

The Impact of Public Sector Barriers on Small and Medium Enterprises (SMES) Supplying in the Mining Global Value Chain in Zambia. A Case of Selected SMES in the Mines

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Abstract

The global value chain approach has become a useful strategy to reduce poverty in the mining area by forming linkages among various players. This approach gives an opportunity to all stakeholders to participate in any suitable activity along the value chain. Once SMEs enter the value chain, they supply and earn sustainable income. Unfortunately, the mining value chain in Zambia has become restrictive due to many public sector barriers such as tax, registration, standards, financial and licensing protocols. The main objective was to determine the impact of public sector barriers on SMEs participation in the mining value chain. The global value chain literature focusing on barriers of entry was reviewed to give insight on how these barriers affect SMEs participation. A random sampling was conducted among the SMEs from the mining area to determine the extent to which tax, registration, financial, technology, standards and licensing barriers impact on SME participation in the mining value chain and which barrier ranks highest. The findings show that public sector barriers greatly affect SME inclusion in the mining chains. In the hierarchy, registration processes, followed by financial, technology, and tax barriers respectively affect SMEs inclusion. The study concludes that public sector barriers greatly affect SME participation while specifically licensing and standards have a lesser effect. The study recommends a review of government policy and enhance economic empowerment to SMEs for them to participate in selling to the mines.

Keywords: Barriers of entry in the mining global value chain, Mining Global Value chain, small and medium enterprises.

Introduction

The mining sector has become a lucrative sector in engaging local SMEs to participate in the mining global value chain. The global value chain (GVC) covers the full range of activities performed by various firms to bring a product from its inception to the end user and beyond (OECD, 2013a). The cost-benefit analysis of participating in the mining global value chain has become crucial for researchers and policy makers, and it has become apparent that most governments promote the engagement of SMEs in the chains (IFC, 2002). In South America as well as Malaysia, research show that there are beneficial effects for SMEs to participate in the mining value chain (IFC, 2002 (Ata et al., 2013) as they earn sustainable income. The engagement of SMEs to the mining value chain largely depends of various support such as public and private support (SELA, 2012). Unfortunately, public barriers such as tax, registration, standards, technology, finance and licensing barriers are not clear on the extent to which they affect the SME inclusion in the mining value chain and which one among them exert more pressure and has been ranked highly. A survey carried out on the Zambian SMEs in most of the economic sectors (Chibwe, 2008:10-11) reveals that SMEs continue to stagnate in growth due to inherent barriers including public barriers such as tax, licensing and registration process. In the mining sector SMEs continue to be marginalized and unfortunately are unable to supply to the mine despite the presence of supplier development programme that is aimed at nurturing them to meet mining requirements (Barrick, 2013; Barrick, 2015a; Chibwe, 2009). Further, the Mines and Minerals development Act No.11 of 2015 whose aim is to provide policy support (Fessehaie,

2011) does not provide necessary backing towards SMEs to meet international requirements. Most studies worldwide which can be a benchmarking point for Zambia show that the SMEs who gainfully acquire public support and meet international requirement are accepted to supply to global value chains and earn sustainable income (Kaplinsky, 2013, Dunn, 2014) through remunerated jobs (Kowalski et al., 2015). Regrettably, the Zambian SMEs continue to live in poverty as they cannot supply to the mines due to many barriers such as tax, registration, standards, technology, finance and licensing barriers but there has not been a study to examine the impact of these barriers on SMEs participation and which of the barrier's rankings highest.

Problem definition

The problem in the study is the poor participation of SMEs in the mining value chain due to tax, registration, standards, financial and licensing barriers, and the study examines the extent to which these barriers affect SMEs inclusion and which among them ranks highly. The mining value chain in Zambia has for a long time been marred with many public barriers for SMEs to enter and supply (The World Bank & Ukaid, 2011). Elsewhere in the world such as in Canada and Malaysia, public barriers have been addressed and henceforth greater participating of SMEs in the value chains (Ata, Shukla & Singh, 2013, UNCTAD, 2010)

Rationale

Zambia will continue to face economic, social, and political burden of poverty unless radical changes are applied to fight it (CSO, 2012; UNDP, 2013a). Global value chains therefore have become key areas that SMEs may engage with the market as these chains bring together different actors in producing goods and services (Kaplinsky, (2010). The mining sector in Zambia has continued to exhibit untold public barriers of entry despite facilities that may enhance SME inclusion such as Zambia bureau of standards for standard setting, economic empowerment commission for financial empowerment, and mining suppliers' development programme for skills development of SMEs. The rationale in this study is therefore to evaluate the impact of public barriers on SMEs inclusion so that necessary policy intervention is taken to address the problem.

Research objective

The objective of the study was to examine the impact of public sector barriers on SMEs participation in the mining value chain in Zambia.

Theoretical proposition

Tax, registration and licensing protocols act as barriers that SMEs encounter to supply the mining value chain. Arising from the theoretical proposition, three specific hypotheses were developed.

- i) Tax requirements negate SME participation in the mining global value chain
- ii) Registration requirements negate SME participation in the mining global value chain
- iii) Licensing requirements negate SME participation in the mining global value chain
- iv) Standards requirements negate SME participation in the mining global value chain
- v) Financial capital requirements negate SME participation in the mining global value chain

Literature review

In this study, global value chain (GVC) theory is being used to gain insight in the relationship between private sector production and trade on the one hand and inclusiveness of the mining global value chain on the other. The theory specifically focuses on the role of GVC in linking various players for a win-win situation as well how identifying barriers that affect the inclusion of SMEs in the mining global value chain for them to supply and earn sustainable income and poverty reduction

There are a number of public sector obstacles that SMEs face in entering GVC. While Standard barriers may be imposed by public and private sector organizations (Cattaneo *et al.*, 2013:21-27), public sector barriers include tax, registration and licensing

Standards barriers

Standards have become key elements of the well-functioning of the GVC, and lead firms rely on them to reduce the complexity of these transactions as they place new demands on the value chains. These standards establish products and process specifications so that wide range of global suppliers deliver according to requirements of developed-country markets, and failure to meet these standards may lead to exclusion from the GVC. In GVC, Standards could be public and private with a dominance of voluntary standards imposed by lead firms who are either buyers or producers. On one hand when public standards are inadequate, they may raise the cost of local production or create unnecessary obstacles to trade and on the other hand excessively low or badly enforced standards minimize backward linkages, and spill-over effects of FDI and offshore production in a country. This would mean that inputs may be imported to meet standards of lead firms and local tasks are confined to basic manufacturing. Excessive high local standards for intra-GVC transaction are burdensome and may constitute unnecessary obstacles to trade. It is important to note that the retail sectors may be divided into three phases in respect to standards. The first phase is where local producers do not meet retailer's standards and most products are imported; second phase is where local producers adjust to the standards of the retailer and local producers replace imported one, and a third phase is where the best local products that meet international standards are exported and distributed by retailers abroad (Mitchell *et al.*, 2009: 21; Kaplinsky, 2010:2; Cattaneo *et al.*, 2013:20-23; Tijaja, 2013:2-9). In the case of standards set by lead-firms seeking to reduce costs and increase flexibility, this may involve the definition of minimum levels of permitted defects. Thus, in the auto sector, permissible levels of defects which suppliers must achieve have been progressively reduced from 10,000 parts per million to less than 400 parts per million. In the food-retailing sector, the product standards which are tested will include pesticide residues (Kaplinsky, 2010). In a relatively new development, Walmart is increasingly focusing on green-standards, including on the carbon content of products which its sources from its supply chain. In general, these product standards are unambiguous and require single-point verification at the end of the production process. In the case of process standards, they are more complex because they typically involve the documentation of procedures involved throughout the production process rather than measuring a single outcome (as in the case of a product) (Kaplinsky, 2010). For example, the International Standards Organization (ISO) quality and environment standards (respectively the ISO9000 and ISO14000 series) require the documentation of practices and outcomes at various stages of the production process. Unlike product standards, they do not set the levels which must be achieved, but only require that these levels be checked and documented (Kaplinsky, 2010).

Tax barriers

Inflexible laws are a menace to SMEs as they form barriers to entry in global value chains. In cases where the domestic law is inflexible or deficient in domestic services and infrastructure, countries are forced to offer offshore status to foreign firms that are part of GVC and export most of the production. There are incentives in offshore services such as tax cuts, reduced administrative and legal constraints and special customs procedures. However, offshore-onshore dualism has some major drawbacks and raises questions about compatibility of some incentives with WTO agreements. In addition, offshore production creates obstacles in association with domestic onshore rules with best international practices and minimizes the positive externalities of participation to GVC by cutting backward linkages (Cattaneo *et al.*, 2013:24). In addition to inflexible laws, Non-tariff measures (NTMs) have become obstacles affecting a country's participation in the GVC irrespective of the governance structure of the chains. Another inflexible law which is inhibiting SEM growth is the tax structure which does not adequately address the needs of SMEs, and create a greater burden to the tax-payers and ultimately affecting the final consumer due to the shifting ability of tax. Mnewa and Maliti (2008), stressed that most SMEs fail to maintain their growing profitability

due to inflexible policies such as tax. Since SMEs are the backbone of economic growth and contribute significantly to employment creation and GDP, (UNIDO, 2009), it is crucial that most the tax policies be innovative to favor SMEs' growth and productivity. Most tax policies unfortunately raise serious concerns about the issues of aligning the tax system to the specific requirements of a particular country's growth need. This means that it has to balance both short-term and long-term impact on SMEs growth. While Taxation is largely one of the main sources of revenue for the government to finance its public expenditure, the method of implementing the tax policy and the amount of tax required to be paid by SMEs is burdensome as it exists as a barrier to their productivity. Tax policy debates and decision making has become a critical issue to the public and private business as well as the economy at large owing to the varied impact it has on each of these entities. Tax policies worldwide are treated as one of the hindrances of expanding SMEs in the world.

Registration and licensing barriers

The regulation of various activities of the SME sector is a crucial function of the government worldwide. The activities under which the private sector is operating must be governed by sound policies, laws and regulations to ensure to ensure free and fair competition as well as decent and productive work of all stakeholders. The aim of the regulation is reducing the regulatory constraints on SMEs growth and productivity (Kanbur & Venables, 2005). In addition, regulation of the business is about practicing good governance to enable good legal and regulatory frameworks that effectively and efficiently meet the objectives of business development, economic growth and job creation. A lot of questions arise regarding regulation or legislation processes such as "When is the government imposing too much regulation? When do SME feel that regulation is constraining the growth and productivity of SMEs? When is regulation becoming a red tape? And how may identify areas where regulatory compliance costs are most troublesome for firms: How may we review the regulations in order to identify opportunities for streamlining these processes, make them more efficient and less costly both in terms of real costs and opportunity costs for firms. It is true that some administrative procedures may have been relevant at some point in time, but have become redundant and barriers as they do not meet the intended objectives. These regulations are regarded as Red Tape since they yield sub-optimal and undesired outcomes. In addition, there are *Compliance Costs which are* regulations giving rise to direct and indirect costs for the firm when it has to comply with administrative procedures, certificates, specific licences, completing tax and VAT return forms etc. Some are real costs in terms of compulsory fees and rates and others are opportunity costs because of time consuming procedures, which a business owner needs to spend time on. The different types of compliance costs can have significant implications for the businesses but also for their consumers to whom the costs may be passed on.

Upgrading as a barrier

There is a growing concern in the world economies over the economic gains of participating in global supply chains that they do not necessarily translate into good jobs or stable employment and, in the worst case, economic upgrading may be linked to a significant deterioration of labor conditions and other forms of social downgrading. A major question has been asked as to what conditions can participating in GVCs contribute to both economic and social upgrading in developing as well as developed countries and firms? (Gereffi, 2005:171; Lee *et al.*, 2011:3-5; Gereffi, 2013:9-10). In the GVC framework, there are four types of upgrading (product, process, functional and chain upgrading) which firms may adopt to help 'climb the value chain' from basic assembly activities using low-cost and unskilled labor to more advanced forms of 'full package' supply and integrated manufacturing. These upgrading trajectories may also be adopted when firms face competition pressures, require performance improvement, quality improvement, technology improvement, and learning opportunities (Humphrey & Schmitz, 2000:2-8; Humphrey, 2004; UNIDO, 2004; UNCTAD, 2010; OECD, 2013). Process upgrading may mean firms transforming inputs into outputs more efficiently by introducing superior technology or re-organizing the production system to improve efficiency (Humphrey & Schmitz, 2000; Gereffi & Fernandez-Stark, 2011). The investment in technology

may result into efficiency and effectiveness in processing and improve cost reduction for a unit of output, and increase output volumes. Once process upgrading is done in firms, the efficiency for internal processes are better than rivals within links and between links in the chain (Kaplinsky, 2000; Caspari, 2003; Mitchell *et al.*, 2009; UNCTAD, 2010). Product upgrading has been described as improving quality standards (Mitchell *et al.*, 2009). Others such as Humphrey & Schmitz (2000) and Gereffi & Fernandez-Stark (2011) have shown that product upgrading is moving into more sophisticated product lines and moving into product lines which can be defined in terms of increased unit values respectively. UNCTAD (2010) converse that there are many benefits that local SMEs derive from product upgrading with their lead firms through the distribution channels, brand name, and after sales services in the value chain. Functional upgrading means acquiring new functions to increase the skills. It seeks to increase the value added through the mix of various activities which are conducted in the value chain by firms. It also involves moving the locus of activities to different links in the value chain such as from the manufacturer to the design. The process may also mean acquiring new function in the chain through design and marketing (Humphrey & Schmitz 2000; UNCTAD, 2010; Gereffi & Fernandez-Stark, 2011). Cattaneo *et al.*, (2013) and Gereffi & Fernandez-Stark (2011) identify another form of upgrading called chain or inter-sectoral upgrading which corresponds to the move from one industry to another but related industry. Gereffi (1999) and Zhang (2009) stress that chain upgrading may mean applying the competence acquired in a particular function of a chain. In the upgrading trajectory, there has been concerns on the ability or inability of countries and firms to upgrade themselves. However, novel as regards the upgrading process have been introduced in the post-Washington Consensus era. Firstly, the growing interest by international organisation such as WTO and OECD to establish new metrics of value-added trade that clarify the extent to which successful export-oriented economies use domestic or imported inputs to fuel their growth. Secondly, the global economic crisis of 2008–09 and economic diversification through shifting end markets appears to be reconfiguring the growth opportunities for GVCs in ways that may shift their orientation toward the domestic markets of large emerging economies and toward more regionally oriented, rather than global, supply chains (Gereffi, 2013:11). Other issues to address from the literature on GVC is about product and process upgrading, and Gibbon (2003:18) contends that it is difficult to differentiate the type of upgrading in organic processes that generate new category of products. In addition, Kaplinsky & Readman (2001:34) underscore the hierarchy of upgrading processes in SMEs starting from process upgrading to product upgrading, to functional upgrading, and chain upgrading while Gibbon (2003) stress that before upgrading can take place, it is important to identify the opportunities available. Humphrey and Schmitz (2002) also spot some problems of "lock-in" effect in upgrading of chains that are characterized by quasi-hierarchy relationships. In these relationships, firms narrow their scope of production to the specific area of specialization, and in some cases, they are "locked-in" by global buyers whom they have a strong relationship although diversification as proposed by Humphrey (2003) addresses the lock-in problem. Another concern is when firms in developing countries concentrate on production leaving out specialized issues of designing, logistics, market requirements to lead firms (Humphrey, 2005), the danger is that they have a limited understanding of market requirements, and opportunities which would trap them in chain activities with low skills and low returns (Humphrey, 2004). Further, Humphrey, (2004:12) emphasizes that upgrading and learning comes with investment support, and efforts from concerned firms. Gibbon and Ponte (2005) highlight the difficulties faced by suppliers in functional upgrading as they are blocked by lead firms. Instead, lead firms encourage suppliers to undertake process and product upgrading.

Capacity and innovation

Lack of innovation and capacity building are limiting entry of SMEs into GVC. Capacities and productivity have continued to be tipping points for foreign investor's decisions and lead firms. Since a country does not require to develop an integrated industry to participate in international trade, GVC therefore make it easier to reduce constraints. World bank (2010) cited by Cattaneo *et al.*, (2013) stress that given the predominance of flows in the new paradigm, adaptability to lead firms' request, responsiveness,

and capacity to innovate are key factors. Determinants for a country's participating in the GVC may include; capacity for scale of production, availability of services necessary to support production and market integration, education and skills of the workforce matching the needs of global producers and buyers, and capacity for innovation in its multiple dimension, environmental sustainability (Cattaneo *et al.*, 2013:27), cheap and reliable energy, finance and trade support, telecommunication, and transports. According to OECD (2013a:25) export restrictions can affect functioning of GVC and increase costs. There is a negative effect on trade protection especially when parts and components cross borders. Trade facilitation, standards, and certification measures enhance smooth operations of value chains and alleviate burdens on goods that require crossing boarder many times.

Methodology

In the quest to improve understanding of the barriers that SMEs face to supply to the mining global value chain in Zambia, a positivist paradigm was adopted. The adoption of this approach is in line with the epistemological orientation in the normative paradigm where hypotheses have to be tested by empirical approaches (Bryman, 2015) and the results have to be objective through scientific methods (Creswell, 2014; Saunders *et al.*, 2009). In response to the main proposition, a cross-sectional survey research was utilized to obtain quantitative data and estimate a population covariance matrix that was compared with the observed covariance matrix with a view to minimize the difference between the estimated and observed matrices.

Selection of respondents

The respondents selected were the SMEs who are members of the mining suppliers and contractor's association of Zambia. These are easily accessible during their monthly, quarterly, and yearly meetings. There are over a thousand (1,000) members of the association who are the main players in the mining global value chain. During the study, the internal consistency as appraised by the Cronbach's alpha (Aloiniet *al.*, 2013) was used to measure reliability. Saunders *et al.*, (2009) affirms that the internal consistency of a measure reveals the similarity of the items in the instrument that is used to tap the constructs. The Cronbach alpha of minimum 0.7 was considered as ideal (Creswell, 2011).

Data collection

A random sampling was conducted among the SMEs from the mining suppliers and contractor's association of Zambia. 350 SMEs participated as respondents to provide data to ascertain the impact of public barriers on SME participation in the mining value chain. A total number of 350 respondents were sampled from the mining suppliers and contractor's association of Zambia who successfully answered questionnaires. A 5-point likert scaled questionnaire was developed to capture quantitative data. The scale was ranging from strongly agree (5), Agree (4), undecided (3), disagree (2) and strongly disagree (2). The Likert Scale questions gives a universal method of collecting data and it is easy to understand as well as draw conclusions, reports, results and graphs from the responses (Saunders *et al.*, 2009). In addition, the 5-point scale most recommended and used by researchers and reduces the frustration level of respondents and increase response rate and response quality.

Data analysis

A structural equation modeling was performed using EQS to carry out the Reliability test, Analysis of variance and regression coefficient

Reliability test

Reliability Statistics	
Cronbach's Alpha	N of Items
.714	7

An extract from SPSS on reliability test show a test of 0.714 which is good. Saunders et al., (2009) stressed that Cronbach's alpha is used as a measure of internal consistency. While Kothari, (2004) has the same opinion, he stressed that the reliability test measures how well a set of variables or items measures a single, one-dimensional latent aspect of individuals.

Analysis of variance

SOURCE	SUM OF SQUARES	DF	MEAN SQUARES	F	P
REGRESSION	120.828	6	20.138	17.576	0.000
RESIDUAL	392.989	343	1.146		
TOTAL	513.817	349			

An extract from the EQS 6.4 output from structural equation modeling on ANOVA test show that overall, Tax, licensing, registration, standards, financial and technology barriers are predictors of Inclusion of SME in the mining global value chain. The p-value is less than 0.05. This means that Tax, licensing, registration, standards, financial and technology barriers sit statistically Significant to determining inclusion of SMEs and therefore are a significant predictor of inclusion of SMEs in the Mining global value chain

Multiple R and R Squared

Dependent Variable = INCLUSIO
 Number of obs. = 350
 Multiple R = 0.4849
 R-square = 0.2352
 Adjusted R-square = 0.2218
 F (6, 343) = 17.5764
 Prob > F = 0.0000
 Std. Error of Est. = 1.0704
 Durbin-Watson Stat.= 1.7296

An extract from output of EQS for structural equation modeling above show Multiple R-value of 0.4849 and R-Square of 0.2352. This means that in terms multiple R, the correlation between Tax, licensing, registration, standards, financial and technology barriers is 0.33 while R-Square of 23.52% indicate that Tax, licensing, registration, standards, financial and technology barriers Tax, licensing, registration, standards, financial and technology barriers account for 23.52% of the variance in Inclusion of SMEs. This means that we cannot account for 76.48% of the inclusion of SMEs.

Regression coefficients

Variable	B	Ordinary STD. Error	Hetero-Scedastic STD. Error	Beta	t	p
Intercept	1.540	0.225	0.246		6.254	0.000
Tax	-0.088	0.049	0.051	- 0.097	-1.715	0.087
Registra	0.006	0.053	0.059	0.006	0.099	0.921
License	0.416	0.050	0.054	0.437	7.657	0.000
Technolo	-0.075	0.061	0.078	- 0.088	-0.956	0.340
Standard	0.282	0.055	0.065	0.299	4.313	0.000
Financia	-0.032	0.060	0.076	- 0.036	-0.414	0.679

The regression analysis show that licensing and standards barriers is statistically significant predictor of SME inclusion tax, registration, technology, and financial barriers are not statistically significant predictors of SME inclusion in the global mining value chain

Conclusion and recommendations

The study shows that there is a significant relationship between license and standard barriers with inclusion and their p-values are all less than 0.005. Registration processes with the highest p-value of 0.921 followed by financial barriers of 0.679, technology barriers of 0.3 and tax barriers 0.087 respectively have shown that they are not significantly related to inclusion. This means that these factors greatly affect inclusion of SMEs in the mining value chain in their hierarchy. The study concludes that registration processes, financial barriers, technology barriers and tax barriers rank highest in terms of barriers of entry into the mining value chain. While licensing and standards are barriers, their effects tremendous

The study recommends that the government of the republic of Zambia empower the SMEs with financial support through Citizens Economic empowerment commission, Empowers the SMEs with standards through Zambia Bureaus of standards, reduce tax burden through good incentives from tax rebate from Zambia revenue authority and create a one stop show for registration and licensing processes

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