

# Impact on regional production integration in south africa economics essay

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The extractive industry by its nature due to the scale of its operations, duration, extraction methods, and location; has significant economic impact in host countries, Saffer et al (2009). A large number of resource rich countries in Sub Saharan African (SSA) are currently experiencing rising export revenues from the extractive sector, partly due to new found prospects, huge demand from China and high world market prices for mineral commodities in the past years, Stürmer and Buchholz, (2009). The question that is being raised is whether this boom, which has placed the extractive sector high on the development agenda, has a positive economic development effect. The reason for such pessimistic view is because, despite being resource rich, SSA countries have great difficulty converting mineral wealth to economic development, even with high investment. The aim of this study is to examine the economic contribution a mature rich resource country (production base) in particular South Africa's extractive firms, plays in host economies of developing resource rich countries in the region. The assumption here is that production base's extractive firms do influence economic development in some form or the other and their impact on regional integration is in question. The extractive industry in Sub Saharan Africa was chosen due to the significant concentration of economic activities focused in the mining sector in the region, which is in keeping with Porter (1998) definition of 'cluster of economic activity' as a geographical area or spatial economic unit in which a particular resource is present'.

## **Literature Review**

Despite being resource rich and having long pursued policies aimed at reducing their dependency on the mineral sector, (Radetzki, 1977), Sub

Saharan African (SSA) mineral economies have stubbornly remained commodity dependent. The answer being touted to deal with this economic malaise is to some like Humphrey (2002) is the sustainable development model due to its emphasis on primarily regional and local regions. To the said Humphrey, the sustainability development model is more appropriate for a resource rich country as it ensures that " the regional impacts of mining and the significant part of the economic benefit of mining is retained in the region in which the rent is generated and in which the disruptive effects of mining are most acutely felt". While to Bocoum (1999), resource based development is best achieved through " mineral processing as an industrialization strategy", which could be beneficial to SSA economic development, provided the right policies that support the domestic market are enforced. To the African Union, Africa's overall economic development agenda, " economic regional integration" has been pursued, " as it enables individual countries to overcome the barriers of small size and poor human and physical capital endowment', Foroutan and Pritchett (1993) chronic to SSA. Economic regional integration understood as the integration of goods and markets through discriminatory trade arrangements, has been the persistently pursued goal by SSA countries in the past three decades, Kühnhardt (2008). The desire for increased economic development is seen as opportunity, to move out of primary commodities, away from heavy reliance in undiversified and vulnerable structure of exports that do not foster economic growth. For the purpose of this study, the term mineral economy is used to denote a rich resource country. According to Eggert (2001), there is no universally accepted definition of mineral economies.

Mineral economies have been defined using trade-based definition of mineral dependence as 40% or more of total exports coming from minerals Auty (1999) and to Sacks and Warner (1999), resource dependence is defined as resource exports as a percentage of gross domestic product. Davis (1995) used a combination of both output and trade data to construct a mineral dependence index. It is however Eggert's (2001) definition of mineral economy, as one in which mineral exports represents 25% or more of total merchandise exports that this study adopts. Based on mineral exports as a percentage share of total merchandise exports in 1999, Eggert found 9 mineral economies in sub-Saharan Africa, namely Nigeria, Libya, Niger, Zambia, Egypt, Congo, Dem. Rep, Mauritania, South Africa and Senegal. A large body of literature shows that many developing countries, a category most Sub SSA countries fall under, also considered mineral economies, have great difficulty in converting mineral wealth to economic development despite high investment rates Bocoum (1999). Extant studies such as Sachs and Warner (1995) have demonstrated significant differences in economic growth rates between resource rich and resource poor countries, finding without exception that resource-abundant countries have stagnated in economic growth since the early 1970s and 1980s. One of the main reasons attributed to difficult in converting mineral wealth to economic development is according to Hirschman (1961), the key assumption that " the natural resource sector has no " production linkages" while manufacturing sector does, as manufacturing sector displays externalities while natural resource sector do not. With more new mineral prospects found in countries such as Ghana and Uganda to mention but a few; Sachs and Warner's (1995) views

that " resource-poor economies often outperform resource rich economies in economic growth" implies that simply implanting capital-intensive mineral projects into immature economies, will distort some of these economies in ways which were, economically and socially damaging, Humphreys (2002). Analysis of compositions of commodities traded in SSA finds a majority of the 54 commodity dependent developing countries are found in region, Matringe (2006). The European Union Trade Report (2004) puts export earnings of over 20% in SSA as being in less than three soft commodities like primary agriculture commodity, non renewable mineral resources, which constitute the bulk of SSA export. This supports Bhatia (1999) opinion that trade diversification by altering the product composition of existing production towards higher value added products is prerequisite for economic growth and development. However many developing countries do not have the capacity to benefit from production linkages and their challenge is to find productive ways of tapping the large value-added which mining can deliver. This can be achieved through the transformation of the wealth created by mining into a diversified and self-supporting set of economic activities, Humphreys (2002). With mineral exporting developing countries have long pursued policies aimed at reducing their dependency on the mineral sector, without much success, perhaps as Radetzki (1977) suggests, it would be easier to base the diversification process on the mineral sector itself, with the diversification far reaching forward integration, from mining into smelting, refining and fabricating and as well as manufacturing of metal containing finished products. On the other hand with large mining investments being from foreign firms, with regards to mineral dependency,

according to Amin's, (1974) dependency theory, ownership of capital, determined its effect on the host mineral economy. With an assumption that an economy controlled by foreigners would not develop organically, but would rather grow in a disarticulated manner, should proper strategies to control economic direction not be implemented (Beer 1999; Kentor, 1998). Mengistu and Adams (2007) find that disarticulated growth occurs because the multiplier effect from demand in one sector in country probably its comparative advantage like a natural resource would create weak demand in another, thereby leading to stagnant growth in the developing countries. In further support of the above arguments Yu's theory of Advantage Integration, Yu and Rong (2009) states that investments from developed economies to developing economies should integrate the quantity or cost advantage of resources in a host developing countries. Yu and Rong (2009) goes on further to say, a passive combination in host economy particularly a developing country's natural resources-related advantage to foreign capital, has no longevity, as foreign capital and technology has been shown to flight in times of crisis and he terms this flight of " FDI Advantage Clearing-Off". To Yu and Rong (2009) passive combinations, are likely to results in profits from capital and technologies investments to flow to foreign firms and its owners, hence the host developing economies do not benefit from the investment and the technology brought in. Here lies the catch, although developing countries are increasingly turning to their minerals wealth as a source of growth and new economic development opportunities, driven by the prospect of higher revenues, Humphrey (2002); they have to take into consideration that resource extractive firms' primary motive for going

abroad is to control not only the home market but the world market as well. Extractive firms have accumulated advantages that are firm specific technology, experience, financial capacity and their special access to markets and see their ventures into host economies as an opportunity to exploit these advantages, (Ozawa 1982). This should not distract to the importance foreign direct investment into a region though, as studies such as Blomström (1986) finds that sectors with a higher degree of foreign ownership exhibit faster productivity growth. Yu and Rong advocates developing countries to actively promote the accumulation of advantages by getting "ownership", as a means of ensuring that they consistently accumulate their own capital, technology and management know-how advantages through utilizing external advantages. The Advantage Integration framework was developed by Yu to measure China's miracle economic growth in East Asia Yu and Rong (2009), and is relevant to this study due to the contribution production bases (Japan South Korea, Singapore, Hong Kong) made initially to China's economic development. Metwally (1993) has shown correlation in export led growth models in East Asian countries (South Korea, Singapore, Hong Kong), between regional integration, exports and economic performance. According to Young (1995) who investigated the case of East Asia from the 1960s to early 1990s, found that the spectacular economic growth in Hong Kong, Singapore, South Korea and Taiwan originated in large part from the reallocation of production process from the low productivity agricultural sector to the high productivity industrial sector, with Japan acting as catalyst for the region. This occurred as a result of natural process, through the search for competitive edge by

firms. The term production process consists of production of various intermediate goods (parts and components) and final assembly and has also been referred to as " production integration", (Jones and Kierzkowski 2000). Meaning the production process is physically divided into different units that are united through systematic logistic arrangement otherwise known as fragmentation in the literature of the international trade. A structural analysis of production process in intra-regional trade in East Asia showed that East Asian countries have a high share of intermediate trade. Further analysis to determine regional trade in East Asia by class of product, namely finished, intermediate or raw material to determine which class was driving the expansion of intra-regional trade, showed that the proportion of intra-regional trade accounted for by intermediate goods increased rapidly, rising from 42% in 1980 to 60% in 2005, Ayivor (2010). This confirmed that intermediate goods were driving intra-regional trade and the root of economic development in East Asia, was its ability to reallocate its production factors within its region, hence spreading its comparative advantage. This writer argues that regional production integration has been successfully used in East Asia, where the Factory Asia model is not designed as discussed above, but rather developed organically through the natural process of individual firm's seeking higher productivity using regional production integration. Hence large firm activity was the catalyst for regional integration in East Asia, as they sought to appropriate location, to achieve higher productivity. One could further argue that multinational firms are the decisive contributory actors in the process. Multinational firm activity is evidenced in SSA as well; in 2006 Saffer et al (2009) found that the top ten



out of the 230 mining companies' active in Sub-Saharan Africa controlled 35 percent of global mining and the question would be how many of them are South African firms? The huge difference between East Asia and SSA shows in that " countries abundant in labor and capital tended to export manufactures, and countries abundant in natural resources tended to export raw materials', Davis (2009). However the fact remains that East Asia has shown that regional production integration is crucial to economic development as it promotes intra industry, trade specialization and results in intra trade in among developing countries, between them and developed countries, Bhagwati and Srinivasan (1983) and Krueger (1990). This view is supported by North, (1955) statements that successful regions exploit their natural resource distributions and comparative advantages to produce goods with a lower opportunity cost to developed countries experience economic growth. On premise Bhagwati and Srinivasan with contradictory opinion to Filatotchev and Morrissay (2001) findings of serious implications for trade of exports on marginalized economies, that if products from developing countries continue to be contract suppliers of commodities, they remain marginalized from the global economy as is the case with SSA. One could say SSA countries mineral economies with abundance of mineral resources, with dependence on commodities without the value add and product diversification, explain the resource curse experienced in many of its economies. To Ozawa (1982) however it's the very structure of the natural resources industries, which have traditionally been concentrated with a handful of oligopolistic firms controlling the vertical integrated production. The general effect of vertical integration within the foreign company is to

make mineral resource an internally rather than an internationally traded commodity and to subject its utilization to the needs of the international company as an economic unit rather than to the needs of national economic unit, (Girvan 1967). Girvan goes on to say that this leads to the level and rate of growth of each country's raw material production being determined by: The particular foreign companies which mine in the host economy  
The share of international markets controlled by these foreign companies  
The share of raw material requirements drawn from the foreign company's source in that particular host economy

### **Significance of the Research**

The study will investigate a research problem that will generate results that will not only elucidate this debate, but will also add to the existing scholarship on, " economic effects of a regional production base's extractive firms within mineral economies in Sub Sahara Africa in the context of sustainable development". This researcher has not been able to locate any research study that has considered the economic contribution of regional production base and as opposed to international foreign mining companies whose ownership of and accessibility to facilities fall outside SSA. This is important to regional production as ownership that falls outside SSA results in, location decision which minimize the area's share in value added and input demand generated (Girvan 1967).

## **Theoretical Framework and Methodology**

### **Competitiveness And Linkage Analysis Of Export Based Theory**

Porter (1990) argues that productivity is an important outcome of competitiveness and high competitiveness in international trade is seen as to core increasing participation in international trade through trade increase. International competitiveness has been described by Aiginger, (2006) as the ability of the country to sell more products in the international market while maintaining and improving real income level, standard of living and welfare domestically, clearly these are economic conditions most mineral economies in Sub Saharan Africa aspire for their economies. To Yu and Rong (2009) however, economic development of many countries cannot be attributed solely to a country's own resource endowment alone. The scholars go on to say high quality and high speed development can be achieved by efficiently linking of integrating advantages from all over the world to the host economy. Hence the writer proposes for the purposes of this study that a production base within a region, be considered to constitutes, linkage effect of "integrating advantages". Meaning that production base provides or creates certain kinds of "developmental factors", or economic factors which are good for realizing high level development strategies in host mineral economy of a developing country. Yu and Rong (2009) define the linkage effect of integrating advantages as ability to linking the potential ability of the developing economy to more advantageous advanced economy, that in enables the developing countries to trigger further integration. With regards to advantageous advanced economy, there are developing mineral

economies in SSA that have become 'mature', (Auty 2006), meaning their "economies have become sufficiently diversified into additional commodity exports, services and/or manufacturing" which act as production base for the region. The Witwatersrand region in South Africa is an example of where mining has acted as the catalyst for the emergence of diversified economic region in South Africa, (Auty 2006) where mineral export is no longer dominant. According to Auty (2006) reaching maturity is a last stage of five stage sequence of export based theory that explains the diversification of mono-product commodity-exporting regions. With the above in mind this research is concerned with the creation and evolution of production bases' mining investments in host mineral economies, which remain in the mineral export and its effect on economies by lowering average production costs and further boost the host mineral economies' competitiveness. This study uses a specific set of methodological tools from export base theory to understand the creation of networks of mining production. Central to the understanding of export based theory is the concept of 'socio-economic linkages analysis', which is one of three principal tools for conceptualizing and measuring the impact of economic projects in a region and the other two, are identified as the economic multiplier and cost-benefit analysis Auty (2006). Linkage analysis tool which is rooted in export base theory also known as the staple theory, was developed by (Innes 1920, North 1955 and Watkins 1963) cited by Auty 2006. Export base theory is very relevant to an analysis of extractive industry, primarily because export based theory was formulated to explain the growth of diversified prosperous regional economies based upon the export of primary products rather than upon industrialization. The export-

base model is widely used in regional economic analysis and is a widely accepted economic model utilized by economic development practitioners and regional economic policy analysts for regional growth (Harris, et al (1998)). The said theory emerged from international trade theory, where the use of economic base models were sought to explain a region's growth through the examination of its inflows and outflows (North, 1955). It has been well noted that linkage analysis provides more flexible and comprehensive approach, as it captures the dynamics of the economic impacts, by providing an explanation for the evolution of the regional economy (Auty (2006)). This becomes important because it also suggests ways in which economic impacts can be rendered more beneficial. The theory conceives the economy as comprising two complementary sectors: the 'basic' sector is export-oriented and attracts 'new' revenue into a region or country, whereas the 'service' sector re-circulates such expenditure through the domestic economy. The mechanism of the export base model can be described in terms of four principal sets of linkages or socio-economic stimuli, which according to Hirschman (1977) are: Backward linkage (the establishment of firms to provide inputs to the export commodity); Forward linkage (the establishment of firms to process the commodity prior to its export); Fiscal linkage (the spending of government taxes levied on the commodity); Final demand linkage (the activities set up in response to the local spending of wages and profits by labour and the owners of capital). There are five-stage sequences to diversification in the case of mining (Watkins (1963)). The assumption for this study is that, the first stage when a mining company from a production base identifies minerals

within a host mineral economy with potential comparative advantage and begins to export it, has been already achieved. It is the second to final stage that are of importance for this study and these stages are listed as follows:

The second stage, which sees mineral production expand resulting in investment remaining mostly within the mineral export. This yields both internal economies of scale and external economies by improving infrastructure (such as roads, electricity supply) that lower average production costs and further boost the mineral's competitiveness, (backward linkage). Third stage productive linkages are triggered in the form of investment in local input supplies to the mine that replace hitherto imported inputs of machinery and spare parts (backward links), and/or to undertake processing prior to export, as with a refinery, smelter or fabricating plant, (forward linkage). In the fourth stage of the export base model, capital overflows from the mineral sector into the non-export sector of the economy to supply growing household demand as well as the needs of firms supplying inputs to the mine, Fiscal linkage. The region reaches its fifth and final 'mature' stage when the economy has become sufficiently diversified into additional commodity exports, services and/or manufacturing that the mineral export is no longer dominant.

## **Methodology**

Anticipating that the mineral economies under the study are most likely to have weak institutions and therefore lack of data, estimating mineral dependence will be restricted to two ways namely: This study will rely heavily on international-trade data. Formative evaluation will have to be determined how, the value, volume of trade direction and its structure,

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influence choice of regional arrangements in Sub Saharan Africa. The heterogeneity of research objectives inherent to this study necessitates a flexible and comprehensive approach. Below, is the description of which data types this study intends to gather and expound upon the methodology for each gathering and the theoretical relevance. Sampling will be conducted as follows:(Domestic) assembling a list of all South African companies known to operate in mineral economies in SSA (the mineral economies will be based on mineral exports as a percentage share of total merchandise exports in 2007).(Export) Data on the export and government policies of mineral economies will be collected from the Ministry of Commerce. Destination countries and export handlers would be identified correspondingly. These surveys will be of a hybrid qualitative and quantitative nature, primarily sociological in form, exploring the motivations and behavior of actors directly influencing the demand for and awareness of socionatural hybrids.

## **Research Questions and Objectives**

How then do we measure the economic effects of a production base like South Africa in the extractive industry of its host economies within the region? The purpose of this study is to answer the following questions: What are the overall economic effects of a mature rich resource production base on a developing mineral economy's mining and mining value chain? What is the overall impact of the production base on regional production integration in the extractive industry? Can the advantage integration of production base to host mineral economies increase SSA's competitiveness and increase regional production integration that can led to successful economic development trajectory? This study has the following specific objectives:

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(1) To present a framework capable of analyzing the potential impact of a production base of mineral related activities on industry linkages and growth prospects, (2) To apply the methodology to host mineral economies, (3) to identify viable mineral and energy activities for investment, and (4) to provide policy suggestions which can be employed in the mining sector to increase domestic value-added and foreign export revenues through such investments. The question to be answered is the importance of a production base in a host economy to stimulating key sectors including the export mining activity, which have strong linkages with other sectors in order to stimulate economic growth within that region. The occurrence of production bases in the mining cluster could help determine their capacity to increase the region's intra-regional specialization beyond resource industries. The questions to be answered are: Does the increased regional integration due to production base economic activity in a host mineral economy change trade structures in those economies and show signs of moving it from its primary commodity dependency? To achieve this study's objectives, the writer will have to: Identify mineral economies in SSA; Qualify South Africa as mature resource rich country and why it can be identified as production base; investigate mineral exports relative to total this exports as a percentage share of total merchandise exports in a host mineral economies by production base; Determine whether South Africa or any other production bases in region has the necessary impetus to trigger regional production integration in SSA, should be evidenced by if any, fragmentation of international trade in region namely increase change trade structures in SSA; Whether as a result of mining activity in host mineral economy, production



base has linked (or not linked) with domestic economic activities through its investments in the host economy; Determine the size of the mineral sector investments by a production base relative to other sectors which have strong linkages with other sectors and are able to stimulate economic growth in the host mineral economy;