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Alternatives to local content

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Abstract: This paper suggests that an optimal local content policy in the context of flawed institutions is a more minimal one than those typically pursued by developing countries with recently discovered petroleum reserves. We argue that local content requirements need to be seen as a public expenditure question: such requirements increase multinationals' costs and hence reduce the taxes that can be extracted from these companies. There are thus opportunity costs in imposing local content requirements, since the forgone taxes could be used in other ways to improve development prospects. Such requirements can also exacerbate key problems of patronage and rent-seeking.

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1 Introduction

The pattern is a familiar one: a country discovers petroleum reserves, and public debates and policy immediately turn to the question of how to promote local content, or the involvement of local businesses and employees as well as the use of local inputs in the extraction of the resource. Tanzania is a case in point, where the discovery of some 50 trillion cubic feet of gas since 2010, predominantly in deep off-shore deposits, has led to the formulation and adoption of a local content policy by the government. Academics and consultants provide advice on how best to promote local content; a prominent example in the case of Tanzania is Sutton's (2014) emphasis on creating a well-functioning local content unit. The policies and advice are all based on an intuitively appealing premise: the discovery of petroleum presents an opportunity for the country to increase employment and upgrade the skills of workers, and improve productivity through transfers of technology from multinational corporations to local firms involved in extraction activities or in other parts of their supply chains. Other oil-producing countries, such as Norway, are often used as examples to illustrate the promise of local content; since extraction began in the 1970s, Norway has succeeded in developing internationally competitive oil and oil supply industries.

The pattern is familiar in asking how to promote local content but rarely questioning whether and to what extent local content in the petroleum sector should be actively promoted. The merits of promoting local content are more or less taken for granted. In this paper, we argue that the question of whether to actively promote local content should be given more emphasis in analyses of optimal policies in resource-rich developing countries. One reason for this is that the experience of Norway is not necessarily replicable, as the country's success in developing competitive petroleum sector firms has been based on a set of favourable pre-oil characteristics (a well-educated labour force, good institutions, and an existing and related industrial base), as well as luck (the lack of well-developed deep-water extraction technology at the time Norwegian oil activities began, and being forced by international trade developments to abandon the more protectionist local content policies after a suitable period of time) (Heum 2008). Tanzania, or Ghana, or other developing countries that have recently discovered petroleum reserves, do not have similar initial conditions and are unlikely to be as lucky.

More fundamentally, an analysis that jumps straight to the question of how to promote local content in the petroleum sector tends to ignore two important insights. First, an active local content policy is not costless, as much of the debate tends to assume. If multinational companies are required to use local inputs that are not competitive, and that they would otherwise not have chosen, this raises the costs of the multinational. The taxes that the host country can extract from the multinational companies are therefore reduced. In principle, an alternative to local content requirements would be to have no such requirements, to extract the maximum taxes consistent with keeping the multinational company in the country, and to use these taxes for other development purposes. In other words, local content policy should be analysed as a public expenditure question, since it reduces potential expenditures in other areas, rather than as an isolated sector management question. Moreover, the analysis should be explicitly comparative, comparing potential returns of local content to returns of other policies for industrialization and development. Second, experience from developing countries with a longer history of petroleum extraction, such as Angola or Nigeria, suggests that local content may not be an innocuous tool for industrialization. There is instead a real danger that these forms of policy may exacerbate mechanisms underlying the resource curse, providing the ruling elite with an additional means of exchanging favourable treatment for political support, and creating an additional arena for rent-seeking. In the context of a country with flawed institutions, alternative uses of the petroleum revenues may therefore prove less detrimental to development.

This paper provides a conceptual and theoretical analysis of whether a resource-rich developing country should emphasize local content policies, elucidating the above concerns and arguments. In doing so, we examine the implicit basis for the 'how-to' literature on local content (Sutton 2014), and argue that it is open to challenge. While some previous studies have been critical of local content policies from a political economy perspective (see Ovadia 2012) on Angola and Hansen et al. (2014) on Tanzania, Uganda, and Mozambique), this paper adds to this literature by providing a structured, comprehensive treatment of the issues. There is an extensive theoretical literature on local content which primarily looks at the effect on market-seeking foreign direct investment (FDI) (Belderbos and Sleuwaegen 1997; Grossman 1981; Lahiri and Ono 1998; Qui and Tao 2001); while we draw on and relate to this literature, our paper focuses on resource-seeking FDI. Finally, our analysis contains an implicit methodological critique of scientific case studies and consultancy reports on local content, whose empirical approach tends to focus on interviews with agents in, related to, and with vested interests in, the petroleum sector. Since local content entails the use of scarce public funds with alternative uses outside the petroleum sector, views on optimal use of local content should be solicited from outside the petroleum sector as well, and discourses which limit the issue to one of sector management need to be challenged.

The paper is structured as follows. Section 2 discusses the concept of local content, and presents in more detail the argument that local content entails forgoing taxes, discussing some possible alternative uses of these revenues. Section 3 analyses local content within the existing scientific literature about the mechanisms behind the so-called resource curse. In Section 4, we relate the arguments from the preceding sections to the policy debate in Tanzania in an attempt to understand why local content, despite its potentially problematic aspects, gets so much attention in these types of debates. Section 5 concludes with recommendations.

2 Local content: framing of the question

A simple definition of local content is the incidence of domestic inputs (capital, labour, intermediate products) in the various parts of a value chain. This definition encompasses earlier definitions of the term as 'the share of employment—or of sales to the sector—locally supplied at each stage of [the value] chain' (Tordo et al. 2013: 2), the use of a certain proportion of domestic components or intermediate inputs in production (Belderbos and Sleuwaegen 1997; Grossman 1981; Qiu and Tao 2001), or the inclusion of local companies in production (Vaaland et al. 2012). While domestic inputs can refer to either inputs that are made in the host country, or made by entities owned by host country nationals, this is not an important distinction for the arguments made in this paper. The above definition of local content excludes activities of multinational companies unrelated to its production process, such as the provision of schools, health facilities, or infrastructure to host communities, but this exclusion is not really important in terms of the arguments presented here.[1]

Local content policy is then defined as government policies that aim to promote local content. In the literature, a lot of attention is given to (more or less binding and enforced) regulatory or contractual requirements for multinationals to include a certain proportion of local content, but local content policy can also refer to other ways of promoting the use of local inputs, such as through economic incentives. Major objectives of local content policies have been to increase domestic employment in the sector (thus reducing unemployment or upgrading human capital), and facilitate transfers of technology through participation in production or through backward and/or forward linkages. While the following discussion may be couched in the language of backward linkages, the arguments are relevant also for other modes of local content promotion.

Local content policy can be more or less active, from the minimal to the more intrusive in terms of market outcomes. An active local content policy is protectionist in promoting domestic firms or workers from which the multinational company would otherwise not choose to source inputs. In other words, requirements to source some inputs from domestic producers increase the costs of the multinational. An important insight is that this reduces the profits of the multinational, and hence the taxes that the government can extract from the company. That local content requirements reduce potential taxes is not a particularly new insight; it is implicit in Lahiri and Ono's (1998) theoretical analysis of local content. In their model, the profit function π^f of a multinational firm is captured by:

$$\pi^f = (p - c^f)x^f(1 - t) \tag{1}$$

where p is the price of their final good, c^f their (constant) marginal cost, x^f their level of production, and t the taxes the host economy imposes. If the host economy requires that a proportion δ of inputs must be sourced locally, the cost of the multinational can be written as:

$$c^f = (1 - \delta)k^f + \delta k \tag{2}$$

where k^f is the marginal cost of foreign inputs and k the marginal cost of domestic inputs, with $k > k^f$, that is, domestic inputs are more costly than imported ones, which is necessary for there to be a rationale for a local content requirement in the first place. The model further assumes that there is a minimum level of profits $\bar{\pi}$, below which a multinational will choose not to invest in the host economy, which we term the company's reservation profits. From the host country's point of view, then, the optimal combination of local content requirements δ and taxes t would make the company indifferent between investing and not investing in the country. Combining equations (1) and (2) and rearranging, this participation constraint can be written as:

$$(p - k^f - \delta(k - k^f))x^f(1 - t) = \bar{\pi} \tag{3}$$

[1] For a critical analysis of community development projects of multinational petroleum companies in developing countries, see Frynas (2005).

Equation (3) shows that there is a trade-off for the host country between imposing local content requirements and extracting taxes from the company. The higher the local content requirement δ, the greater is the added cost to the multinational $\delta(k - k^f)$, and the lower the profits, which means that taxes t need to be lower to satisfy the participation constraint, that is, to keep the multinational in the country. Formally, we can see this by taking the total differential of t with respect to δ, given the constraint (3):

$$\frac{dt}{d\delta} = -\frac{\frac{\delta\pi}{\delta\delta}}{\frac{\delta\pi}{\delta t}} = -\frac{(k-k^f))x^f(1-t)}{(p-k^f-\delta(k-k^f))x^f} < 0 \qquad (4)$$

The negative sign indicates that as local content requirements go up, taxes must go down, in order for the participation constraint to be satisfied. The reduction in taxes that local content requirements entail is also greater the more costly and inefficient are domestic inputs and producers, that is, the larger is $k - k^f$.

There is a tendency in policy debates to think of local content as a pure sector management problem, as a means to improve outcomes within or directly related to the petroleum sector. This preceding argument and analysis show that this partial focus is problematic. Active local content policies have clear implications for the whole host economy, leading taxes to be forgone that could have been spent on other purposes. The question that should be asked is thus whether spending potential tax revenues on local content policies gives better prospects for industrialization, or more fundamentally, development in the country, compared to other uses of the tax revenues. In other words, the question of local content should be phrased as a public expenditure question, rather than a sector management problem. There are opportunity costs to local content policies which are not captured by a partial sector management perspective. In developing countries with scarce public funds, there are potentially a number of ways to spend tax revenues, and it is far from obvious that spending money on local content in the petroleum sector is the one most conducive to development. In fact, there are two major sets of arguments that should lead one to be sceptical of using scarce public resources on local content in this sector. One set of arguments revolves around the likely relative economic returns on local content in petroleum in a developing country context. The other set relates to the unappealing political economy dynamics that arise in resource-rich countries with flawed institutions. We discuss the first set of arguments here, and return to the second set in the next section.

In terms of economic returns, the merits of local content in the petroleum sector depend on how much it promotes intermediate goals of industrialization or employment, or fundamental development goals such as poverty reduction, compared to other forms of government expenditure. There are alternative industrialization policies that can be pursued with the same revenues as would be forgone on local content, and there are also alternative development policies on which the revenues could be spent. In terms of industrialization, an alternative to promoting companies in the petroleum sector would be to promote other sectors; agriculture, different forms of manufacturing, and possibly some service industries. The logic of local content follows the infant industry argument, where a limited period of protection is used to get domestic industry up to a level of productivity where it can be internationally competitive. In the context of a developing country with a scarcity of capital and skilled labour, abundant unskilled labour, and existing industries of relatively low technological complexity, it seems unlikely that a competitive advantage can be developed in a highly capital intensive sector of great technological complexity such as the petroleum sector. Other sectors that are more labour intensive and less technologically complex may be more suitable candidates for creating linkages and spillovers that have a potential for transfers of technology that the country can actually absorb. In principle, one could imagine using tax revenues from petroleum to support and build up these types of industries, rather than forgo the revenues to promote local content in the petroleum sector. Sector-specific support of this kind may not be unproblematic, however; experience shows that it is difficult for governments to pick winners (even in terms of sector), and there is a danger that these policies can be captured by certain influential industries, making them hard to revoke at a later time. Nevertheless, given the political economy dynamics created by petroleum resources and discussed in the next section, it seems unlikely that the latter problems of capture and perpetuation of support would be any smaller for local content policies in this sector.

As an alternative to promoting specific industries, a government could spend the revenues in question to improve the business environment in the country more generally. This could be through a general lowering of taxes, or through investment in various forms of infrastructure (interpreted widely), or in the human capital of the population through schooling or health services. These more general policies have the advantage of being less capturable by special interests. They may also be more conducive to diversification of the economy. It is a paradox that countries with substantial petroleum reserves tend to express concerns about a low level of diversification, while at the same time pursuing local content policies in the petroleum sector, which at best constitutes a very narrow way of diversifying an economy, and does little to reduce challenges of resource dependence and volatility. More general approaches to promoting industrialization are likely to be more conducive to diversification, which, in a resource-rich economy, may also be important for political reasons, as will be discussed in the following section.

Similar arguments are likely to apply if we focus on employment effects of local content in petroleum. The petroleum sector typically does not create that many jobs; Norway may again constitute the most optimistic scenario with 3.5 per cent of the workforce employed in petroleum-related supply and service providers, but this is for a country whose industry has been successful in attracting business internationally, and is not all related to extraction of the country's oil reserves (Heum 2008). Given the nature of the petroleum sector, one can also ask whether the jobs created benefit those who need them the most. Promoting other types of industries may hence be more effective in generating employment.

The taxes forgone through local content can of course also be used for policies other than those focused on industrialization. For developing countries with a high level of poverty, there are immediate needs which can be addressed through other interventions. And while health and education investments are important for productivity, they are also important for other reasons. It seems likely that local content policies in the petroleum sector would have a fairly narrow impact in terms of improving the livelihood of the population, compared to more basic and widespread policy interventions of these kinds. If a local content policy was successful in building up competitive domestic industries, this could of course result in more taxes and public revenues down the line, but this just brings us back to the observation that success through local content in the petroleum sector appears less likely than through promoting other forms of industrialization.

The point of this discussion is not to suggest that there are specific alternative uses of taxes forgone by local content that every resource-rich developing country should adopt; that would depend on context, capacities, and opportunities. What is important is that active local content policies are not costless, they reduce potential taxes than can be used for other purposes. Taking a public expenditure focus on the use of local content is therefore vital and, if we do so, it seems unlikely that promoting local content in the petroleum sector is the best use of scarce resources in a developing country context. This conclusion is reinforced if we take into account insights from the literature on the impact of natural resources, as we shall see in the next section.

3 Local content in petroleum: the resource curse

So far, we have treated the petroleum sector like any sector a country can choose to promote, and discussed the merits of local content policies in the sector based on its basic economic characteristics, such as being capital intensive and technologically complex, characteristics it also shares with other industries. However, there are also some more specific aspects of the sector that are important to include in the discussion of local content. Following seminal studies by Auty (1993), Sachs and Warner (1995), and Karl (1997), there is by now a substantial literature documenting that having plentiful natural resources like petroleum tends to impair rather than improve development prospects of countries with certain institutional weaknesses, a phenomenon that is commonly referred to as the resource curse or the paradox of plenty. Three main mechanisms have been suggested as explanations for the detrimental effect of natural resources; (i) Dutch disease effects, (ii) patronage or the use of public funds to shore up political power, and (iii) rent-seeking (detailed in, for instance, Kolstad and Wiig 2009). While there are studies which disagree with the conclusion that the net effect of resources is negative, there is little reason to doubt that patronage and rent-seeking are important phenomena in resource-rich developing countries; the question is more of how negative their impacts are, that is, if they are sufficiently large to outweigh a direct positive effect of resource revenues on the economy.

What makes patronage and rent-seeking engendered by resource rents particularly challenging, is that they tend to be quite sticky phenomena. While institutional improvements can reduce the potential for patronage and rent-seeking, the problem is that the power to make these improvements often rest in the hands of those who benefit from the institutional inefficiencies that allow them to appropriate current and future resource rents. Dysfunctional institutions and associated patronage and rent-seeking should, in other words, be seen as an equilibrium that may not be easy to displace. For instance, while patronage can be reduced through increased democratic accountability, a ruling elite that uses patronage to secure its hold on power and hence access future resource rents has little to gain from introducing democratic reform.

Empirical studies also confirm the negative downward pressure of resource rents on democracy (Andersen and Ross 2013; Aslaksen 2010; Ross 2001; Tsui 2011).[2]

Given that these challenges are central in resource-rich developing countries with institutional flaws, analyses of policy in these countries need to take a political economy perspective. Policies should be seen in the light of these phenomena, and assessed according to their ability to address these challenges, while also keeping in mind the probability that they will be implemented by those benefiting from current institutional dysfunctions. It is particularly important to avoid policies that further increase the scope for patronage and rent-seeking, since this will increase a negative impact of resources on the economy. But, paradoxically, these may also be the exact policies that a ruling elite with access to petroleum rents may prefer to introduce to increase their hold on power. While this does not immediately make any implemented policy suspect, these types of considerations nevertheless need to be given attention. In what follows, we discuss local content policies in light of the three main mechanisms underlying the resource curse.

3.1 Dutch disease

While early theories proposed the Dutch disease as a potential cause of a detrimental economic impact of natural resources, this is a less emphasized explanation in more recent work. The Dutch disease essentially means that a highly profitable natural resource sector tends to increase the price of domestic inputs and/or lead to currency appreciation, which reduces the competitiveness and production of non-resource export sectors. And if learning and productivity increases are higher in these other sectors, the shift towards the resource sector reduces the economy's long-term growth potential (Van Wijnbergen 1984). While much has been written about this effect, the assumption of superior learning effects in non-resource sectors (in particular manufacturing) are largely unproven (Sala-i-Martin and Subramanian 2013). Moreover, even if such an effect exists, it can still be optimal for a country to forgo some productivity increase and future growth in order to extract hugely valuable resources (Matsen and Torvik 2005).

We will not spent too much time discussing local content in terms of the Dutch disease mechanism, as it is unlikely to be a major explanation for the resource curse. If the Dutch disease literature is correct in suggesting that productivity increases are lower in the petroleum sector than in manufacturing sectors, this would strengthen the arguments against local content made in the preceding section. However, even if there is no general difference between learning effects in resource sectors and other tradeables, this does not mean that for any individual country there cannot be differences. Again, it seems unlikely that most resource-rich developing countries are well positioned to reap superior productivity gains from a capital intensive, technologically complex petroleum industry, compared to other sectors. A somewhat inconclusive Dutch disease literature does not add that much to the discussion of local content. We therefore move on to more important mechanisms in the context of natural resources, those of patronage and rent-seeking.

[2] For dissenting views on the effect on democracy see Alexeev and Conrad (2009) and Haber and Menaldo (2011).

3.2 Patronage

The political history of African petroleum-rich countries is not particularly pretty. The two longest serving presidents in the region are President Obiang of Equatorial Guinea and President Dos Santos of Angola, both of whom have held power since 1979. It is not the case that these rulers have stayed in office this long because of their popularity, rather the access to money from petroleum resources has provided them with the means to shore up their political power, securing their continued access to oil rents. While these two countries may be extreme in this respect, Andersen and Aslaksen (2013) show that the link between petroleum wealth and duration in political office is a more general phenomenon. For countries with low or intermediate levels of democracy, petroleum wealth significantly increases political survival, that is, the time spent in office before being replaced. The ways in which this occurs may vary, but can include patronage in the form of spending public funds in ways which ensure that the ruling elite has the necessary support to remain in power, or outright political repression. For Angola, a number of observers have noted that patronage is integral to how the political system works (Hodges 2004).

Patronage retards economic development in a country through a misallocation of capital and human capital. It can take many different forms; allocation of land or other assets, or exclusive rights to serve certain markets, to powerful individuals who the regime wants to keep on their side; construction of infrastructure or productive facilities that are politically popular and economically unprofitable (often termed white elephants); or provision of jobs and positions for political supporters in the public sector. In all these cases, the typical problem is that allocation decisions are made based on their political payoff, their contribution to keeping the ruling elite in power, rather than their economic rationale. The resulting misallocation of a society's resources leads to lower economic development, and thus provides one explanation of the resource curse.

A formal theoretical treatment of patronage is provided by Robinson et al. (2006).[3] In their model, an incumbent politician can increase the probability of retaining power through offering supporters public sector employment, and privately consumes what is left of the resource rents once public sector employment has been paid for. In this framework, the incumbent politician will tend to extract too much of the resource in the current period compared to the social optimum, since his discount rate reflects the probability of retaining public office in the future. A permanent resource boom in this setting will make the incumbent spend more on public sector employment, since the value of staying in office has increased. In terms of national income, a resource boom therefore has three effects: (i) it directly increases income through the increased resource rents, (ii) it leads to a more optimal extraction path since the probability of being in power the next period increases with the added spending on public sector employment and (iii) it leads to less efficient allocation of labour as more people are pulled from the private sector to employment in the public sector. The first two effects pull in the direction of increased income, the last effect in the direction of reduced income. The net effect depends on the presence of institutions of democratic accountability that can prevent an incumbent from favouring his supporters through public sector employment. If such institutions are sufficiently strong, the

[3] See also Robinson and Torvik (2005) on the subject of white elephants.

third effect is small, and the net effect of resources on income is positive. If, on the other hand, institutions of democratic accountability are weak, the misallocation effect may dominate the other two, leading to a reduction of income, that is, a resource curse.

It seems likely that local content may exacerbate problems of patronage in countries with weak institutions, since it represents an additional channel through which a ruling elite can secure political support by providing jobs and contracts to its backers. Moreover, it is also a channel that is relatively non-transparent, often both as a result of deliberate elite choices and the relative complexity of the sector. In Angola, Ovadia (2012) notes that laws relating to local content have been kept deliberately unclear, that the relatively opaque national oil company Sonangol has considerable power in influencing who gets the relevant contracts, that it is believed that some local companies have received contracts on dubious grounds, and that it is sometimes even unclear who owns the companies in question. He argues that local content provides 'the state with a new method of rewarding those close to the president with new and profitable business opportunities' (2012: 396), facilitating new forms of elite accumulation and further concentrating elite power.

The study of Wiig and Kolstad (2010) sheds additional light on the interaction of multinational corporations and governments around local content. Based on a survey of government officials and multinational petroleum companies in Angola, they find that local content is viewed by both the government and companies as important to winning licences and contracts. Moreover, the companies exhibit little or no inclination to address the underlying governance dysfunctions that permit the local elite to use the resource rents, and local content policies, in their own favour. While ostensibly using local content to gain legitimacy for their operations in the host economy, it seems clear that the only legitimacy that governs corporate practices in this area is legitimacy in the eyes of the host country elite. Local content thus becomes an additional tool that the ruling elite can use to preserve its political power, that is, an additional tool for patronage. Wiig and Kolstad suggest that instead of facing a collective action problem in improving the institutions of the host country, there may be collective complacency. In other words, bad institutions and associated local content may facilitate collusion between the local elite and multinational corporations, permitting them to share the resource rents between them that they would otherwise have to share with the host country population. In a way, local content permits the government and companies to keep part of the oil rents 'off the books', making collusion in appropriating them easier.

As noted earlier, what makes the underlying dysfunctions that cause a resource curse difficult to address is that those with the power to address the institutional problems benefit from the dysfunctions. The findings of the above studies are certainly in line with this view; in an institutionally flawed context, local content seems to be used in a way that increases the power of the ruling elites, cementing the political structure. The elite have little incentive to introduce institutional reform, and have resources to prevent attempts by other social groups to pursue such an agenda, through co-optation, marginalization, and/or repression. In a more indirect sense, channelling oil revenues into local content in the petroleum sector may be a way for a regime to ensure that a country has the concentrated industrial structure that will prevent other social groups from attaining the economic, and hence political power, to challenge the elite.

Kolstad and Wiig (2014) establish a positive causal link between the level of economic diversification of a country's economy and the level of democracy. They suggest that it may operate through two channels: (i) a more diversified economy means that the elite is less cohesive in its interests, and (ii) more diversification means that workers have less to lose from challenging the elite as there are alternative employment opportunities with skill requirements close to their current job.[4] Local content may serve to further concentrate a petroleum-rich economy in the resources sector, and hence undermine a favourable evolution of its economy and institutions. In other words, in this perspective, local content can be a means not just for the elite to keep power, but to further entrench their power, in order to appropriate more of the resource rents. There is, hence, reason for caution in promoting local content in resource-rich developing countries; it may allow elites to accumulate additional power, making improved development outcomes for the population unlikely.

3.3 Rent-seeking

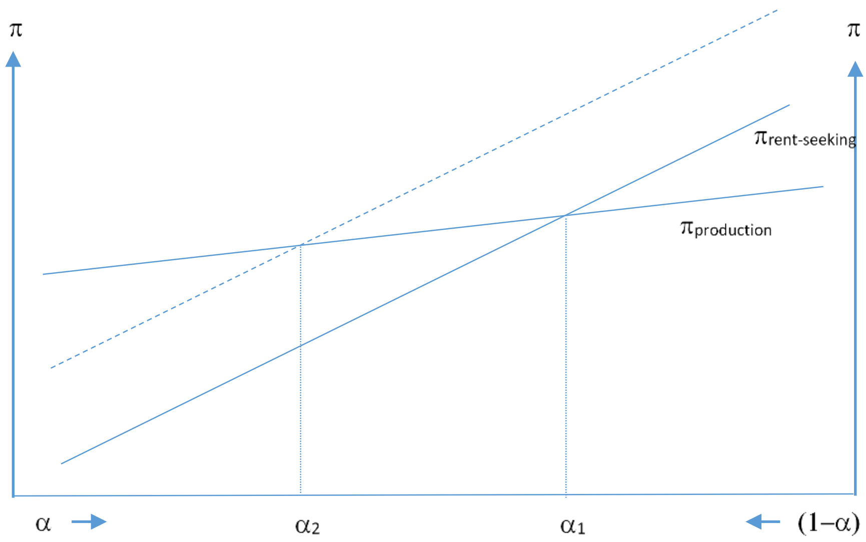
In an economy with large petroleum incomes, educated and talented people see positions in or related to the petroleum sector as particularly attractive. You therefore typically see graduates seeking out positions in private companies in the sector, or in the oil bureaucracy. A problem with this flow of skilled and talented people to this sector is that they are to a certain extent competing for a pie of a fixed size, that of the resource incomes or rents, rather than pursuing other types of activities that could increase the size of the pie, such as entrepreneurship in other sectors. This form of behaviour can hence be classified as rent-seeking, defined as the wasteful competition for a given economic opportunity. The problem with this phenomenon is that it entails an inefficient allocation of labour and talent; in comparing the payoffs of rent-seeking versus productive activities, each individual does not consider how their decision to become a rent-seeker reduces the rents available to everyone else. There is thus an inefficiently high allocation of labour to rent-seeking activities related to petroleum, and a correspondingly low allocation to productive activities, which leads to waste in terms of the total income of the society.

Rent-seeking in the context of natural resources is formally modelled by Mehlum et al. (2006). In their model, entrepreneurs can choose between rent-seeking and productive activities. If we denote by α the proportion of agents that choose productive activities, the model can be represented by means of Figure 1. The lines $\pi_{production}$ and $\pi_{rent\text{-}seeklng}$ represent the payoffs from being involved in productive and rent-seeking activities respectively, for any proportion α of entrepreneurs involved in production (and hence any proportion $[1-\alpha]$ of rent-seekers). Profits from production increase in the proportion α of entrepreneurs who are producers. This is due to an assumption that there are increasing returns to scale in modern production activities, which create positive profits, which further increase income and the demand for products in the economy; there is, in other words, a positive demand externality between sectors. Profits from rent-seeking are decreasing in the number of rent-seekers (that is, increasing in the number of producers). In equilibrium, no entrepreneurs would benefit from changing to the other activity,

[4] On the first point, see also Ahlquist and Wibbels (2012).

in other words α_1 is the equilibrium proportion of producers. The position of the rent-seeking profit line depends on how grabber-friendly the institutions of a country are, that is, how much they favour rent-seeking activities relative to productive ones. If institutions deteriorate, the $\pi_{rent-seeklng}$ line shifts up and to the left, as illustrated by the dotted line. With worse institutions, a lower proportion α_2 of entrepreneurs choose to be in productive activities. This leads to a lower incomes for both rent-seekers and producers, and hence lower total income for the economy.

Figure 1: Equilibria in the Mehlum et al. (2006) model



Source: Adapted from Mehlum et al. (2006).

If institutions are sufficiently bad (meaning that some section of the $\pi_{rent-seeklng}$ line lies above the $\pi_{production}$ line), a key result from the model is that an increase in resource rents leads to a lower national income. Increased rents lead entrepreneurs to switch to rent-seeking, which reduces the profitability of being a producer and hence the opportunity cost of rent-seeking, leading even more entrepreneurs to switch to rent-seeking. In this way, the increased resource rents are more than fully dissipated through a contraction of productive activities, and national income goes down as the economy gets more resources. With sufficiently good institutions, this does not happen, an increase in rents does not make rent-seeking sufficiently attractive to induce an exodus of entrepreneurs from productive activities. The model hence predicts that a resource curse (understood as a situation where increased resource rents reduce total income) will occur in countries with bad institutions, but not in countries with good institutions. In the empirical part of their paper, Mehlum et al. provide evidence supporting this prediction.

The above model provides a good point of reference for discussing the effects of local content in the petroleum sector. The idea behind local content is that over time it will increase productivity and hence returns to productive activities. In the model, we can understand this as reducing the marginal costs from modern production, moving the $\pi_{production}$ line upwards, reducing the number of rent-seekers in equilibrium, and increasing total income. However, another possible effect of local content requirements in petroleum is that these requirements increase the scope for rent-seeking. In terms of the model, introducing local content requirements is akin to making institutions more grabber-friendly, shifting the $\pi_{rent\text{-}seeking}$ line up, leading to less productive activity and hence a reduction in total income. Which of these two effects dominates depends on the relative effect of local content on productivity and appropriability of the resource rents.

Even if the productive effect of local content in the petroleum sector should prove to dominate the rent-seeking effect, this is not sufficient to say that local content in petroleum is a good policy. As discussed in Section 2, the alternative to local content is to levy higher taxes from multinational petroleum corporations and use these tax revenues to promote other specific industries, business in general, or other development policies. Similar to local content in petroleum, policies to support specific other industries may also invite rent-seeking, and have the potential to improve productivity of the industry in question. Assessing whether to use scarce petroleum revenues on the petroleum sector or on other sectors then comes down to which sector has the most favourable productivity effect net of rent-seeking. As discussed earlier, it seems likely that a resource-rich developing country can benefit more in terms of productivity by using resource revenues to promote sectors other than petroleum. Given the high appropriability of resource rents compared to rents in other sectors, it also seems likely that this works against local content in the petroleum industry. The net effect therefore seems unlikely to favour local content in petroleum. Moreover, general policies to promote industrialization across industries, such as reduction in the tax level or investment in more general forms of infrastructure, as well as general policies to promote development, such as education or health policies, are likely to be less capturable by special interests, and to an even lesser extent produce rent-seeking. In a rent-seeking perspective, local content in petroleum hence seems unlikely to produce more favourable outcomes in terms of industrialization and increased development than alternative uses of resource revenues.

The point about the stickiness of institutions discussed in the previous section also applies to the issue of rent-seeking. If the effect of local content is to predominantly facilitate rent-seeking, the increased specialization of a substantial part of talented entrepreneurs in rent-seeking may, over time, give them a vested interest in keeping the current system in place, and in resisting institutional reform that may undermine their access to the resource rents, even if reform would improve the overall development level of the economy. Any increases in rent-seeking that occur with local content may thus be hard to reverse, reducing long-term development prospects.

4 Dynamics of local content debates: the case of Tanzania

The attention that local content in the petroleum sector tends to receive poses something of a puzzle, given the arguments presented above. Support for local content provisions in developing countries with recently discovered petroleum reserves seems disproportional to the likely benefits thereof, sometimes even among organizations and individuals likely to benefit more from alternative uses of the petroleum revenue, and in a position to see the pitfalls of these types of policies. To better understand the dynamics of public debates and policy processes, and why these debates and processes tend to be so welcoming of local content, a country case study approach can be instructive. Tanzania provides a useful case, where recent discoveries of large gas deposits have generated considerable attention to local participation in the value chain. While there is a long history of petroleum exploration in Tanzania, and smaller previous discoveries of gas at Songo Songo and Mnazi Bay have been under extraction for a decade, the recent deep-water discoveries have increased known reserves several times over and ramped up expectations for local benefits from their extraction. Identified gas reserves are currently at around 55 trillion cubic feet, which in the calculations of the IMF (2014) will contribute USD3-6 billion in annual government revenues if and when the fields start producing in the early 2020s.[5] If recent decreases in petroleum prices prove permanent, these sums may be reduced, but the predicted revenues will still be substantial, compared for instance with net aid inflows of USD3.4 billion in 2013. In the absence of further discoveries, however, the petroleum sector will not become as dominant as in heavily resource-dependent countries such as Angola or Nigeria. Petroleum revenues of USD3 billion would constitute about 6 per cent of Tanzania's gross domestic product (GDP) in 2014, and 30 per cent of its exports.

Stated expectations of what the gas discoveries will mean for the Tanzanian economy have been high. The government's Natural Gas Policy of 2013 expresses an expectation that this will 'contribute significantly towards the acceleration of growth and socio-economic transformation', and help the country become a middle-income country by 2025 (Government of Tanzania 2013: x). The expressed intention of the policy is that the 'natural gas … belongs to the people of the United Republic of Tanzania, and must be managed in a way that benefits the entire Tanzanian society' (2013: 4). As one way of attaining this objective, the government drafted a Local Content Policy in 2014, provisions of which were incorporated into the Petroleum Act of 2015. The draft Local Content Policy is clearly ambitious in its scope, stating that 'Tanzanians must be engaged in the entire value chain', and aiming for a 'maximum engagement of local content and local participation' in the industry (Government of Tanzania 2014: 13, 33). Expectations among the Tanzanian population have been correspondingly elevated; a recent poll suggests that 17 per cent of respondents expect to be directly employed in the petroleum sector, a clearly unrealistically high proportion (Ambroz and Mushi 2015).

The position of the Tanzanian government as expressed in the draft Local Content Policy is uncritical of local content, sees local participation as exclusively beneficial, and does not recognize trade-offs with other uses of the natural resource revenues. The draft policy aims to advance the participation of local workers and firms, with an objective of upgrading skills and attaining transfers of technology, and addresses upstream, midstream, and downstream segments of the value chain. The policy document implicitly underscores that the local content provisions will be costly, granting Tanzanian-owned firms an unspecified margin of price preference over foreign suppliers, prescribing at least 10 per cent participation of Tanzanian goods and services, and opening up for financial incentives to multinational and local companies in promoting local content. The Petroleum Act of 2015 appears to incorporate similar stipulations, with obligations for licence holders, contractors, and subcontractors to give preference to local products and services, or, for goods and services unavailable locally, to have these supplied by companies in joint venture with a local company (Government of Tanzania 2015: 108).

[5] At the current time, final investment decisions in the four off-shore blocks granted to Ophir/British Gas and to Station/ExxonMobil have not been made.

Positions of parties with vested interests related to local content in the petroleum sector have tended to follow familiar lines also seen in other countries. Local businesses that are in a position to benefit from local content policies have been some of the strongest proponents of extensive local content provisions. Spearheaded by the Tanzania Private Sector Foundation (TPSF), this vocal group has demanded that locals be included at all levels of investment and production. This group has also argued for the need to have a clear definition of what counts as being local; in their view local should be synonymous with being native rather than merely residing in Tanzania. Multinational petroleum companies, on the other hand, tend to oppose strict government requirements for local content, citing examples from other countries of how this has been unsuccessful and typically leads to evasive activities, with unproductive shell companies and nominal hiring of locals to limited purpose. These companies are more in favour of a voluntary approach to local content, seeing this as an important part of corporate social responsibility activities needed to retain a social licence to operate in the host economy. It is difficult to see this as anything other than a broader corporate strategy to capture the corporate social responsibility agenda, defining it as exclusively consisting of voluntary corporate activities and denying any role for regulation. Given how ineffective corporate social responsibility activities of extractive companies have seemed to be in promoting development in other resource-rich countries (Frynas 2005), it is also puzzling why these forms of activities should yield more of a licence to operate than paying more to the host economy in corporate taxes. Based on experiences from other resource-rich developing countries (Wiig and Kolstad 2010), the focus on voluntary local content policies may in the end be driven not so much by the need to secure a social licence to operate as to secure a licence to influence those in power to award petroleum licences and contracts.

The positions of government officials, local businesses, and multinational petroleum companies as (at least selectively) favourable towards local content can be made sense of given their interests and the theories presented earlier. What can be a bit troubling is that the voices of these groups tend to be over-represented in debates on local content, and in consultancy work and research on the topic. The centrality of government and industry players in these debates means that they tend to become locked in sector management mode, focusing on questions of how to promote local content, and eschewing more fundamental questions of how best to make use of scarce petroleum revenues, and whether and to what extent local content is a good use of funds compared to alternative uses. This may mean that groups that would be potentially critical or that would benefit more from other types of policies have little choice but to enter the debate on the terms that have been set. From the arguments presented in this paper, there is a clear need to ask more fundamental questions about local content. Since the use of scarce petroleum revenues is a question that affects all citizens of a resource-rich country, it is also necessary to pay increased attention to the views and opinions of those without vested interests in the sector. In other words, the debate needs to be repositioned, and views of government officials and industry balanced with those of groups with other interests and objectives. In an effort to do so, and to better understand the emphasis local content has received in policy debates in Tanzania, we performed interviews with a set of informants purposely selected to potentially provide a contrast to the dominant views in the debate. We do not in any way claim these informants to be representative of the views of the Tanzanian population, but aim to complement research that has so far put a great emphasis on the views and discourse of government and industry. In other words, if there is a bias in our selection of informants, we attempt to err on the side of balance in the wider debate on local content. Our interviews had a semi-structured format and were conducted in September 2015; the informants included representatives of non-governmental organizations, academics, advisors, consultants, retired civil servants, and managers of businesses unrelated to the petroleum sector.

Our set of informants varies in their overall assessment of local content. However, practically all saw problematic aspects and potential pitfalls in an active local content policy, concerns that mirror the arguments presented in the preceding sections. The lack of capacity of local firms to participate and provide products of sufficient quality to a complex petroleum industry was widely noted. Several of our informants pointed out the costs involved in this, and expressed doubts that it would result in a local industry that would become internationally competitive. As one of our informants exclaimed: 'Local content is nice for feel-good, but it is really going to result in transformative processes?'. There was a widespread concern that in the absence of local supply capacity, local content requirements would result in evasive activities, with local front companies being used, and imported goods passed off as local.

Our informants also raised concerns of local content exacerbating problems of patronage, rent-seeking, and elite capture of the benefits from petroleum. One informant stated bluntly that 'everyone's excited about gas, but all the laws that have been passed will not benefit Tanzanians, only cronies', and argued that 'local content will benefit the sons and daughters of government officials'. There was a perception that local content would be prone to rent-seeking, and even more so than with government interventions in other sectors because of the large rents involved in the petroleum sector. There was a general realization, even among those of our informants with an overall favourable view of local content, that the political and economic elite would benefit disproportionately from local content policies. As one informant positively inclined towards local content put it, 'don't expect miracles in Tanzania, that this won't be captured'. Other informants predicted that shell companies in joint ventures 'would be owned by politicians', and opined that local content 'provides those connected with a cheap and easy way to be part of the gravy train'. Some of our respondents also suggested that local content policies tend to improve the bargaining position of multinational petroleum companies; as one of them put it 'negotiating over local content does not put you at any advantage', and 'local content is a concept for demand and complaint', which introduces discord in the population over who gets the benefits.

With our selection of informants, it is not too surprising that these critical points towards local content came up in the interviews. The informants nevertheless divided, if not neatly, into several different positions in terms of their overall view of the desirability of an active local content policy. A first set of informants saw local content as detrimental to development in the context of Tanzanian institutions, arguing that 'local content without oversight gives nothing' and would only lead to capture and corruption, and concluding that the government should instead concentrate on collecting royalties and taxes, improving governance, and spending on social purposes. A second set viewed local content debates and processes as a distraction from more important matters. In the words of one informant, 'local content is a popular way of answering a complicated question' of how to best use revenues from natural resources, and in the end 'local content, the supply chain, is nothing compared to the wealth'. The focus should instead be on making sure that the revenues are well spent, and that there is transparency and acco untability in government spending decisions.

A third set of informants can be characterized as selectively or conditionally favourable to local content policies, provided they focus on forms of local content less vulnerable to evasion or on developing more generalized skills and capacities that would also be useful outside the petroleum sector. When asked about the chance that the local content provisions can be shaped in this way given the interests of those with the power to influence the policies, however, answers were less than convincing. A related view, and with similar challenges, advocates a gradual expansion of local content subject to locals gaining the necessary technical and related skills to enable them to participate in the sector. This would entail a smaller local content focus and bigger tax revenue emphasis at initial stages of gas extraction activities; in the words of one informant, 'the government should focus on maximizing tax revenues from the natural gas resources while building local capacities for future participation in the sector'. While this view in a sense acknowledges a trade-off between local content requirements and tax revenues, it replaces local content requirements with government support for capacity expansion in supplying the petroleum sector, which also needs justification in comparison to other uses of tax revenues in terms of productivity enhancement and vulnerability to capture.

A fourth and final set of informants saw local content policies as favourable, at least in a second-best sense; given the general lack of accountability of the government in spending tax revenues, local content provides an imperfect way of realizing at least some good outcomes from petroleum activities. These informants did not, however, give a good answer to the question of why an unaccountable government would be more accountable in the choices made in terms of local content, or why local content should be less capturable than alternative government uses of the resource revenues. Those of our respondents most strongly in favour of local content requirements were also relatively unconcerned about issues of elite capture, with one of our respondents asking 'Why should it be a problem when a few profit?', after dismissing arguments about disproportionate elite benefits as 'nonsense born out of a Communist mentality'. Interestingly, these types of views were voiced most strongly by our business informants, even though we had taken care to pick informants without direct interests in the petroleum sector. At least two interpretations of their views are possible; one is that these informants are staunch libertarians in the sense of being unconcerned about the distribution of welfare (but paradoxically in favour of strong state intervention to secure elite access to resource rents), another is that they reflect the self-interest of business owners with their fingers in more pies than can be readily identified, or with greater interconnections to other parts of the economic elite. Some of our other informants leaned towards the latter view and stressed the power these wealthy business people have in influencing policy, suggesting, among other things, that they were influential in removing from office a former Minister of Energy and Minerals who was critical of local firms' technical and financial capabilities in terms of participating in the petroleum sector. In our interviews, the power of some of these wealthy individuals was palpable and explicit, as one wealthy business owner put it, 'If the current government cannot allow us in then the only option in this election year is to remove it and let someone else who understands us take over.' Inadvertently, our interviews may in this way have come to illustrate some of the more dysfunctional political effects of natural resource rents.

We do not argue that the views of our informants represent the full range of views on local content, nor do they provide evidence that local content will lead to specific outcomes. The selection of informants and the qualitative approach selected do not provide a basis for drawing such conclusions. What our qualitative data do underscore, though, is that the fundamental challenges related to local content are well known and recognized among informed parties in Tanzania, and that there are voices which question the very foundation for local content policies, which do not fit well into existing policy discourses of how to promote local content. Our informants are too well positioned and highly educated to be seen as representative of Tanzanian citizens generally. However, while it is difficult to know whether citizens see the trade-off between local content and other uses of petroleum revenues, there is data to suggest that ordinary Tanzanians are also concerned about elite capture in relation to gas extraction. In the 2015 poll presented in Ambroz and Mushi (2015), 55 per cent of respondents believed that people in government and the rich will be the ones that will benefit the most from the recent gas discoveries. Relatedly, Kinyondo and Lange (2015) present a poll on the operations of mining companies in Tanzania, suggesting that a large majority prefer local community development activities over local content, with one reason for the preference being the corruption local content entails. In view of these questions and concerns, it is puzzling that debates and processes of local content have not been more critical of local content, with attempts to shift the debate to more fundamental questions of whether local content is a good use of resource revenues.

We posed this puzzle to our informants. Fundamentally, the more critical of our informants stated clearly that what drives the emphasis on local content in policy processes is the interests of the political and economic elite. Politicians attempt to capture the rents from the sector, and are heavily influenced by local businesses and business associations, whose members finance political campaigns. On the question of why many ordinary Tanzanians also seem to be supportive of efforts to increase local content, even though very few of them are likely to benefit, one possibility suggested is that the political and economic elite have managed to inflate perceived probabilities of getting a job in or related to the petroleum sector. However, our interviews suggested an alternative and potentially more important mechanism. Several of our informants stressed that a nationalistic argument of ownership underlies much of the discussions of local content. A government favourable towards local content is tapping into resource ownership sentiments in the population, presenting local content as claiming ownership to the resource, or 'not selling the country' to foreigners. In the words of one informant, rents can be accessed by 'telling stories to the population', but in the end the benefits of local content will be 'very private'.

In sum, our interviews show that many of the concerns raised about active local content policies have some resonance among informed individuals in Tanzania. In addition, they reveal some important challenges in attempting to shift the local content debate towards broader and more fundamental issues of how petroleum revenues can best be used. Understanding the underlying interests shaping debates and policy processes, and the strategies used to advance these interests, is clearly important in this respect. While a strategy of inflating people's expectations for jobs and direct benefit flows from petroleum activities may create support for an active local content policy, support on this basis will be short-term and wither as the limited employment and narrow distribution of benefits from petroleum activities become apparent. However, our information suggests that debunking expectations may not be sufficient to change people's views of local content policies. If national identity and nationalistic sentiments of ownership are perceived as important enough, local content may receive support even from people who would benefit more from other uses of resource revenues. This is related to observations from other countries suggesting that people may support policies that go against their interests, provided they are bundled with positions that affirm their social and national identities (Frank 2004). It is probably also no coincidence that plays on national identity are also seen in the local content policies of other resource-rich countries; for instance, the term used for local content in Angola is *Angolanizacão*. If our informants are correct, then in order to change perspectives from one of sector management to one of public expenditure, these may be the kinds of sentiments that need to be targeted more than over-inflated expectations. While it is possible to present the extraction of higher taxes from multinational companies as a source of national pride, the tangible nature of local content is perhaps more amenable to these forms of arguments. Given the concerns raised, repositioning the debate is nevertheless important to ensure that petroleum revenues are used in the best possible way, and to avoid realizing the prediction of one of our informants that '10 years down the road, we will still be poor, still not have schools'. Moreover, it would be even more troubling if local content policies help concentrate power further in the hands of an elite, reducing accountability to an extent where it matters little what people think of its policies and actions.

5 Concluding remarks

The alternative to an active local content policy in the petroleum sector is to tax the multinational petroleum companies harder, and use the taxes to promote industrialization and development in other ways. An active local content policy entails the use of scarce resource revenues which have alternative uses, and should hence be viewed as a public expenditure question rather than a limited sector management issue. Given the capital intensity and technological complexity of the petroleum sector, it seems unlikely that using the resource revenues to build a local supply industry gives better value for money in resource-rich developing countries than using the revenues to promote other types of industries, to improve business conditions generally, or to promote development—for instance through investments in health or education. Moreover, the potential local content has to exacerbate negative effects of natural resource rents in developing countries with flawed institutions, providing added avenues for patronage and another arena for rent-seeking, generates important reasons for caution, particularly since these types of effects tend to entrench elite power and institutional dysfunctions further. The implication of these insights is that the optimal local content policy of resource-rich developing countries is likely to be much more minimal than those typically pursued in developing countries with recently discovered petroleum reserves, such as Tanzania and Ghana. Note that this does not necessarily mean no local participation, as some local inputs are likely to be used anyway, but it questions what place—if any—should be given to an active local content policy that seeks to expand local involvement in the industry at the expense of other ways of spending the resource revenues.

Our analysis of local content combines conceptual and theoretical analysis with qualitative empirical analysis. We contribute to the literature by providing a comprehensive treatment of the effects of local content, incorporating insights from the political economy literature on effects of natural resource rents. Our theoretical framework has implications for the approach chosen in empirical studies of local content; since local content entails the use of scarce revenues with alternative uses outside the petroleum sector, empirical studies should not narrowly focus on views of groups involved or with vested interests in the sector, and avoid being constrained by discourses treating local content as a sector management problem without opportunity costs. Our qualitative data from Tanzania provides an illustration of the views that emerge when the local content question is opened up in this way. It also provides new information on the dynamics of local content debates in a country with recently discovered resource wealth, including the underlying factors shaping the debates and policy processes. The findings suggest that the arguments presented in this paper are mirrored by concerns among informed individuals in Tanzania, and that the interests and strategies of the political and economic elite may make it difficult to reposition the debate and policy processes on local content. We stress that our theoretical and qualitative analysis can only provide reasoned arguments and hypotheses on the preconditions and effects of local content policies, more explicit testing would require a different and more quantitative approach. Unfortunately, the lack of quantitative data remains a major challenge for research on local content.

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