation of the extent to which the government has set local content targets and used its governance tools to influence multinationals to engage with domestic businesses reveals that local content targets have been set for neither the coal sector in particular nor the mining industry in general. The existing local content provisions across the legal landscape have not succeeded in creating backward and forward linkages in the coal sector. Whereas hope has been placed in the new local content bill before the cabinet, there are no concrete measures or collaborative mechanisms between the government or its agencies and the coal industry that aim at spurring the development of linkages.

At this point, it is clear that the necessary proximate conditions are not present in Mozambican coal-mining sector. There is no evidence that knowledge transfers to domestic firms are taking place; the government's support mechanisms are malfunctioning and bringing limited or no benefits to local firms; and local content provisions, as part of the country's industrial policy, are poorly implemented. The result is that local firms lose market opportunities to foreign suppliers, as highly capable local suppliers are rarely found. And the key characteristic of the type of backward linkages developed in the coal sector is that suppliers depend almost totally on a tiny pool of buyers (mostly Vale and ICVL), increasing the vulnerability of the supply sector even further.

Forward linkages are also quite limited in number and scope, given that the coking coal produced has not been processed locally prior to export nor used in other industrial applications within the country. The idea of coal companies supplying local industries has been raised by both the government and the private sector, but there have been no

developments on this issue thus far. When it comes to coking coal, the coal companies are export-oriented. As for thermal coal, with its high ash and low moisture content, it could be used locally for several purposes, but at the time of writing it was still being stockpiled, awaiting a more profitable time for export. Projects to use thermal coal to generate power exist but are all still in the planning stage.

In a nutshell, the unmet proximate conditions have left only shallow linkage roots in the coal sector. Despite the fact that this is a different framework and a relatively different body of evidence, these findings are not that different from those produced by Castel-Branco and Goldin (2003) in their analysis of linkages in the aluminum sector. While the observed weaknesses of domestic firms operating – or aiming to operate – in the supply sector of the coal industry are a longstanding problem, we add to this body of knowledge about linkages in Mozambique the criticism that the government approach is too hands-off, and that all the mechanisms it has set up to support domestic firms in breaking into the linkages market are malfunctioning.

This framework was built on a premise that, in developing countries such as Mozambique, domestic firms were unlikely to overcome their capacity constraints on their own, that is, without the support of the government through policy-induced mechanisms. The evidence from the coal sector presented in this chapter supports this assumption. However, if government support is essential for firms to enter the coal value chain and maximize long-term achievements, what has prevented the government from supporting them in the way they need, with or without the involvement of the coal companies? The chapter that follows examines this question.

VIII. THE UNDERLYING CONDITIONS SHAPING THE DEVELOPMENT OF BACKWARD AND FORWARD LINKAGES IN THE COAL SECTOR

In this chapter I ask how politics has shaped the ways in which backward and forward linkages develop in Mozambique's coal sector. In order to address this question, the chapter delves into the political processes that influence the ways in which proximate conditions affect the development of backward and forward linkages in this sector. To take one step back and recap my findings from Chapter 7, the sector is characterized by poor linkage formation with domestic firms, not only because of these firm's historically weak capabilities, but also because they lack support to overcome their capability problems, despite all the government's stated intentions and claims to have been providing such support. There is also a dearth of evidence that knowledge transfer is taking place from foreign firms (coal companies and suppliers) to domestic ones, challenging a prevailing narrative of coal resources being a broad base from which to develop domestic businesses and related industries: whether or not it could become one, so far it has not.

Thus domestic firms remain on the margins, and no real mechanisms are in place to build their key technological capabilities. However, it remains to be explored what are the underlying conditions that explain the extent to which domestic businesses do or do not receive support from the government in the development of the capabilities they need to spur backward and forward linkages in the coal sector. This chapter will therefore examine these conditions by looking at the distribution of power between three key players in this sector: the ruling elites, domestic capitalists and the coal companies. In so doing, I will focus squarely on the perspective of rents as probed in the analytical framework in Chapter 3. From this standpoint it is argued that, on the one hand, ruling elites are more likely to support domestic capitalists if the latter constitute an important revenue stream from which public expenses can be met, or if they generate significant rents to fund the ruling party. On the other hand, whether or not coal companies acquiesce in the push by Frelimo ruling elites to get them to engage with domestic businesses is a function of the political leverage coal companies may or may not have over these elites. Such leverage is measured by judging how important the rents generated in the coal sector are in funding the state and its ruling elites.

The chapter is structured as follows. The first section sketches the evolution of the country's political settlement by focusing on its financial dimension, which encompasses the questions of rents and rent-seeking, given that regimes can hardly survive and reproduce themselves

without resources. In so doing, I examine how the broad-based process of primitive accumulation is related to elite accommodation – a key factor in the emergence and development of a domestic capitalist class tightly linked to the Frelimo party. The section also explores how the deployment of Frelimo party members and veterans in business served as a way not only to accommodate dissidents in order to keep the coalition together, but also to avoid the formation of new national economic groupings outside the control of the ruling coalition, which could pose a potential threat to the regime's holding power.

In the second section, I start by drawing a line between domestic capitalists and ruling elites so as to separate analytically what seem, at first glance, to be two groups that are inseparable in practice. I then assess the importance of domestic capitalists in terms of their ability to fund either the state or the ruling party, as the latter needs resources to survive politically and the state needs resources to fund public expenditure. The relative importance of domestic capitalists will help us understand how ruling elites respond to the needs of domestic firms for support.

The third section probes the relationship between the ruling elites and the coal companies. I explore how the coal sector has grown in importance for both the state and ruling elites by looking at the volumes of investments, exports, foreign exchange and revenue generation. This will help us understand the extent of the leverage that the coal companies may have over the ruling elites when it comes to negotiating engagement with domestic suppliers or the implementation of local content policies.

The chapter ends with an analysis of why development of the technological capabilities required to develop backward and forward linkages in the coal sector remains unsupported despite the public rhetoric about using the commodity sector as a catalyst for linkage formation and as a springboard for economic diversification.

8.1 A sketch of Mozambique's political settlement

After many skilled Portuguese settlers fled back to Portugal just before the country's independence in 1975, the newly constituted government had no choice but to appoint inexperienced and less educated Mozambicans to take over the companies that had been left without management in the years that followed independence. This was coupled with the nationalization of industries that were considered to be suffering from serious

mismanagement (Isaacman and Isaacman 1980). By 1982, as Pitcher (2003) observed, about 73% of the companies in the industrial, commercial and agricultural sectors had already been transformed into state-owned companies, and only 27% continued to be privately owned businesses. The state managed to control what it considered to be the key economic sectors that were vital for the country's sovereignty, which included oil-refining, insurance, banking and coal-mining (Isaacman and Isaacman 1980).

Despite the civil war that started in 1976,[23] it was believed that an honest and hard-working elite could develop the country because, as Hanlon and Mosse (2010: 4) point out, 'the late 1970s had been an era of exceptional integrity, and corruption was harshly punished, while the enthusiasm for independence and building a new country created a collaborative spirit that militated against private enrichment'.

If the high degree of integrity and honesty and the sense of self-sacrifice for a greater good featured the 1970s, Hanlon and Mosse (2010) suggest that any discussion related to the misuse of state assets and the development of commerce on the margins of state regulations should begin in 1980, the year of Francisco Langa's death.[24] As Hanlon and Mosse (2010: 5) go on to observe, 'the intensification of the civil war, with Samora striving to contain unregulated trade through the intensification of authoritarian methods, culminated in the execution of the merchant Gulami Nabi in April 1983, accused of running a shrimp smuggling network'. But as the war intensified, 'attempts to keep illegal trade under the radar, especially in the rural areas, failed, which paved the way for corrupt practices among military figures to emerge' (ibid.). 'The [(mal)functioning] state mechanisms had then brought to the forefront a set of practices linked to clientelism, patronage and corruption' (Forquilha 2007: 8).

Due to a combination of, but not limited to, the sixteen-year civil war, the state's incapacity and rural discontent with the system of government, Mozambique went through structural problems in its economy in the first half of the 1980s. As shown in Chapter 6, Frelimo had remained quite popular in the early 1980s for having expanded health and education and

[23] This civil war devastated the country between 1976 and 1992 and is often characterized as one of Africa's most brutal wars. In this struggle between the government of the *Frente de Libertação de Moçambique* (Mozambican Liberation Front, FRELIMO) and the rebel movement RENAMO, it is estimated that from 600,000 to one million people died, and over five million people were displaced, either internally or to neighboring countries (see Wiegink 2013: 113).

[24] Francisco Langa was a military leader in the liberation war against colonialism and a member of the Frelimo Central Committee. When a statement from the Central Committee was issued reporting that he had been caught diverting funds, Langa took his own life because he was filled with shame and could no longer face his comrades in an era characterized by integrity and honesty. In this period, corruption practices were dealt politically and understood as an action against the state (see Hanlon and Mosse 2010)

ended the oppression of the Portuguese colonizers (see Pitcher 2003, Hanlon and Mosse 2010). Attempts to deal with structural problems in the economy led the country to social and economic reforms. Along with measures of liberalization, privatization appeared to be economically sound at the time, as, under IMF and World Bank tutelage, it was assumed that the country's industrial base would be rehabilitated if resources were shifted back to the private sector. The privatization process in particular constituted a critical juncture in the country's political economy, given that this was when the formation of a new oligarchy began. Privatization created avenues for the emergency of a 'capitalist class', that is, a private sector overwhelmingly constituted and controlled by members and loyal supporters of the Frelimo ruling elites, whose control of the private sector has been a distinctive feature across different eras of the country's political settlement.

8.1.1 The Chissano era: the emergency of a domestic capitalist class imbued with a partisan character

President Chissano's term in office emerged from the tortuous process of economic and political reforms initiated a few years before the death of Mozambique's first president, Samora Machel, in 1986 and the country's adherence to the Bretton Woods Institutions following the demise of the socialist model of development (Macuane et al. 2017, 2018). However, the demise of socialism and the shift to capitalism posed challenges to Frelimo, as this transition increased the pressure on the ruling coalition (Frelimo) from aspiring national businesspeople linked to the Frelimo party who were fearful that the shift to an open market economy would exclude them economically (see Hanlon 2009). This was because most of these aspiring businesspeople neither accumulated wealth during the socialist period nor developed the skills that would have allowed them to compete in an open market. As Hanlon (1991: 245) observes, 'in a parliamentary debate on the Rehabilitation Economic Program (PRE) in September 1990, there were [still] complaints that foreign business interests were benefiting more foreign than Mozambican businesses', and the prevailing idea was therefore that priority should be given to Mozambican entrepreneurs rather than to foreigners.

Under Chissano's leadership, as Pitcher (2003) observed, Frelimo feared that neglecting those groups that claimed access to resources could potentially lead to party fragmentation. This was an era when the multiparty constitution introduced in 1990 had been drafted and Frelimo needed to win the elections against the main opposition party, Renamo, which had

considerable support in the center and north of the country, which would certainly require a cohesive and united ruling party. Pitcher (ibid.) argues that Frelimo quickly realized that it could be politically rewarding to grant land, credit and state enterprises to party insiders. A first step towards this policy had been taken at the fifth Frelimo Congress back in 1989, which eliminated the restrictions that had been imposed on party members participating in the private sector. In so doing, as Pitcher (ibid.) goes on to observe, the fifth Congress then gave the ruling elites the power to reward their supporters by giving them state assets, with many top officials and their associates taking shares in a wide range of businesses.

In parallel with this, in the late 1980s and early 1990s, Mozambique had embarked on one of the most ambitious privatization programs in Africa, having privatized more than 1400 companies in about a decade (see Macuane et al. 2017, 2018; Castel-Branco et al. 2001). Within the ruling coalition, as Pitcher (2003) points out, privatizations involved a relatively controlled process of primitive accumulation that led to the emergence of a domestic business class closely linked to the Frelimo ruling coalition. For Hanlon (2004), party members had seen and used the privatization process as an opportunity to accumulate wealth such that some state enterprises were given to generals and others to members of the Frelimo elite and close family members of former President Joaquim Chissano. In parallel to this, the government created institutions and funds to support national investors in their acquisitions of privatized enterprises. These funds were not only used to support national entrepreneurs; also, as Hanlon and Mosse (2010) suggest, for the period of change to a market economy under World Bank and IMF pressure, funds were used to make loans to military and party officials without expectation of return. The idea was to use the money to buy military personnel and party officials who opposed the ending of the war and the abandonment of socialism. As pointed out by Castel-Branco et al. (2001), the Frelimo government sold public assets to army veterans at subsidized prices with the aim of easing their transition to a market economy and avoiding political problems.

The privatization process was thus the first known major attempt to develop a capitalist class through the transfer of assets from the state to the private sector while trying to keep declining industries alive in key sectors, especially those that could provide returns in terms of rents and political support, such as the labor-intensive and rural-based sugar industry (see Buur et al. 2011). This process of politically driven accumulation during and after the privatization era is seen by Castel-Branco (2015) as having had two distinct stages. In the first stage, the

state empowered local elites, de-capitalized and without business skills or experience, through favorable privatizations of public assets and enterprises. In the second stage, it selected from the previously empowered local elites those whose loyalty was more certain when it came to forming a national business class which over the last decade has been linked, through the Frelimo Party, to international capital and investments in natural resources (see also Macuane et al. 2017:10, 2018:424).

Chissano's ruling coalition, as Macuane et al. (2017, 2018) point out, is known for having accommodated the interests of many different factions and individuals both within and outside the ruling party, not too extensively in the case of the latter, but enough to ensure the stability of the country during the peace-building process. 'Thus, Chissano's period is also known for the emergence of corruption in the public sector, as epitomized in the phrase, 'the goat eats where it is tied', and for its *laissez-faire* (*deixa andar*) attitude to a public sector embroiled with corruption' (Macuane et al. 2017:11, 2018:425). 'The Chissano era became known for being corrupt not only because of its departure from Frelimo's strict ideology of Marxism-Leninism and party discipline, but also because of the broad-based process of accumulation that the regime permitted in order to accommodate social groups and factions that could threaten it electorally, [coupled with] the fear of losing control and power to Renamo' (ibid).

8.1.2 The Guebuza era: centralization of rents in the hands of the incumbent's clan

When Armando Guebuza took over from Joaquim Chissano as President of Mozambique in 2004, ruling party insiders were already infiltrated into many facets of country's economic life, and the governance system had been transformed into an instrument to generate and distribute business opportunities and paybacks to party members and their supporters. As Pitcher's work shows (2017: 9), Frelimo sought to 'mobilize organizational and financial resources to actively create and recruit business interests arising from the shift to a market economy'. Thus, the new business class in Mozambique as we know it today 'started their careers in the government and in politics and owe their existence or economic expansion to patron-client networks' against the backdrop of the privatization process (Pitcher 2003: 807). The most recent national economic actors are therefore overwhelmingly constituted by former and current central government officials, former administrators of state enterprises, Frelimo party leaders, members of the military, veterans of the civil war, etc., where their entrance

and continuation in the business world were and continue to be facilitated by the links they had or have with the state (see Pitcher 2003, 2012, 2017).

Within the ruling coalition, Guebuza positioned himself in opposition to the Chissano era, which was characterized by inefficiency within the public sector and widespread corruption, promising instead to boost national capitalist development (see Macuane et al. 2017, 2018). This did not necessarily mean that all factions within the ruling party coalition would benefit, since the available economic opportunities were distributed within the narrow coalition of those closest to Guebuza, who controlled the economy and rents with a tight fist, in contrast to the Chissano era (see Chapman 2009, 2010). Unlike Chissano's leadership, Guebuza sought to centralize rents, and only those who were aligned to him within the ruling coalition were likely to be given access to business opportunities linked to the state.

Despite the fact that the country was still reliant on donor aid to fund the state budget, it was increasingly felt that Guebuza was striving to achieve more autonomy through the expansion of the revenue base. His ambitions seem to have yielded some results, as, between 2005 and 2015, internal revenues increased from 57.8 percent to 75 percent (and state revenues from 56.7 percent to 71 percent), while foreign aid grants decreased from 28.4 percent to 9 percent of total budget revenues (see Macuane et al. 2017, 2018). The new era of natural resource investments in coal and gas appears to have played an important role in generating increases in internal revenues, from gas and mining exploitation to capital gains taxes. Significantly it was under Guebuza's rule that huge investments in coal and later in gas came on stream. Importantly, the ruling coalition continued to exert control in accessing economic opportunities, and only domestic companies that had links with it were likely to benefit from business linkage opportunities in the resource sector.

8.1.3 The Nyusi era: between a rock and a hard place

Filipe Nyusi was sworn in as President of Mozambique in January 2015 after winning the presidential elections in October 2014, compelling Guebuza to step down as the Frelimo Party's president. Nyusi came to power when the economic crisis, triggered mostly by the country's secret debt-taking, started hitting the country. The Guebuza government had taken out loans of $2 billion from a Russian state-owned lender VTB and Swiss bank Credit Suisse, of which only $850 million taken out in 2013 were made public. The others $622 million and

$535 million taken out in 2014, totaling $1.2 billion, remained secret until their disclosure between 2015 and 2016. While the $850 million loan was allegedly taken out to set up Ematum (the Mozambique Tuna Company) to catch tuna, the $622 million and $535 million loans were supposedly used to buy military equipment for Proindicus and Mozambique Assets Management (MAM), companies owned by the Ministry of Defense ostensibly to protect the country's long coastline of about 2700 km.

When the secret debt was uncovered and the government admitted to having hidden it in 2016, its fourteen-member donor group, including the World Bank, International Monetary Fund and African Development Bank, decided to suspend direct support to Mozambique's state budget until the facts were clarified, plunging the country into a serious economic crisis. While government figures claimed that the loans had been taken out to meet Mozambique's fishing and defense needs, an independent audit found that these companies had been set up as a scheme to divert funds to private individuals under the umbrella of the state, which offered guarantees for the debt. Among those involved were the former minister of finance, who is considered to be the brains behind the scheme but who is currently facing jail in South Africa as a result of an international arrest warrant issued by the USA in connection with the debt scandal (for details, see Hanlon 2017; Frey 2019).

When the economic crisis started hitting the country back in 2015 due to the fall in commodity prices, the low-intensity civil war and the hidden debts, the Nyusi government started freezing its spending, companies started laying off employees or even shutting down, and inflation rocketed to over 20 percent (see Wallace and Nhamirre 2016). Given that the provision of public goods declined and the population was relatively deprived of access to such goods, in 2015 the rumor soon spread throughout the media that Nyusi had inherited empty coffers from his predecessor Armando Guebuza. However, such claims did not go unchallenged: one study (Francisco and Semedo 2016) found that the state had not been left with empty coffers at all, as Nyusi had inherited a sum close to $2.8 billion from the 2014 state budget account.

While Frelimo partisans tended to argue that Nyusi has had a run of bad luck in his first term in office, it came to be realized that he had tried to keep the concealed debt under the rug. The Nyusi government repeatedly denied the existence of secret debts and accused external actors of trying to destabilize the country by spreading tittle-tattle. It should be noted that, at the time the debts had been contracted, the current President Nyusi was Minister of Defense in the Guebuza government, with the companies involved in the scheme being owned by the

Ministry of Defense. Public opinion is therefore suspicious of Nyusi's attempts to conceal the debt and has not ruled out the possibility of his own involvement in the scheme. In light of such considerations, it appears that the old pattern of primitive accumulation observed under Gebuza's rule and before him has not lost its luster.

Whereas 'Guebuza's legacy is one of political and economic mess, with a country that had substantial potential on the brink of collapse, it is increasingly apparent that Nyusi cannot free himself from the entrenched political culture of patronage and self-preservation that reigns within Frelimo' (Bertelsmann Stiftung 2018: 4). While Nyusi is muddling through in an era of economic gloom for the country, the other aspect to his government is that the private sector continues to be dependent on the party as the gatekeeper in accessing business, with no clear and consistent strategy to strengthen the productive sectors. These structures, through which the ruling elites maintain their grip on power by distributing economic opportunities and often strangling the opposition's access to them, have remained intact over the last two decades. The hallmark of these structures is the private sector's dependence on the links it has with the state through the ruling party in order to be given access to highly profitable businesses, especially those in the extractives industry.

8.2.4 The aftermath of the politics of greed

At this point, to recap, we can succinctly describe the emergence of domestic capitalists or a business class in Mozambique as one that stemmed from the privatization process in the late 1980s and early 1990s and that developed through the concentration of resources in the hands of the former and even current political elites of the Frelimo ruling party and its loyal supporters. Two observations emerge from this. First, the number one reason for the ruling party having deployed party members and veterans into business in the transitional phase from socialism to capitalism was initially to accommodate dissidents within the party, as most of them had not accumulated wealth during the socialist era and therefore claimed access to resources and opportunities in the new, capitalist era. In acquiescing in internal distributional demands, Frelimo sought to keep the coalition together in a period when new entrants into politics (new political parties) would be emerging and could constitute external threats to the ruling coalition.

Secondly, attempts seemed to have been made to develop a national productive capitalist class

in the 1990s, with the ruling coalition seeking to ensure that the formation of such a class did not happen outside the control of the ruling party. This pattern of control over the private sector has been maintained up to now and has allowed the ruling party to prevent new centers of economic power from emerging, as they could potentially threaten the survival of the ruling coalition and elites. Such strategies on the part of Frelimo's elites to ensure they survive through their tight control of economic groups are observed in the history of the country's business class formation, currently represented by the Confederation of Economic Associations of Mozambique (the CTA). I will proceed by telling the story of the CTA and how its control of the economic business class on behalf of the Frelimo coalition is exercised.

The private sector in Mozambique is represented by the Confederation of Economic Associations of Mozambique (the CTA), which positions itself as a non-governmental and non-partisan organization. The CTA was set up as the official partner representing the country's private sector in dialogue with the government. Historically, as described in its 2014 newsletter, the CTA was created in 1996 under the name of the 'Associations Work Committee' to serve as a forum of dialogue with the government in the adoption of new laws under the new liberal market pertaining the capitalist system. Far from being an endogenous force representing the private sector, the CTA was a government initiative, as the latter aimed at facilitating its dialogue with the growing private sector, which consisted of fifteen business associations at that time. In 1999 this committee was transformed into the CTA as we know it today, with Helder Mussanhane taking the leading role as its president at the time. To date, the CTA has 140 members comprising federations and economic associations throughout the country.

At its creation, the CTA received financial support not only from the government, but also from USAID, whose support, however, had ceased to exist by 2010, having led the government to continue providing financial support so as to prevent the CTA from melting away. The creation of the CTA was a Frelimo government initiative, and it has been sequentially led by loyal Frelimo supporters (former presidents of the CTA Abdul Abdulah and Rogério Manuel) and members of the ruling coalition (president of the CTA and Frelimo MP Adelino Vuma). Like democratic mass organizations (no longer extant) and trade unions, the widespread view among national businesspeople within the country is that the CTA was created to collaborate with the government but never to confront it and that it has served as an instrument for Frelimo, the ruling party, to keep the country's private sector under the

radar.

My informant from the Small Medium Enterprises Association or APME (interview ref. A-2) suggested that the growing perception that the CTA represents the interests of a few politically well-connected people rather than the majority of the businesses within the country led to the creation of the Small and Medium Enterprises Association (APME) in 2011. As APME started to grow in importance, grabbing the attention of donors and Small and Medium Enterprises themselves, which was keen to join it, APME was invited to join the CTA with the argument that there was only one private sector in Mozambique and that they, the CTA and APME, should stick together in order not to compete for the scarce business opportunities. For APME, argued this interviewee (interview ref. A-2), this argument was less convincing, and therefore it was quite skeptical about joining the CTA. Due to the pressure to join the CTA, APME had conditioned their membership to reforms within the CTA so as to increase transparency and inclusiveness. The CTA promised to introduce such reforms and also promised to work together with APME, but that did not convince APME either.

As mentioned in Chapter 6, small and medium enterprises (SMEs) account for 90% of all companies in the country, despite the fact that their share in industrial production and exports is as yet insignificant. Be that as it may, the emergence of an association such as APME that might represent a considerable proportion of the private sector (90%) within the country could not go unseen by the ruling party Frelimo. The latter therefore began to exert pressure on APME to join the CTA. In fact, the Frelimo Central Committee not only pushed APME to join the CTA, it also invited its leaders to join the Central Committee and advise on issues related to the economy and business. In 2017, APME finally joined the CTA. What came to be realized by APME a year later, argued the APME informant (interview ref. A-2), was that no reforms were undertaken within the CTA and that their influence with the government in negotiations dropped sharply, since even the donor funds to support small and medium enterprises tend to be allocated straight to either the CTA or the government, and APME pretty much never benefited from them. Whereas those in the leadership of APME are now linked to Frelimo's Central Committee, APME itself, as an association that represents the interests of SMEs, became less influential within the business sector. This went along with a tendency for its members to pay the association's fees only rarely and with only a limited number of firms being willing to join it, as they saw no tangible benefits from doing so. The APME informant also mentioned that the organization is now struggling financially even to

pay its office rent, from which I assume that this is what led it to move from a spacious, cozy and very functional office somewhere in the business center to a tiny and unattractive office facility elsewhere on the periphery of Maputo city (in Alto-Maé).

From the preceding example, it is clear that the idea of incorporating APME into the CTA and APME's leaders into the ruling party worked, in part, as a strategy for Frelimo to weaken the influence of APME within the private sector, as it seemed to represent a new center of power that had not emerged under the party's wings. The idea of APME joining the CTA was ideal for Frelimo given its ubiquitous influence over the latter, as could easily be observed under President Guebuza's rule. For example, after Helder Mussanhane the presidency of the CTA was taken over by Salimo Abdula. The latter is the president and chairman of one of the major Guebuza family companies – Insitec Holding[25] – which has shares in a wide range of profitable businesses. Through the CTA, as Hanlon (2009) puts it, Salimo Abdula could give the president a direct role in all business. One example is that of Vodacom, in which Insitec holds shares and for which Salimo Abdula was sworn in as its CEO in 2009-2011, 2013-2015 and currently since 2017. Given that the ruling elites and their party wield enormous influence within and over the CTA, pushing APME to join the latter allowed them to prevent a new and potentially relevant business class from developing outside the control of the ruling coalition. As a result, the CTA continues to be the private sector's representative within the country, while APME has been rendered irrelevant as a player either within or outside of CTA.

One observation is that the participation of members of the ruling elites in business does not mean that they and the domestic capitalists are the same. The line that separates them may be blurred, but as I shall show in the next section, they are two different groups with different interests, and their holding powers may differ widely. If so, the immediate line of enquiry is to ask how powerful domestic capitalists are in exerting an influence over the ruling elites in their quest for government support to their participation in the coal value chain. The section that follows deals with this question by examining the sources that could provide domestic capitalists with power, that is, the amount of rents that domestic capitalists are able to generate for the government in the form of revenues or to fund the Frelimo Party.

[25] This company appears operates simultaneously in many sectors such as electricity transmission and equipment, telecommunications, gas, consulting, cement, tourism, construction, transport and fishing. My observation is that this lack of specialization gives the company room for maneuver, as it allows it to tap into any sector where opportunities may emerge.

8.2 The relative power of domestic capitalists in relation to the ruling elites

One of the theoretical assumptions that underpins this work (see section 3.2.3 in Chapter 3) is that the extent to which domestic capitalists will receive government support – for example, in the form of learning rents[26] – depends on the holding power they may have in relation to the ruling elites. The sources of their power lie in the amount of rents they can generate either for government revenues or to fund the ruling elites and their party. Whereas specific data on the domestic firms' contribution to government revenues is hard to obtain, there is evidence that domestic capitalists are neither a key source of state revenues nor central to funding the party, as we shall see from the subsections that follow.

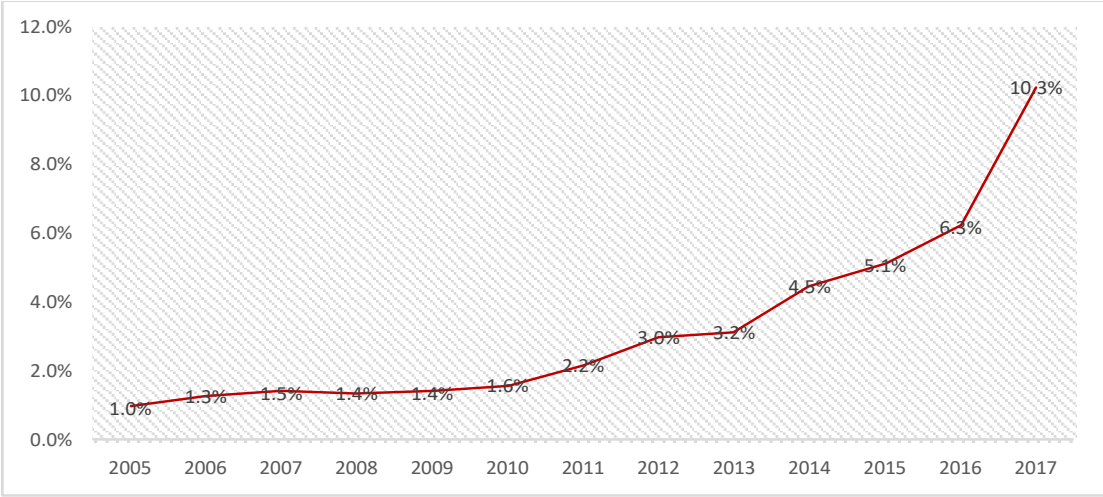
8.2.1 The country's reliance on aid and natural resource rents

Mozambique is historically an aid-dependent country. As Batley et al. (2006) points out, the country's aid dependence peaked during the war at 87% of gross national income (GNI) in1992, the year of the peace accord, which was accompanied by a new, multi-party political system. As the 1990s drew to a close, as Batley et al. (ibid.) go on to observe, it had fallen sharply to 30%, but donor support still accounted for more than 50% of total public spending and about two-thirds of public investments (see also Oya and Pons-Vignon 2010). As mentioned in the previous section, under Armando Guebuza the government sought to gain independence from donors by mobilizing internal revenues. While his attempts to reduce dependence on donor grants yielded positive results, as aid dependence in the state budget fell to below 50%,[27] Guebuza sought to mobilize internal revenues by relying overwhelmingly on the extractives – corporate income taxes, royalties and capital gains taxes– rather than on incentivizing internal production outside the commodity sector. Given that the extractive sector has grown in importance, with its share of GDP increasing from 1% in 2005 to 10% in 2017, there is tendency for the country to move from aid dependence to natural resource dependence (see the trend in the graph below, Figure 8.1).

[26] Here I take up Khan et al.'s (2000) view, who posit that in developing countries productivity growth is usually led by learning rather by innovation, and that rents play a crucial role in the facilitation of learning processes. By definition, learning rents are conditional policy-induced subsidies allowing producers time to catch up. Learning rents include, but are not limited to, 'general and specific industry infrastructure; provision of access to adequate and low cost investment and working capital […] helping capitalists to obtain access to scarce land and natural resource'(Gray and Whitfield 2014: 21)

[27] Oya and Pons-Vignon (2010:172) are of the view that a significant number of countries can be classified as aid-dependent if aid represents at least 15 per cent of their GNI.

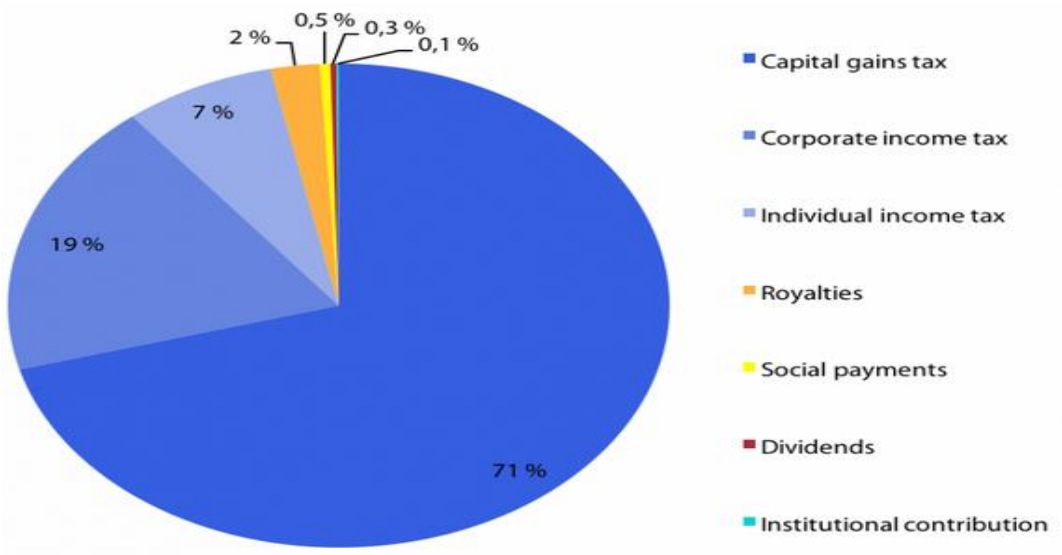
Figure 8.1. Trends in the extractive industry share of GDP, 2005-2017.



Source: National Statistical Institute.

Notwithstanding the drop in the production of commodities that was registered in the years before 2017 due to the commodity bust, extractives continued to be an important source of government revenues, especially capital gains taxes related to the off-shore gas fields in the north of the country, in Cabo Delgado province. In 2014, capital gains taxes accounted for 71% of the total revenues collected from the extractives sector, followed by corporate income taxes, individual income taxes and royalties (see Figure 8.2). In this period, data from EITI suggests that the extractive industry accounted for over 20% of government revenues and over 30% of total exports.

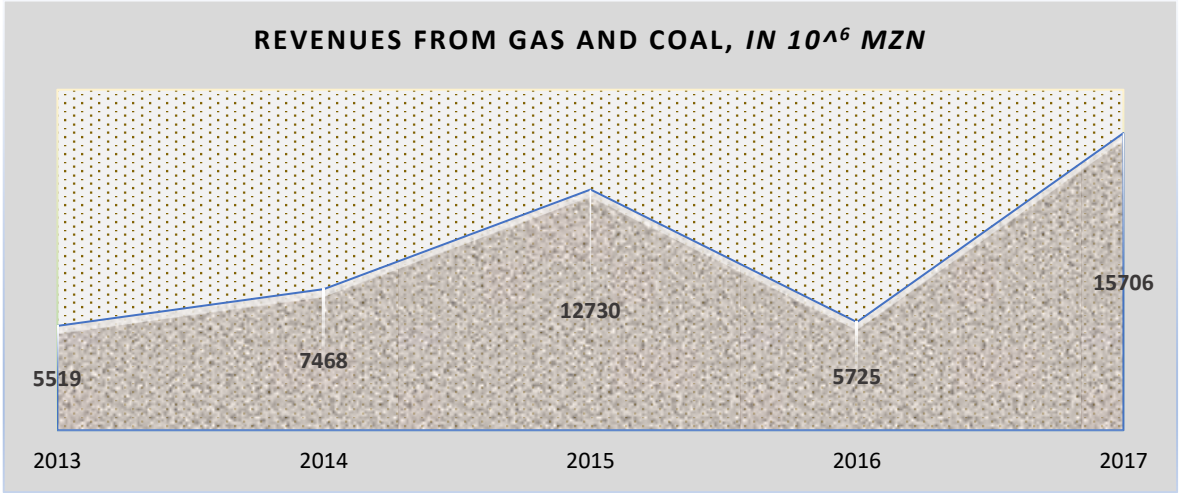
Figure 8.2 Contribution of the extractive sector to the government by revenue stream in 2014.



Source: Extractive Industry Transparency Initiative (EITI).

Among the commodities within the extractive sector, coal and gas came to be those that generated more revenues for the government. The growing importance of the gas and coal sectors to government revenues is also reflected in the official figures, which suggest that the revenues accruing from these two sectors together rose from MZN 5519 million (equivalent to $95 million) in 2013 to MZN 12730 million (equivalent to $212 million) in 2015, and then suffered a sharp decline in 2016 to MZN 5725 million (equivalent to $95 million). In 2017 government revenues from gas and coal trebled (see Figure 8.3).

Figure 8.3. Revenues from the extractive industry 2013/2017 (in 10^6 MZN).



Source: Administrative Court, 2018.

In total, the gas and coal sectors accounted for 3.5% of the total revenues collected by government in 2016, and in 2017 these two sectors accounted for 7.5% of government revenues. In the structure of revenues collected from the extractive industry more generally, these revenues excluded capital gains taxes, corporate income taxes and royalties being their two main sources. Despite the fact that revenues from the coal sector alone have been steadily increasing over the last few years, the observed decline in revenues collected from both gas and coal in 2016 was mostly influenced by the significant decline in revenues from gas. Revenues from the latter accounted for 67.2% of the total revenues collected from both gas and coal, while coal accounted only for 32.8%. However, this trend has changed since 2017, with the coal sector generating in 2017 alone revenues equivalent to $172 million, which corresponds to 65.6% of the total revenues collected from both gas and coal, while the gas sector alone generated an equivalent of $90 million, which corresponds to 34.4%.

In spite of the fact that the country has relied on donor funds and resource rents to support

and fund the state budget and other obligations, it is worth noting that these two sources became critical revenue streams, particularly from 2015, when the debt scandal came into the public domain and the prices of almost all commodities in the international market, including coal, had fallen sharply. While the former led donors to suspend their support to the state budget, the latter not only reduced government revenues accruing from the extractive sector, as portrayed in the graph above, it also led many businesses linked to the mining sector to close, which in turn increased unemployment and reduced tax revenues, as can be observed in Figure 8.3. Despite the fact that the donor group froze direct support to the state budget, Frey (2018) reports that the government will still receive soft loans equivalent to 43.7 billion meticais and grants of 27.7 billion meticais in 2019.

It should also be noted that there are other sources of revenue outside the extractive sector that play an important role in bringing foreign currency into the country through exports of, for example, tobacco, sugar, cashews and shrimps. However, as in the extractive industry, most of the companies involved in the production and export of these commodities are providers of FDI, which indicates the limited role domestic businesses play as a revenue stream from which public expenses can be met.

8.2.2 Frelimo's fund-raising

Another point of consideration is the extent to which domestic capitalists support the ruling party (Frelimo) or its elites financially, as the latter need funds for political mobilization in order to win elections. When the electoral period approaches, it is a common practice for Frelimo to raise funds for their electoral campaign from domestic businesspeople by auctioning goods with relatively low economic market value, such as a signed T-shirt by the President of Frelimo, the latter's portrait, pens, etc. At first glance, the ruling party seems to have been successful in raising funds through this process, judging by the amount of money involved.

The most recent fund-raising event took place in September 2018, just before the municipal elections. Participation in the event was by means of tickets sold for an equivalent of about $1700, $850, $450 and $200. Those who bought the most expensive tickets were seated at the same table with the president of the party, Filipe Nyusi, giving them visibility as loyal members of the party, as was the case for the president of the CTA, Agostinho Vuma. As

reported in the newspaper *A Carta de Moçambique* in 2018, the highlights of the event were the purchase, by emerging businesspeople, of a T-shirt for about $12,000, a Filipe Nyusi portrait for $170,000 and other two portraits sold for $24,000. Historically, those who make such purchases at these events increase their visibility within the ruling coalition in a context in which the economic opportunities are tightly controlled by the latter.

The well-known benefits received by domestic entrepreneurs from being loyal Frelimo supporters include tax exemptions in respect of imported goods, given that a number of domestic businesspeople work in trade. In the Chissano and Guebuza eras it was no different, with the most notable business group being Bachir family, led by Mahomed Bachir Suleiman, who in 2010 was identified by the US Treasury as 'the leader of the narcotic trafficking and money laundering network in Mozambique that is centered on his family-owned business MBS Group'. Bachir was the major funder of the party in the Chissano and Gebuza eras, despite his alleged involvement in criminal activities. The same goes for the Satar brothers, who used to attend these events in the past before being jailed for their participation in the assassination of the journalist Carlos Cardoso, who was investigating a bank fraud in which Satar brothers were involved (see Hanlon 2002).

Whereas supporting the ruling coalition financially should give domestic firms some sort of leverage over the ruling elites, in the case of Mozambique it does not. The fund-raising organized by Frelimo works as a market place in which domestic capitalists fund the party as a way of buying preferential treatment in accessing business, of showing gratitude to the ruling coalition for its past achievements, or of continuing to operate without the state authorities setting up barriers to their profitable business ventures.[28] The latter include involvement in suspect businesses[29] without the powers that be cracking down.

One observation is that a large proportion of the private sector spends large sums on political

[28] There are cases where domestic entrepreneurs started their businesses without the support of or links with the ruling elites, but once their business succeeded and grew, they had to show sympathy or loyalty to the ruling coalition so as to avoid political interference in their businesses. This was the case for Junaid Lalgy (Transportes Lalgy) who started operating in the transport sector in 1989 owning only two trucks. He now runs one of the biggest private transport companies in the country, its business having expanded into the construction sector. In the fundraising that took place in September 2018 he stood out for having bid for a Filipe Nyusi's portrait at $170,000.

[29] Besides the case of Bachir, known as the 'drug lord', there are cases of companies continuing to engage in looting the country's resources and going unpunished due to their links with the ruling elites. This is the case or Mofadi, as reported in Oxpeckers (see https://oxpeckers.org/2017/01/timber-looting-continues-in-mozambique/), a company associated with a local customs broker involved in wood looting. The company continued operating in the sector after being caught in these illegal activities, but then it was revealed that two former ministers of agriculture and other unknown leaders within the ruling elite were involved in trafficking the wood. Reportedly, in one decade the country lost over $500 million through illegal exports of this commodity to China, as the amount of timber exported to China is said to have been 5.7 times more than the amount officially declared (see https://allafrica.com/stories/201507250021.html).

activity, which is treated as an investment in becoming a potential beneficiary of government contracts or other business opportunities under the control of the ruling coalition. Provided that such investments are not focused on increasing production or on developing technological capabilities, they work as simple clientelist exchanges between domestic capitalists and the ruling party, with the latter having power over the former, as it controls profitable businesses with a tight fist. In addition, as emerged from an interview with a business association in Maputo (interview ref. A-2), 'those in the leadership position of CTA – private sector representative – use their position to further their own agenda at the expense of the development of the private sector'. This indicates that the private sector may be in a process of self-mutilation, as the very small degree of influence it is able to exert is used for considerations other than supporting emerging domestic businesses or strengthening existing ones.

8.2.3 Engagement of the Frelimo party in business

Mozambique's ruling party, Frelimo, has a business arm, a holding company called SPI, which has been pushing for its involvement in profitable business projects. Hanlon (2009) considers that SPI has become trapped in the old rent-seeking days for having been given a contract in 2006 to install a non-invasive scanner in Maputo port to scan all containers going through the port, with a fee being paid for each container. The participation of Frelimo in domestic businesses is of questionable value as far as public opinion is concerned, especially its participation in public tenders, where the decision to allocate the contract is ultimately made by Frelimo's ruling coalition itself. This was the case in 2010, when SPI, in partnership with Viettel (a Vietnamese company), won a public tender to enter the market as a mobile telecommunications operator under the name of Movitel. The latter is the third mobile operator[30] within the country, and Frelimo, through SPI, holds 30% of the shares. SPI is also engaged in the construction sector in partnership with a Chinese company, China International Fund Limited (CIF), in which the latter holds 80% of the shares, the remainder being held by SPI.

Besides Frelimo acquiring shares in a wide range of businesses through SPI, illegal money

[30] The first mobile operator was Mcel, a state-owned company that started operating in Mozambique in 1997. The second is Vodacom. According to Bertelsmann (2012), the former president of Mozambique, Armando Guebuza, is the latter company's main shareholder.

from trafficking has been reported as being used to fund the party. There have been reports that the ruling party protects or is otherwise involved with drug traffickers in exchange for money, and has been for decades. In fact, heroin, which is produced in Afghanistan, shipped to Nacala port and then transported to South Africa, is likely to be Mozambique's second major export after coal (see Hanlon 2018; Gorodema 2013). *The Economist* magazine reported in January 2019[31] that in Mozambique the trafficking is controlled by powerful groups and surreptitiously regulated by Frelimo. In exchange for political donations and bribes, reports the magazine, Frelimo protects traffickers from arrest. It was also reported in the same source that the ruling party issues permits for smugglers to import and export goods without detection at Nacala Port, including motorbikes packed with heroin.

From the points made above (the country's reliance on aid and natural resource rents; Frelimo's fundraising through the auctioning of goods; Frelimo's involvement in business, including using money from trafficking), it becomes evident that, while the government has caused the state to be overwhelmingly reliant on aid and natural resources for its funding, Frelimo, the ruling party, has pushed for its direct involvement in business and other dubious activities so it can meet its financial needs. This is coupled with an old-established pattern that ruling elites have used for their own purposes, namely selling mining licenses to foreign investors who have an interest in exploiting natural resources. On this latter point, Monjane (2014) found that mining licenses were used as a valuable resource for purposes of accumulation by high-ranking government officials and members of the ruling elite. After obtaining a title deed at almost no cost, the license holder sells the license to investors who have a genuine capacity to carry out the exploration and exploitation of natural resources. There were cases where license-holders demanded partnerships with investors interested in exploiting the minerals located in an area covered by the license(s) the former held.

Given these circumstances, I suggest that neither the state nor the ruling elites depend on domestic capitalists to meet public expenses or to fund the ruling party. Although domestic capitalists have contributed to the party's finances at fund-raising events, they remain a less important source for the party. Even though some funds are channeled to Frelimo, fund-raising events also serve as a message to emerging businesspeople that their success is more likely to be ensured if they are willing to support Frelimo, irrespective of their capabilities. This leaves domestic capitalists with limited holding power and thus little influence over the

[31] See https://www.economist.com/middle-east-and-africa/2019/02/02/africa-is-heroins-new-highway-to-the-west

ruling elites, with little room to push for policy-induced mechanisms that would accelerate learning.

8.3 The relative power of the coal companies

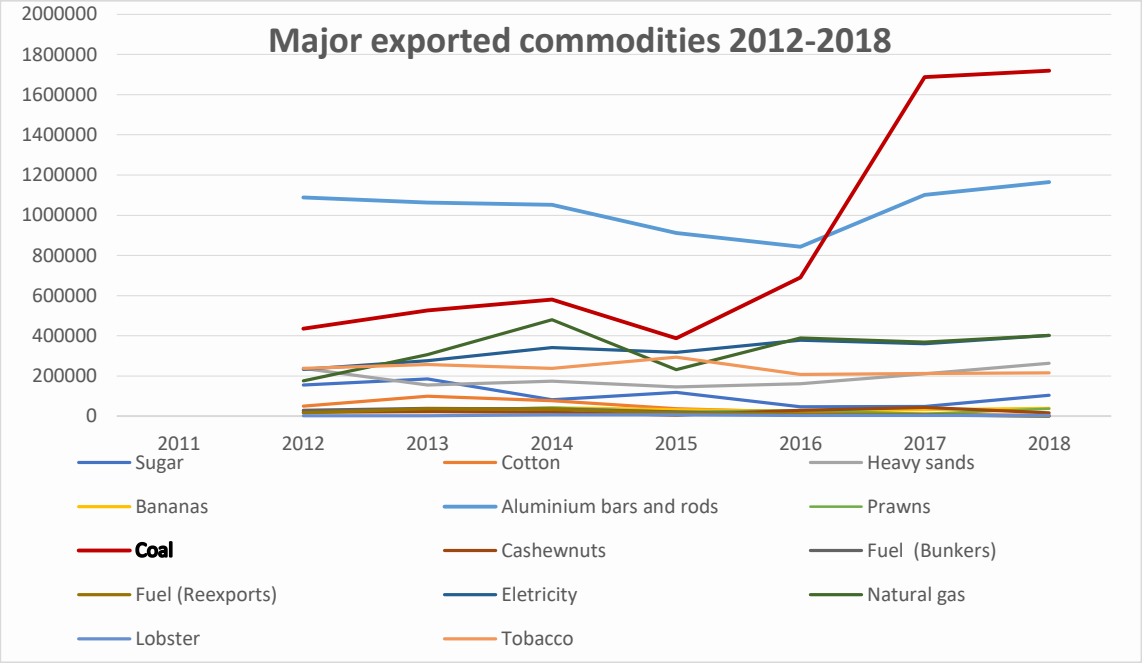
When the 1990s drew to a close, a resurgence of interest in the Moatize region was observed, and the government, under Joaquim Chissano's presidency, launched an international bid for the exploration of coal in the region. However, it was under Armando Guebuza's presidency that the coal company Vale marked its debut after winning the bid in 2004, to be followed later, in 2011, by other large-scale projects led by firms such as Rio Tinto (now ICVL) and Jindal, and other small projects by firms such as Ncondezi and Minas de Moatize. Vale and Rio Tinto became the two major players with initial investments of over $1.2 billion each, having created expectations of longstanding benefits for the local population and the economy, mainly through revenue collection and linkage formation. However, as the findings from the previous chapter suggest, linkages have been rather limited, mostly due to the lack of domestic capabilities. The development of such capabilities with the participation of the coal companies is just not happening, the latter relying overwhelmingly on foreign companies and their subsidiaries instead to provide their needs. The state agencies that should be facilitating the links between domestic firms and the coal companies have played a limited role and put the blame on the latter for not be willing to cooperate with them. Drawing on this latter undertaking, the question is how the coal companies can decide not to engage with the agencies that represent the interests of the government – as expressed in the investment law and mining law – to increase local participation in the mining sector.

A theoretical assumption underpinning this work is that the likelihood of coal companies engaging with domestic businesses as a result of a government push depends on how powerful they are in relation to the ruling elites. Their source of power will depend on the importance of the sector as a source of funding for either the state or the ruling coalition. This means that if the coal companies constitute an important revenue stream, they would then have the leverage to resist, whether formally or informally, the effective implementation of an industrial policy (the mining law, for instance) that pushes them to engage in the process of building up the capabilities of domestic firms.

8.3.1 The relative importance of the coal sector in the generation of rents

The share of aluminum from Mozal in the country's exports has historically been the largest, but this started to change when coal exports came back on stream in 2011. By 2015 coal was the second most exported commodity from Mozambique, though accounting for less than 10% of total exports, while Mozal's aluminum accounted for 31% of Mozambique's exports in the same year. In the last quarter of 2016, the price of coking coal suddenly more than doubled, and the price of thermal coal increased by more than 40%. As a result, coal companies in Moatize resumed[32] their activities, giving coal a prominent position among the most exported commodities. As shown in Figure 8.4, coal exports rose significantly and started to overtake aluminum. By September 2018 coal was accounting for 33.9% of total exports.

Figure 8.4. Trends in the most exported commodities (in 10^3 U$D).



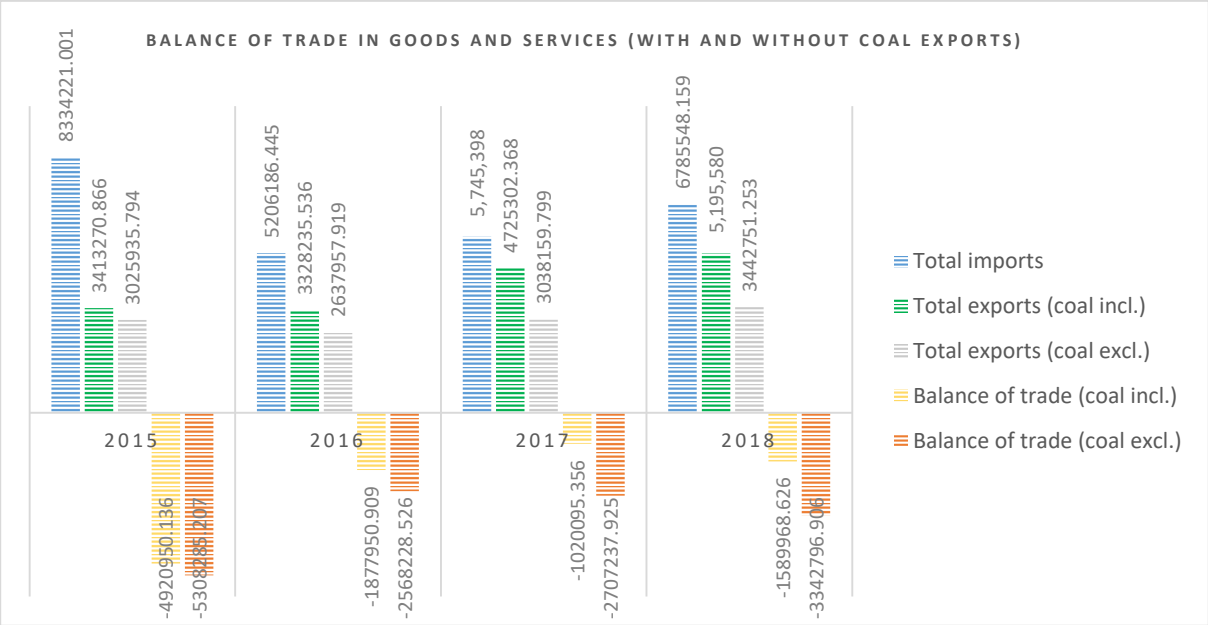
Source: National Statistical Institute.

Most importantly, the coal sector has had a visible impact on the balance of trade, as shown

[32]Projections that coal would account for about 8% of the GDP by 2015 did not materialize at that time due to infrastructure bottlenecks and a slump in the prices of all commodities, including coal, which led sizeable coal companies such as Jindal and ICVL to halt their production.

in Figure 8.5, which depicts trends in the country's total exports, taking into account two scenarios: including coal exports in the equation versus excluding them. Comparing these two scenarios, it can be seen that coal exports tend to drive trends in the total exports of the country due to coal's increasing share in exports, which reached 33.9% in 2018. As a result, coal exports have played an important role in reducing the balance of trade deficit over time. Although the country has had a negative balance of trade over time, when coal exports are included in the equation the deficit declines significantly. As shown in Figure 8.5, coal exports helped reduce the deficit in the balance of trade by 25% in 2015 and by more than 50% in 2017 and 2018.

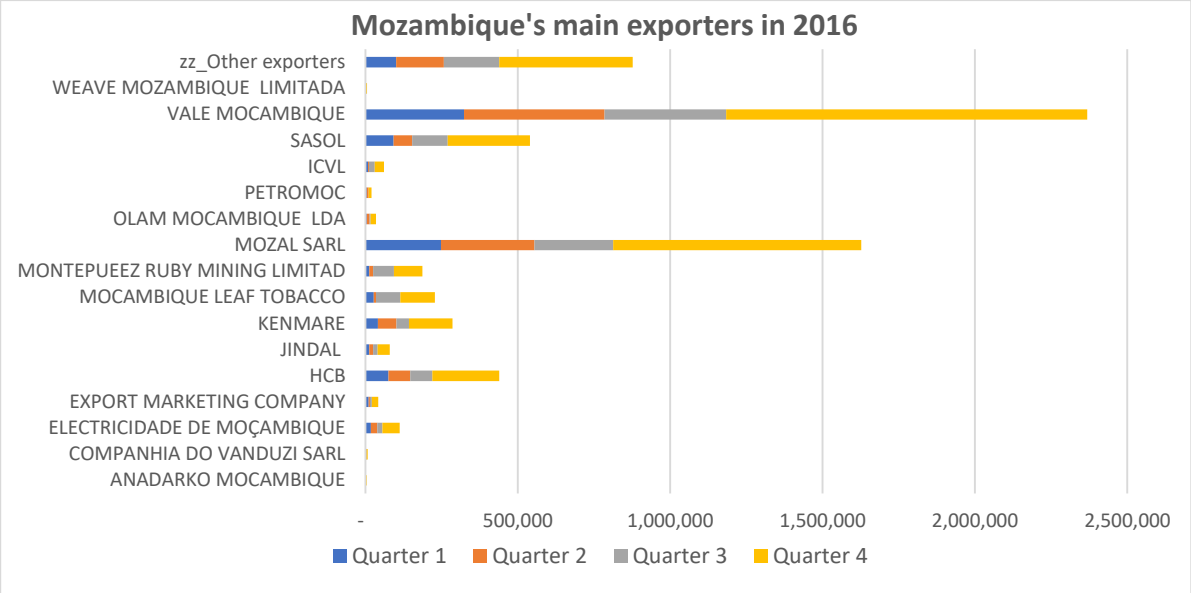
Figure 8.5. Balances of trade in goods and services, including and excluding coal exports 2015-2018 (in 10^3 U$D).



Source: calculation based on data from the National Statistical Institute.

Unsurprisingly, the three coal companies operating in Tete are among the country's ten major exporters, with Vale being the main exporter among all companies, including non-coal exporters (see Figures 8.6 and 8.7). Figure 8.6 shows Vale as the country's major exporter in 2016, followed by certain non-coal exporters.

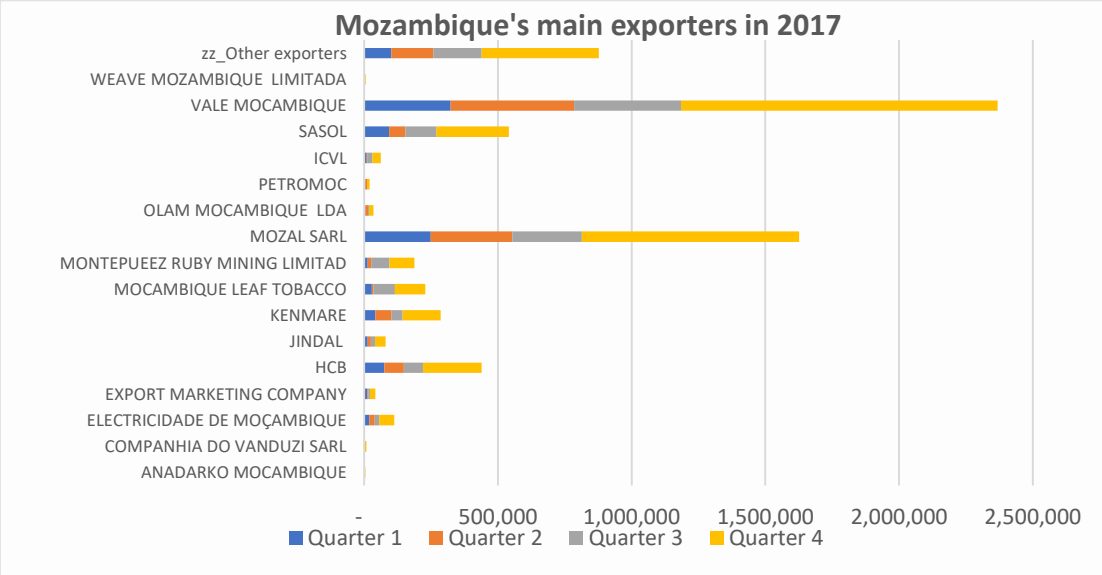
Figure 8.6. Comparative analysis of the twelve major exporters in 2016 (in 10^3 U$D).



Source: National Statistical Institute.

While Figure 8.6 shows data for 2016, the figure below (Figure 8.7) gives data for 2017, showing the same tendency as for 2016, when Vale continued to be the leader among the major exporters. A staff member at the Statistical National Institute confirmed that the same feature was registered in 2018, even though data for this year was not yet available. Even so, the volume of coal exports in 2018 may serve as an indication that Vale is likely to have continued to be one of the country's major exporters.

Figure 8.7. Comparative analysis of the twelve major exporters in 2017 (in 10^3 U$D).



Source: National Statistical Institute.

While other coal companies such as Jindal and ICVL had interrupted their activities due to the price of coal falling sharply from 2011 to 2016, Vale was the only company that continued operating, even though the company complained that it was operating at loss, as the costs had exceeded the profits (described in Chapter 7). Even so, Vale continued to play a relatively important role in the country's economy, especially in the generation of foreign currencies in a period characterized by a low-intensity civil war between the government and Renamo (the main opposition party) and by an economic crisis that resulted from the donor group cutting off aid to Mozambique after 2016 due to the emerging debt scandal. This latter event created a shortage of foreign currency within the country, leading the Central Bank to adopt measures to avoid expenditure of foreign currency by setting limits on the amount (of US dollars in particular) one could withdraw from the banks and on the amount of money that could be spent annually in purchasing goods and services abroad.

Besides the trends in exports presented in Figures 8.4 and 8.5, the importance of coal to the government's revenues can also be assessed by looking at coal production over the last four years as shown in Table 8.1 and Figure 8.8 below. One observation arising from Table 8.1 is that coal production has increased steadily, with a surge from 2016 to 2017.

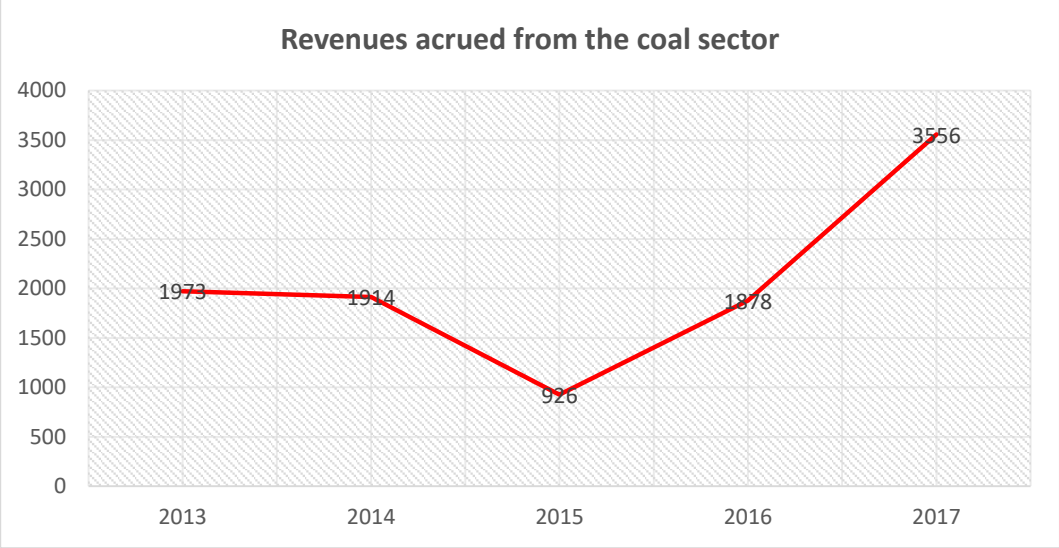
Table 8.1. Coal production 2014-2017 (in MZN).

	Types of coal	***2014***	***2015***	***2016***	***2017***
Coal	Coking	1.835.641.800	18.763.517.868	21.647.262.521	41.389.299.157
	Thermal	5.500.625.220	3.917.628.720	6.706.822.268	13.367.905.204
	Total	20.336.267.020	22.681.146.588	28.354.084.789	54.757.204.361

Source: Ministry of Natural Resources and Energy.

Increases in coal production enabled the government to raise more revenues because the royalties paid to the government are the second major source of revenue in the coal sector after corporate income taxes (IRPC). Figure 8.8 shows how government revenues accruing from the coal sector have increased over the last five years. After suffering a sharp decline from 2013 to 2015, revenues rose significantly from 2016, such that the revenues collected in 2017 (equivalent to $59.3 million) were almost four times those collected in 2015 (equivalent to $15.4 million).

Figure 8.8. Revenues accruing from the coal sector 2013-2017 (in 10^6MZN).



Source: Administrative Court.

From the analysis carried out so far, it is hardly contentious to argue that coal has been an important revenue stream for the government. During these years of economic gloom for the country, with many businesspeople growing disheartened as the gloom deepened, coal was the one sector that grew considerably in terms of production, exports and therefore the generation of revenues for the state. Within the sector, Vale, unlike ICVL and Jindal, was the only company that did not interrupt its mining operations during the coal bust and the low-intensity civil war, particularly from 2013 to 2017. Although threats were made to attack coal trains along the Sena railway during the war, Vale was able to continue exporting its coal through the Nacala line.

As a result, Vale has been an important player in the commodity sector in general and the coal sector in particular, given the rents it has been able to generate for the state, whether in the form of revenues, foreign currencies or otherwise. Two other companies, ICVL and Jindal, which are among the ten major exporters, have also proved to be important revenue streams and generators of earnings from exports. All things being equal, it is likely that these two companies will increase their position in the make-up of exports, thus generating more rents, given that they have just resumed their operations and that they plan their production to increase in order to take advantage of the current high prices of coal.

8.3.2 The relative importance of coal companies to the ruling elites

In the previous section, we saw how the coal sector came into prominence as a source of revenues to the state. Moreover, its prominence has gravitated to the ruling elites and their coalition, as the coal sector helps them to achieve some of their political goals, such as the creation of new jobs and rents, thus allowing them to provide a certain level of public goods to their constituencies. For example, claims from the Ministry of Natural Resources and Energy are that the coal sector could create about 25,000 jobs and employ directly 7,500 people (on the latter, see Kirshner 2014). However, the rents mentioned so far are all formal rents that are captured through taxation and gains from exports: informal rents also flow from this sector to particular groups within the ruling party or coalition.

Despite the importance of the coal sector in general in generating rents, coal companies in Tete have different degrees of influence over the ruling elites, both formally and informally. Informally, coal companies may receive more or less support from the government depending on which side of the ruling elites they are linked to, irrespective of their willingness to engage with domestic firms. As neatly shown by Macuane et al. (2017, 2018), two main factions are visible within the Frelimo ruling coalition, one aligned to former President Chissano, the other supporting former President Guebuza. The two tend to conflict more than cooperate, though they are able to work together when the party is forced to unite in order to deal with external threats.

At first glance, it was believed that Vale was somehow linked to the Chissano faction, as Vale started operations in December 2004, when it was awarded a mining license to explore the Moatize coal mines just before Chissano left office. However, the fact that this Brazilian company won the bidding to explore the Moatize coal fields for 25 years might not have turned out to be a stroke of good luck after all. In August 2015 the local newspaper *A Verdade* reported that Chissano was pressured by the former President of Brazil, Lula da Silva, to favor Vale in this bidding process. The newspaper states that about three months before Vale won the bid, Lula da Silva cancelled Mozambique's debt to Brazil of $315 million, a lobbying tactic to find favor for Vale in the bidding process. Be that as it may, later it was believed that, after Vale had won the concession, Chissano used his influence during his presidency to put Vale in touch with Africa Rainbow Minerals, which is owned by a South African billionaire, Patrice Motsepe (see Hanlon 2009; *Africa Confidential* 2011). Under Motsepe's leadership, Africa Rainbow Minerals signed, and now leads, a joint venture with Vale in a

Zambian copper mine, and Chissano became the non-executive director of Africa Rainbow Minerals after his term of office as the president of Mozambique ended.

When Guebuza was sworn in as the country's president in 2004, he sought to monopolize rents and accordingly became involved in many facets of the country's economy (see Macuane et al. 2017, 2018). Vale quickly realized that its success could be assured if it got close to the incumbent government. Chissano seems not to have retained his links with Vale, as the latter may only have served as a gateway for his entry into Africa Rainbow Minerals. Vale seems to have known how to navigate in and around the country's power circles, giving it leverage in the successful implementation of its coal investments, regardless of its less favorable slant on local content measures.

Unlike Vale, Rio Tinto does not appear to have been as successful in engaging effectively with the ruling elites. As noted in earlier chapters, Rio Tinto had a relatively well-formulated plan regarding resettlement and local content measures whose implementation had shown signs of relative success in its early stages. Reportedly, this company had started to engage with local communities, building their capacity to produce agricultural goods and chickens to be supplied to Rio Tinto and later to other markets. However, by the time the resettlement process was underway, the company was facing serious problems in transporting its coal from the pithead to export hubs. Since the only viable route at the time was the Sena railway, which had a capacity of only 6.5 Mt/y, and given that other coal-mining companies and businesses were using the same line, Rio Tinto came up with a plan to transport coal along the Zambezi River by barge.

As also mentioned in Chapter 5, Rio Tinto had planned to produce over forty million tons of coal a year, but the company could only transport about 5% of its production along the Sena line. Rio Tinto's assets soon turned into an ill-fated investment after the government rejected its plans to transport coal along the Zambezi, alleging environmental concerns. In the inner circles within the country, however, it turned out that environmental concerns were not the issue, as to date serious environmental damage can be observed across the country due the implementation of other large-scale projects. More likely, the company' managers may have failed to pick the right side within the ruling coalition.

It then appeared that Rio Tinto had engaged with the ruling elites aligned with the Chissano faction, while the interests of the Guebuza faction were more aligned with Vale. Former President Guebuza was in charge of the government by the time Rio Tinto was planning to

transport its coal along the Zambezi, and it might not have been in his interest to support Rio Tinto's project openly, as his business interests revolved around Vale, and it was well known that rejecting Rio Tinto's plan would be a serious setback for it. In the meantime, disputes erupted between Vale and Rio Tinto over the Sena railway during the period that this railway line could only transport 6.5 Mt/y. The Guebuza government benefited Vale by allocating it 4 Mt/y and Rio Tinto only 2 Mt/y. While the dispute continued, Vale had its eyes on the Nacala corridor as a viable route for transporting its coal from the pithead to Nacala port, considered the best natural deep-water port in all East Africa (see *Africa Confidential* 2011).

While Rio Tinto's options in respect of how to transport its coal from the pithead to export hubs were therefore quite restricted, in 2010 Vale proved more successful in acquiring a quasi-monopoly to explore the Nacala railway, which runs from Moatize through Malawi to the coal terminal at Nacala's deep-water port, from where 18 Mt/y were planned to be transported. To obtain this concession, Vale purchased a 51% stake in the Development Society of the Nacala Corridor (SDCN) from the Insitec group. The latter, in partnership with the state-owned company *Portos e Caminhos de Ferro de Moçambique* (CFM), had created Northern Corridor Development (CDN), whose operations started in January 2005 (described on its website[33]), just after Guebuza had been sworn in as the president of Mozambique. In this joint venture SDCN owns 51% of the shares and CFM 49%. According to the CDN website, CDN 'is responsible for the management, financing, maintenance and optimization of infrastructure for rail and port services as well as the development and operation of that infrastructure'.

The Insitec group, from which Vale bought the shares that gave it a quasi-monopoly of the Nacala system in order to transport its coal, is known to be linked to Guebuza's family (see Hanlon and Mosse, 2010; *Africa Confidential*, 2011, to cite just a few sources). Having sold its shares in SDCN to Vale, Insitec acquired 100% of the shares of the Construction company CETA, the company that won the contract to construct houses for those who had been resettled by Vale. These houses were of poor quality, starting to crack and to leak water in less than a year, leading to conflicts between Vale and local communities. However, demonstrations by the latter have not gone unchallenged because, as Marchall (2015: 8) puts it, 'dissenters [in Tete] face both government and mining company security forces acting

[33] http://cdn.co.mz/en/our-history/

simultaneously against them'. In both instances, police officers or the Rapid Intervention Force arrested people at random, some of whom some were severely beaten while in custody.

These events indicate that Vale shared its economic interests with the incumbent government rather than the country more generally. They also serve as evidence that Vale has been able to generate rents for the incumbent government through the latter's holding company, – Insitec. In addition, it has been reported[34] that several British companies were interested in investing in Mozambique, particularly in the coal-mining sector. In 2012, former President Guebuza visited Britain and met important companies, including the Eurasian Natural Resources Corporation (ENRC). This company was able to gain entry into Mozambique's coal sector through José E. Dai, Guebuza's brother-in-law. José Dai is currently the country representative of ENRC in Mozambique, and he holds eleven coal-mining licenses registered with the Ministry of Natural Resources and Energy under references 842L, 844L, 869L, 870L, 871L, 872L, 873L, 874L, 875L, 876L and 877L.

Rumors within inner circles in Tete are that the Jindal coal company also has ties with the ruling elites, such that it was able to start its mining operations in the region without having to resettle the communities[35] living in the area where it has been mining coal. However, there is only limited evidence of Jindal's links with the ruling elites, despite some names having emerged. As for ICVL, the news outlet *Africa Confidential* (2011) reported that India's coal minister, Sriprakash Jaiswal, came to Mozambique in January 2011 to directly deal with Guebuza (then in office) in order to secure coal from Mozambique to cover India's deficit of 70 million tonnes. However, links between ICVL and Mozambique's ruling elites, if any, are unclear.

Besides the transfer of rents from the coal companies to certain groups within the ruling elites, one of the major issues to have raised concerns within the country is the lack of transparency regarding the revenues collected by the government. The 2018 state budget report from the Administrative Court in Mozambique stated that information on how much the government collects from the coal sector requires clarity because different government institutions present different figures. The Administrative Court noted that information about the revenues flowing from the coal sector to the state, as recorded in the general state accounts, does not agree with

[34] https://allafrica.com/stories/201205081024.html

[35] Due to the government's indifference to this issue, communities have been protesting against the company. However, whenever protests arise, state police units are quickly deployed to disperse the demonstrators, and there have been cases of real bullets being shot at protestors among the local population.

data from other sources such as the National Treasury Directorate and the Tax Authority. This has made it hard for the Administrative Court to figure out how much the government has collected in terms of revenues, making revenue management a less transparent process.

Issues have also been raised concerning the 2.75% of royalties that represent the percentage the government must channel to communities where coal-mining operations are taking place. On the basis of the figure provided by the National Tax Authority, the government collected an equivalent of $3.7 million in royalties in 2017, from of about $100,000 should have been transferred to communities as specified in Article 20 of the Mining Law. However, the Administrative Court found that only the equivalent of $39,000 thousand had been transferred to the Moatize district government. In addition, accurate information on production values and coal transport costs is lacking, making it hard to understand which values the government used to calculate the relevant percentage. The Administrative Court's reports on the general state budget for 2016 and 2017 also state that, because the National Tax Directorate does not share all the information available to it regarding revenues from the coal sector, it is hard to calculate what revenues have been collected and what expenditures made, though there is evidence of unplanned investments and improper expenses. All these facts indicate that a host of other considerations have determined how coal revenues should be used by those who rule the country.

8.4 Concluding remarks

In this chapter, I have described how the business class in Mozambique – referred to in this study as domestic capitalists – emerged through the concentration of state assets in the hands of party insiders and loyal supporters from the early 1990s, subsequently preventing opposition parties and their supporters from benefiting from economic opportunities. This was coupled with the tendency for the ruling coalition to prevent new centers of economic power from emerging, as the development of an economic power base independent of the ruling coalition would have the potential to erode the value of the monopoly economic opportunities Frelimo uses to garner support from its clienteles. As a result, Mozambique's ruling elites have an incentive to keep the private sector under the radar at the expense of the development of a more diversified economic structure. There is therefore a strong tendency for the ruling elites to rely heavily on foreign ownership (with greater technological capabilities but low political influence), rather than expanding business opportunities to

benefit nationals (especially political opponents) in a way that might challenge Frelimo's holding power.[36]

Despite the fact that domestic capitalists engage with the market, they do not depend on its forces but on the regime's clientelist networks, increasing what Lambsdorff (2007) calls 'wasteful competition' in referring to competition over preferential treatment rather than competition based on skills, technology and so on. This has created incentives for unproductive rent-seeking where the development of firms' technological capabilities to compete in an open market has been peripheral to the ruling coalition's interests and aims. There therefore seems to be a lack of interest among the ruling elites in supporting the development of productive capitalists, as the former rely on other sources of rents, such as aid, natural resources, engagement of the ruling party in business and the skimming off of resource rents, to fund both the state and the ruling party. Even though domestic capitalists pay a certain level of taxes and fund the party through fund-raising events, they are not a key source of rents for the regime.

Given that the capability-strapped capitalists are an insignificant revenue stream, and that organizational power is tightly controlled by the ruling party Frelimo, the government faces few consequences in ignoring the demands of domestic capitalists for technical and financial support to participate in the coal value chain. Despite the fact that policy measures to support domestic businesses exist, their ineffective implementation is a serious stumbling block to domestic capitalists being at the helm as suppliers to the coal industry. The claims for support and for the effective implementation of such policies that have echoed with the general public have generally been disregarded by the ruling elites.

The coal sector in general has received support, but such support goes to the coal companies, specially to Vale, as they constitute an important source of rents either to the government, in the form of revenues, or to the ruling elites, in the form of rents based on transfers, including elite capture of economic opportunities within or linked to the coal sector. Given that coal exports have played a significant role in reducing the country's balance of trade deficit and that they are important sources of foreign currency, particularly in the context of economic

[36] This is similar to what Dunning (2005: 469) found in one of his case studies: Indonesia under Suharto's rule. 'Suharto's political logic was to empower a private sector dominated by a small group of ethnic minority Chinese (Sino-Indonesians) that could not claim political power in the future. Suharto minimized the political risks by investing partnering with Sino-Indonesians (Chinese) business class rather than with indigenous entrepreneurs.' Suharto feared that economically empowered indigenous entrepreneurs could develop independent business interests and support the opposition.

crisis and limited donor support, the coal companies have gained ruling-elite support and have become quite prominent in the country's political economy, despite their unwillingness to participate in the process of creating a capable and competitive local supply chain.

What can be observed, then, is that on the one hand the coal companies, due to their high holding power that rests on the importance of the rents they generate, are difficult to discipline when it comes to their compliance with local content measures, thus making it hard for an industrial policy to be effectively implemented. On the other hand, the country also has domestic capitalists with low holding power who are highly dependent on the ruling elites, who nonetheless appear to be more interested in capturing rents than in developing domestic industrial capabilities. The fact that domestic capitalists are unable to exert significant holding power over Frelimo's ruling elites explains why domestic firms operating in the supply sector of the coal industry or trying to enter the coal value chain remain unsupported.

IX. CONCLUSION

The overarching aim of this thesis has been to rethink the political economy of linkages in order to shed new light on the extensive and relatively developed literature on interfirm relationships between the resource and non-resource sectors of an economy, referred to as linkages. In light of this, and with a focus on natural resource exploitation, I began by reflecting briefly upon the resource sector across Africa more generally and southern Africa in particular. Findings at this stage suggested that, irrespective of natural resources being treated as of the utmost importance in achieving Africa's development goals (AEO 2013; Pedro 2015), in the majority of resource-rich countries in Africa things have not gone as smoothly as anticipated, nor have development outcomes been visible so far (see Collier 2003; Saad-Filho and Weeks 2013; Jourdan 2015). Despite the increasing dependence of this group of countries on extractives, long-standing benefits to their economies appear to be lacking. One indication that these countries are failing to benefit from the exploitation of their resource wealth has been the lack of linkages (see Morrisey 2012; Jourdan 2015), as linkages would allow these countries to create more productive assets above ground and thus diversify their economies away from natural resource exploitation.

As a more favorable outcome of the exploitation of natural resources requires countries to build up linkages, a basic question was then what had prevented them from creating beneficial linkages that would serve as a springboard for economic diversification. After realizing that a few countries have managed to create and develop linkages while others have failed to do so, contrary to the resource curse perspective, I understood that there is no iron law locking resource exporters into their own activities and creating few or no linkages between the resource and non-resource sectors. On the contrary, there are particular features in each resource-rich country that influence the way in which linkages are built and developed. Building on this latter understanding, I formulated the question that drove this research, namely: *how can we understand linkage formation in the commodity sector by examining the conditions that influence the ways in which they develop?*

After surveying the specific literature on linkages, I found that, while scholars agree that linkages between resource and non-resource sectors should be fostered if the aim is to diversify and transform the economy, they disagree over whether resource-rich countries could effectively create beneficial linkages and use them as a springboard for diversifying their economic structures. Within the literature, the debate on this issue has produced two

broad strands of thought. The first of these strands, which is built on natural resource curse explanations, points to shocks in the terms of trade and the Dutch disease as the main transmission channels that prevent countries from unlocking the enclave nature of resource exploitation (see Ross 1999; Luong and Weinthal 2006; Sachs and Warner 1999). The second strand strongly opposes the resource curse view, arguing instead that linkages are conditional on specific country circumstances, whether technical, economic (see Kaplinsky 2011; Morris et al. 2011b; Andersen et al. 2015; Djeflat and Lundval 2016) or political (see Dunning 2005; Ovadia 2012; Hansen et al. 2016; Buur and Monjane 2017).

Building on this second strand, I have developed my own perspective, one that has not moved closer to natural resource curse explanations, although I am not strongly against them. I have aimed to fill the gap left by the second strand of the literature, in which the conditions that shape linkages are analyzed separately, that is, the technical as opposed to the political. In aiming instead to analyze these two parts as a unity, I devised an integrated framework – a model – for the analysis of both backward and forward linkages. Two key relational concepts – proximate conditions and underlying conditions – are constitutive of this framework. While *proximate conditions* are those concerned with the immediate sector-specific technical requirements (the scope of supporting mechanisms, knowledge transfers and the depth of policy implementation), the *underlying conditions* are political ones in the sense that they influence the extent to which the proximate conditions are met. This framework was applied to the coal sector in Mozambique.

By dwelling on the overall context of the coal industry, I found that coal has paved the way globally for countries to industrialize rapidly, despite the fact that in Africa using coal for this purpose is rather limited, with the exception of South Africa, where coal is used in the automotive transport, construction, electrical insulation, cement, textiles and soap-making industries, as well as to produce liquid fuels and polymers. In Mozambique, the coal sector offers similar opportunities for the development of backward and forward linkages, but the extent to which the country is able to reap the benefits of coal exploitation is dependent on the two key types of conditions – proximate and underlying – that were analyzed in light of the empirical evidence.

I also found that, whereas linkages between domestic firms and the coal companies could be facilitated if the required industrial capabilities and experiences had existed before the boom in coal, this facilitation was not observed in the case of Mozambique, which is historically

deprived of the capabilities that would allow domestic firms to take a grip on linkages. Despite the fact that the country had a sizable industrial sector before its independence and even had, in the post-independence period, some leading industries in agro-processing, chemicals and in some heavy industries such as cement and iron and steel, these industries hardly developed after their nationalization. Not even with the launch of donor-funded strategies to reanimate the industrial sector in the late 1980s could the industrial sector find its way back up. Despite the fact that the first huge FDI investment – Mozal – came with a linkage development program aimed to support domestic firms, the root problems of these firms remained the same such that, when coal boomed, firms continued suffering from the same problems as before: low human capital, obsolete technology, serious managerial and accountancy problems, limited access to capital and so forth. This has resulted not only in foreign firms dominating the supply sector to coal mining, but also in the downstream links being shallow due to the limited supply of coal to domestic market. Thus, while it is clear that the coal sector in Mozambique started operating in a context in which local suppliers were almost non-existent, it remains an abstruse point why linkages in the coal sector are still poor, with no signs of further development, even though coal exploration and exploitation have been taking place for more than a decade.

The empirical analysis of the extent to which proximate conditions in the coal sector have been met suggests that the development of backward and forward linkages in the sector have dwindled to a trickle. First, the process of *transferring knowledge and sharing information* could hardly be observed between coal companies and domestic firms. Despite the fact that linkages with domestic firms exist, their breadth (number) and depth (quality) are limited, with a relatively small number of domestic firms supplying coal companies with low value-added services, such as cleaning, gardening, security, logistics, insurance and so forth. This has paved the way for the creation of what Hansen (2014: 10) has designated 'dependent linkages', that is, linkages that keep host economies specialized in low value-added functions that offer no avenues for upgrading. This is the case in Tete because most of the capital goods and consumables the mining companies require are being supplied by foreign firms, most of them with a small branch in Tete set up for the specific purpose of supplying the coal industry. Whereas domestic firms claim to be disappointed with their experience with the coal companies, which they believe are unwilling to engage with them, for their part the coal companies are skeptical whether domestic firms will be able to supply them more effectively,

as these firms are said to have failed even after being given the opportunity to do so, including the provision of training.

Whereas these two actors, the domestic firms and the coal companies, are no longer taking a stand for future cooperation due to the former's allegedly failed attempts in the past, *the government's support mechanisms* have also gone unnoticed. When it became clear that the coal companies will not simply rely on unreliable domestic firms to provide them with goods and services or to engage in the hard and costly process of helping them become competitive when it is uncertain whether this will ever be possible, hopes rested on the government. This reflects the view in the literature (see Khan 2000; Gray and Whitfield 2014) that, instead of a market-driven approach, the development of the capabilities required for domestic firms to enter the coal value chain requires a state-led approach. However, in the coal sector the government has taken a hands-off approach, as the government agencies that were created to support domestic businesses are perceived as having been rendered void by either domestic firms or the coal companies. Firms complain that the government has made their lives difficult with heavy taxes and corrupt state agents demanding kickbacks, thus increasing their costs of doing business. If domestic firms have inherited poor technological development and other setbacks that prevented the industrial sector from flourishing in the past, the current government stance has not been helpful either. Given that existing government mechanisms to support domestic firms are malfunctioning, firms that are already stripped of their capabilities have no choice but to act as bottom feeders and operating in a very ad hoc manner without anything to guide them.

All the limitations described in the preceding paragraph are to some extent a reflection of the third dimension of the proximate conditions – *the depth of policy implementation*. Despite the existence of local content provisions in the Mining Law requiring the stipulation of local content targets in mining contracts between the government and the mining (coal) companies, so far this process has remained unclear, as the mining contracts are not disclosed to the public. However, all the signs are that there are no local content targets for the coal industry. Moreover, the government agencies (IPEME and CPI) that should be engaging with the coal companies and facilitating their links with domestic firms are also perceived to lack significance on the part of coal companies. For its part, IPEME has accepted that engagement with the coal companies has failed, and it puts the blame on the latter for being unwilling to cooperate. It appears that the prescriptiveness of the local content provisions related to both

backward and forward linkages is not legally binding, as no penalties have been imposed on companies that break them.

Thus, in light of the limited knowledge transfers from the coal companies to domestic firms, with the latter receiving almost no support from government (induced policies) and local content provisions not being effectively enforced, it is not surprising that linkages in the coal sector are characterized by a lack of breadth. This indicates that proximate conditions are far from being met in the coal sector, the reason behind it lying in the underlying conditions, that is, on the type of politics being played by the ruling elites.

Findings in respect of this issue suggested that Frelimo's ruling elites have an incentive to keep domestic business not only under the radar but also underdeveloped, thus restricting the development of capabilities that would allow domestic firms to link up to coal companies. The emergence of a private sector tightly linked and controlled by Frelimo has allowed the party to maintain its holding power by distributing economic opportunities to domestic capitalists, who, in their turn, mobilize political support for it. No economic groups outside the ruling coalition have been allowed access to lucrative business opportunities. While developing domestic industrial capabilities means empowering different economic groups, for Frelimo's ruling elites this is politically risky. These elites have strategically weakened the economic groups that have the potential to form new centers of economic power that can smooth the way for future opposition groups. This was the case with the Small and Medium Enterprises Association (APME), an economic group which did not emerge from Frelimo but was steadily growing in importance within the country. Fearing that this group might become an economic power base outside the control of the ruling coalition, the ruling elites managed to co-opt its key figures and pushed for APME's absorption into the Confederation of Economic Associations (CTA), which was under the ruling coalition's control.

The same group of capitalists that emerged from the party's wings seemed to have had interest in participating in the value chain of the coal and other sectors. However, they have been thwarted in their attempts to get government support in smoothing their access to the coal value chain. While this group of capitalists has played a role in mobilizing political support and funding Frelimo's electoral campaigns (e.g. at fund-raising events), the fact that the rents they generate as capitalists are not the most important source of finance for either the state or the ruling party means that they have not received much attention from the ruling elites when it comes to the latter supporting their development. Frelimo's ruling elites have managed to

drag their party into business through SPI, the party's holding company, including involvement in illicit economic activities and the skimming off of state resources in order to fund their political activities. As mentioned earlier, the revenues the state collects from domestic capitalists constitute an unimportant source of revenue from which public expenses can be met, regardless of the taxes paid by domestic capitalists through their firms. The state has relied mostly on natural resources and on aid as its key sources in funding the state budget and other development programs. All this has left domestic capitalists worse off because, besides being dependent on the ruling coalition for their very existence as capitalists, the relatively low level of rents they generate has not given them enough holding power to influence political decisions that would favor their development as productive capitalists.

Whereas domestic firms operating within and outside the coal sector remain unsupported, the coal companies have been able to operate without opposition from the ruling elites, even though their stance on local content provision is not one that favors the involvement and development of domestic business. Given that coal is the most exported commodity (generating earnings from exports) and that the coal companies are able to generate a level of rents that is important for both the state (in respect of revenues) and ruling elites (in respect of politically organized transfers of rents), it is less surprising that the powers that be are slow to act when the provisions stipulated in the mining sector are ignored by the coal companies. In light of this, it is uncertain that the newly proposed law on local content will, if approved, simply change the business landscape through the creation of strong backward and forward linkages.

At this point, the line of enquiry becomes *what lessons can be drawn from the coal sector in Mozambique*? An initial finding is that the weaknesses of linkages in the upstream and downstream sectors of the coal industry reflect the country's industrial path more generally, characterized as it is by low levels of technological capabilities. However, the assumption that FDI in the commodity sector in Mozambique will inevitably reinforce existing patterns of 'poor' linkages (see Castel-Branco 2002) requires further scrutiny. I contend that the fact that Mozambique did not develop the required capabilities that would enable it to successfully enter the coal value chain does not mean that domestic firms will never take the helm as suppliers to coal companies. One assumption to bear in mind is that FDI, in whatever sector, can be used as a broad base for linkage development as long as certain conditions are met,

namely the existence of a relatively strong and supportive government and a ruling elite with incentives to develop the countries' industrial base.

Secondly, in order to understand what has prevented firms from entering, maintaining or upgrading within a particular value chain, many works (e.g. Bwalya 2006; Liu 2008; Lydall 2009; Mariotti et al. 2013; Sanchez-Martin et al. 2015) tend to focus on the relationship between domestic firms and commodity lead firms. While these works have undoubtedly provided important insights in understanding interfirm relationships, their analyses remain half-hearted, as other relationships, such as those between domestic firms and governments and between governments and commodity lead firms, are left out of consideration. The evidence of this case study, presented in Chapter 7, is that the state of backward and forward linkages and the process of developing them are not only defined by the nature of the relationship between domestic firms and commodity lead firms, but also by the way in which the government engages with both.

Thirdly, the problem of linkages that countries have been grappling with, Mozambique in particular, is not only technical (related to the proximate conditions) but also political (related to the underlying conditions). The few works that have in one way or another dealt with the politics of linkages take the view that *1)* ruling elites are more likely to support the diversification of economic structures through linkages if they are able to capture existing local content opportunities (Ovadia 2012; Hansen et al. 2016, Buur and Monjane 2017) or that *2)* ruling elites' support to domestic businesses depends on it not creating an independent power base that could open the door to the emergence of future political challenges to the ruling elites (Dunning 2005). Findings from the coal sector support these two assumptions, but I add to them the role of rents.

Attempts to capture local content opportunities constitute rent-seeking behavior, while attempts to control which groups succeed economically is a way of ensuring that rents are not dispersed in such a way that the opposition can access them. This makes the centrality of rents crucial. Given that rents are an important tool of elite survival, economic groups that are able to generate large rents, whether legally or illegally, will gain the attention of ruling elites. In a nutshell, while the two assumptions mentioned in the preceding paragraph are supported by this case study, a third assumption must be brought in here, which is that ruling elites are more likely to support domestic businesses in developing the capabilities that facilitate the establishment of backward and forward linkages if the domestic capitalists are able generate

enough rents (economic power) to constitute an important resource for political mobilization or to fund the state. It therefore remains touch-and-go whether domestic firms within and outside the coal sector in Mozambique will ever be able to take the helm as suppliers.

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ANNEX

Annex: list of sample firms operating in the supply sector of the coal industry

NO.	FIRMS/COMPANIES	AREA OF ACTIVITY	DATE OF INTERVIEW
	Foreign firms/companies		
1	WBHO	Building construction, civil engineering and roads and earthworks.	Nov 2016
2	Uni-Spam	Formwork and scaffold sale and rental and scaffold construction	Nov 2016
3	Jachris	Hose and couplings company	Nov 2016
4	Hitachi	Construction materials and power systems	Nov 2016
5	Trysome Moçambique	Supplier of electrical components	
6	Bearing Man Maputo Lda	Industrial components and technical expertise	Oct 2018
7	UNITRANS	Passenger operations (transport)	Dec 2016
8	Ensermo	Maintenance of plant equipment	Dec 2016
9	Minopex	Mineral processing operations	Dec 2016
10	Fedex	Courier services	Nov 2016
11	Hollard	Insurance company	Nov 2016
12	Bertling	Logistics	Dec 2016
13	Ecomet Lda	Construction company	Oct 2018
14	Polytech Industries Ltd	Water supply, plastic and tarpaulin experts	Sept 2018
15	Autopeças	Repair and maintenance of machinery	Oct 2018
16	Future Industry Trade Corporation	Supplier of stainless steel and aluminum	Sept 2018
17	Pienaar Safety Mozambique	Safety and security in the workplace	Oct 2018
37	Transcrane	Logistics	Oct 2018
19	Multotech Drilling International	Drilling company	Oct 2018
20	Cat Barworld	Equipment, power system, parts and technology	Oct 2018
21	Epiroc	Auto mechanic for mining	Oct2018
22	Lonagro Moçambique Lda	Official dealer and maintenance agent for Bell equipment, John Deere, Rovic Leers and Fieldking	Oct 2018
23	Macsteel	Steel supplier	Sept 2018
24	FLSmidth	Engineering company	Oct 2018
25	Calasse Electrical	Electricity services and equipment	Sept 2018
26	Mota-Engil	Civil construction and logistics	Oct 2018
27	Formex	Spare parts for vehicles	Sept 2018
28	Taurus Trading	Distributor (alternative fuel) and brokers	Oct 2018

29	DHL	Courier	Sept 2018
30	Komatsu	Manufacturing construction and mining Equipment	Oct 2018
31	Lincolin	Lubrification system technology and equipment	Sept 2018
32	Probe IMT Mining Lda	Mining security systems	Oct 2018
33	Kram Engineering Mozambique Lda	Mechanical engineering and electric systems	Dec 2016
34	Minitec Lda	Welding and mechanic works	Oct 2018
35	PG Vidros	Window supplier	Sept 2018
36	Ecomet Lda	Water technologies	Sept 2018
	National firms/companies		
1	Hotel Moatize	Hotel	Dec 2016
2	Hotel Zambeze	Hotel	Nov 2016
3	Archê	Security company	Nov 2016
4	Metalurgica	Formwork and scaffold sale and rental and scaffold construction	Nov 2016
5	Mini Arte	Civil construction	Oct 2018
6	Transporte Amargy	Transport company	Sept 2018
7	Ceta	Engineering and construction	Sept 2018
8	Austral Seguros	Insurance company	Dec 2016
9	Carpintaria e Serralharia, Lda	Carpentry and metal workshop	Sept 2018
10	Transporte Amargy	Transport company	Oct 2018
11	KLC-Kalika Consulting Lda	Consulting company in legal matters	Sept 2018
12	Bcontabil Moçambique lda	Consulting services in accountancy	Sept 2018
13	Proferragem	Sales of constrution material	Oct 2018
14	RDK construções	Commercial construction firm	Oct 2018
15	Casa da Agricultura	Agricultural producer	Occt 2018
16	MBV Segurança	Security comapny	Oct 2018
17	Papelaria Walter	Office supplies	Oct 2018
18	Limpeza Excelente	Cleaning services	Sept 2018
19	Mashaka construções e projetos Lda	Construction company	Sept 2018
20	Infotech	Computers and other information systems	Oct 2018
Total of firms/companies			
56			