

Manufacturing Growth Inhibition: From Linkage and Input Supply Perspective in Addis Ababa, Ethiopia

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Abstract

Manufacturing industries are among the sectors given precedence by the Government of Ethiopia (GoE) owing to their multifaceted primacy. Yet, the performance and share of Ethiopia's manufacturing sector from the national economy is at its infancy regardless of ongoing resolute endeavors to improve its status. This paper examines manufacturing linkages and input sourcing as a factor for influencing firm performance in Ethiopia. Through information availed from both primary and secondary sources, this paper uses empirical evidence to examine how linkages between/among manufacturing and other sectors affect a nation's growth. Input sourcing has also been discussed as a variable to see sourcing related challenges. To this end, first-hand information was gathered using in-depth interviews, focus group discussions, and a sample survey. The information gathered was then analyzed using relevant analysis techniques and tools. Thusly, the paper shows that manufacturing industries in the country generate their inputs both from local and foreign sources depending on the nature of the manufacturing sub-sector. Input supply linkage in the nation is highly dominated by backward linkage compared to the forward one. It has been observed that limited input capacity utilization among manufacturers; use of inputs quality attribute for supplier selection by the dominant majority; reaching multiple sources for input generation; local sourcing of inputs featured with access from close geographic proximity (Addis Ababa and its surrounding); shortage and unavailability of inputs leading firms to look for sourcing from foreign origins; the dominance of backward linkage than forward; as well as trust, good transport and time/speed elapsed for delivery being used as decision criteria for selecting input suppliers. Incontestably, input supply linkage can be gauged with manufacturing industries and across different sectors (service, agriculture, mining, etc.). The general observation made in this regard is the presence of weak linkage both between manufacturing industries and across different sectors. This article argues that lack of strong forward and backward linkages between/among industries and inadequate input supply and poor quality of inputs are unsound for economy-wide growth that leads to inefficiencies, and is a root cause of insolvency, which is in itself growth-inhibiting. Conversely, strong linkages, and adequate input supply enhance growth because they facilitate the flow of inputs to where they have the largest net economic benefits. Hence, linkages and input sourcing need more policy attention.

Keywords: Manufacturing, Backward Linkages, Forward linkages, Input sourcing, Input supply, Industrialization

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1. Introduction

Ethiopia is one of the poorest countries in the world and it is Ethiopia's economic idiosyncrasies. Nonetheless, the country's economic growth has been accelerated at an unprecedented pace in the most recent decade. Ethiopia exhibited a staggering economic growth since 2005, which has mainly been underpinned by public-sector-led development. Real Gross Domestic Product (GDP) grew by an average of 10.2% since 2014/15 with agriculture, service, and industry sectors accounting for 38.8%, 46.6%, and 15.2% shares, respectively (Arkebe Oqubay, 2015; MoFED, 2016). Its growth, however, largely relied on agriculture and service sectors despite an incessant effort to bring a structural transformation towards the industrial segment of the economy post-2010 (Adilson et al., 2017; Mbate, 2016; Oqubay, 2018). Although it looks descended at the moment, public

investments are anticipated to continue driving growth in the short and medium-term with huge outlays in infrastructure and development of industrial estates prioritized to ease bottlenecks to structural transformation. On this point (Arkebe Oqubay, 2015) has summed up for Ethiopian manufacturing sectors with two distinct features: there is a low level of industrialization in terms of the sector's share in GDP and the industrial structure is dominated by small firms and resource-based industries.

Conspicuously, nearly all African economies stunted as their transition from primary economic activity to secondary activities such as manufacturing and industrialization did not happen. Instead, as the world economy has shifted dramatically to being dominated by the service sector as financialization set in from the 1980s onwards; most African economies portray a tendency to skip the secondary phase and their growth has primarily concentrated in commodity exports (Morris & Fessehaie, 2014; Pieterse, 2019). Several studies (Tilman Altenburg et al., n.d.; Mbate, 2016; UN-Habitat, 2014a) argued that industrialization is indispensable if Africa is to encourage auxiliary change and decipher its ongoing high development rates into huge social advancement.

Cognizant of this fact, industrial development is not only the pathway but also the corollary to structural transformation. Unlike the service or agricultural sectors, manufacturing exhibits unconditional convergence, meaning that its productivity will catch up with that of developed economies and is not conditional on country-specific economic variables (UNECA, 2017). Yet industrial development opens up opportunities for positive externalities that are difficult to quantify (Morris & Fessehaie, 2014).

Amidst one of the key features of the manufacturing sector is its potential in creating linkage with other industries and among the various sectors. Statistics show how the manufacturing sector which is expected to spearhead the industry lags in the country. The reasons for this could be several but weak inter and intra-sectoral linkage has been noted by different authors (Belay et al., 2018; Urgaia, 2007). Relatedly, (Urgaia, 2007) has noted that internal linkages in Ethiopia's manufacturing industries are one of the weakest and its external linkage is also unbalanced with highly import intensive and inward-oriented for output markets. On this point (Arkebe Oqubay, 2015) argues that insufficient industrial inputs for manufacturing slowed the growth of domestic linkages. As per (Kibre Mogs, 2013), one of the weaknesses of manufacturing industries in developing nations such as Ethiopia is their poor capacity to create extended linkages. Conversely, for (Morris & Fessehaie, 2014), it is possible to maximize direct and indirect employment creation effects through the development of backward and forward linkages. This is partly since linkage and spillover effects are stronger in the manufacturing sector than in agriculture or mining (Szirmai & Verspagen, 2015).

The linkage and input supply concept have been recognized as playing a crucial role and providing considerable contributions towards guiding the appropriate strategies for industrial development in particular and economic development in general (Yan Yu, Qianwen Han, Wenwu Tang, 2018). Similarly (W.F.Lever, 1979) discussed the importance of industry linkages for economic development. Seemingly to this fact for instance, (Kibre Mogs, 2013) signaled how very weak internal industry linkage in Ethiopia inhibited economic development. The same study pointed out that agro-processing industries have had relatively high backward linkages; whereas chemical and metallurgy industries are largely import dependent. Incontestably, a very weak internal linkage is expected in the early stages of industrialization. Yet if the situations prolonged, it will adversely affect the countries' path to industrialization (Morris & Fessehaie, 2014; Pieterse, 2019; Szirmai & Verspagen, 2015).

Hitherto, only a few studies (Brautigam et al., 2018; Kibre Mogs, 2013; Mbate, 2016) have explored the implication and status of manufacturing linkage in Ethiopia. None of them however probed together with input supply sources and quality. It is therefore possible to say that this account sheds light on input supply and linkage beauties and calamities of the manufacturing sector of Ethiopia in amalgamation. More specifically, the study was carried out with the objective of how linkages between/among manufacturing industries and input supply impede the growth of the manufacturing sector in Ethiopia. With this backdrop, section two of the paper briefly outlines the conceptual and theoretical discourse in and around the subject under discussion. Pursuant to policy review related to industrial development in Ethiopia in section three, section four provides the results and discussion of the collected data. Conclusion and policy implications have been presented in the final section.

2. Ethiopia's Journey to Industrialization

It is imperative to note that Ethiopia is among the largest economies in developing Africa and has been one of the fastest-growing in the past two decades. This rosy picture of "growth", conversely, has considerably been concentrated in a few sectors. Hence, Ethiopia's manufacturing sector has been among the key productive sectors of the economy identified by the government which can spur economic growth and development because of its immense potential for wealth creation, employment generation, and poverty alleviation (MoFED, 2016; Mulu, 2013; Oqubay, 2018). Apparently, Ethiopia witnessed numerous economic development policy episodes since the 1940s under different regimes. Perhaps, the country started to foundations for industrialization during the

Hailesilassie era¹ in the 1940s and 1950s by crafting basic administrative and institutional infrastructure of the state (Eyasu, 2008). The focus of government policy in later years has been on the consolidation of the gains of reforms to expedite the process of industrialization. The Business Enterprise Registration Proclamation No.184/1961 required business enterprises to register under the Ministry of Commerce and Industry. By the Industrial Regulation Legal Notice No.292/1971 manufacturing enterprises were required to acquire a temporary license of six-month validity and a permanent license if fully formed (Teshome, 1994)

Since the Derg² took power and till the era ended in 1991, private manufacturing investment had been largely suppressed. This is mainly due to the socialist ideology the regime pursued which resulted in the nationalization of businesses and farms in the country by Proclamation No.26/1975 (Mulu, 2013). Partly due to this, the Derg era (1975-1991) named Ethiopia's lost decades (Oqubay, 2018). The policy landscape of Ethiopia entered a new phase ever since 1991 soon after the fall of the socialist regime. Since then, the government has pursued a relatively centralized state-led development model, with restrictions on foreign investment and complete state ownership of the land (Tilmann Altenburg, 2010; UN-Habitat, 2014b). In view of the fact that the fall of the Derg regime, in general, a market-based liberal economic system has been a spotlight to the Government of Ethiopia (GoE), and has sought to act as a 'developmental state'. Following this, GoE has developed a chain of policies, strategies and programs that define the development priorities and goals of key sectors of the economy. Various (Tilmann Altenburg, 2010; Giannecchini & Taylor, 2018; Mulu, 2013; Oqubay, 2018) studies have witnessed that Ethiopia has successfully implemented developmental state-oriented policies which led to eminent economic growth rates for a decade.

Soon after the EPRDF³ took power in 1991 the country followed a policy direction known as Agricultural Development Led Industrialization (ADLI) with the intention of advancing industrial output backed by agriculture. It was implemented in successive five-year development plans namely SDPRP⁴ and PASDEP⁵ (Tegegne Gebre-Egziabher, 2019). The assumption was that, implicitly or explicitly, the agricultural sector must lead the industrial sector (Mulu, 2013; NPC, 2015). Though, the government defends that this is the only realistic way to promote industrialization while others insist that a sector as weak as the Ethiopian agriculture cannot play a leading role in the development of the country (Befekadu Degefe and Berhanu Nega, 2000). More interestingly, Ethiopia's ADLI policy unequivocally recognized agro-industrial linkages as fundamental to activating the country's industrial potential; nevertheless, these linkages stay immature in all actuality (Brautigam et al., 2018). This suggests that a policy document by itself could not bring the looked-for result. Above all, the Ethiopian economy is heavily dependent on rain-fed agriculture and the ADLI strategy does not adequately address this central problem in agriculture (Geda, 2001).

By contrast, for the EPRDF dominion which governed Ethiopia since 1991, the major programs designed at the national level to reduce poverty and ensure sustainable socio-economic development in the country subsume the SDPRP, PASDEP, GTP-I⁶, and GTP-II⁷. The country had already implemented SDPRP, PASDEP, and GTP-I while GTP-II has been under implementation till the end of 2019. Arguably, the SDPRP, PASDEP, and GTP-I were directed towards achieving the Millennium Development Goals (MDGs), Ethiopia's long-term vision and sustaining the rapid, broad-based and equitable economic growth anchored on the experiences that have been drawn from implementing pro-poor and pro-growth development policies and strategies undertaken since 2000. Unlike PASDEP and GTP-I, the recent one (GTP-II) was attuned towards achieving Sustainable Development Goals (SDGs) (MoFED, 2016). In sum, the GTP II shares a similar vision as the GTP I; namely, to accelerate the economic transformation and ensure the country to reach middle-income category by the end of 2025. In a nutshell, Ethiopia has been able to achieve more in terms of GDP growth over the past decade (Giannecchini & Taylor, 2018; Mbate, 2016; Oqubay, 2018). However, according to (Tewelde Gebresslase, 2016) even if the country has been registering rapid economic growth with a double-digit, it is not equally believable to society.

Recently (October/2019), the government of Ethiopia made public its new economic development roadmap named 'Homegrown Economic Reform Agenda: A Pathway to Prosperity' (OPM, 2019). The economic reform agenda, in general, acknowledges the Ethiopian fast economic growth pace in the last decade, particularly since 2004 which slowed down at the moment due to massive forex shortage largely because of an increase in imports and a decline in exports. It also recognizes how the exhibited growth did not bring structural transformation as aspired, from service and agriculture to the industrial sector. As per the agenda, the country needs to rigorously work towards tackling the forex shortage via such as expanding and strengthening the performance of industrial

¹Emperor Hailesilassie was the last King of Ethiopia who ruled the country between 1916 and 1974.

²The Military Socialist Junta regime that administered Ethiopia between 1974 and 1991.

³Ethiopian People's Revolutionary Democratic Front (EPRDF) was an ethnic federalist political coalition in Ethiopia which was dissolved in 2019.

⁴Sustainable Development and Poverty Reduction Program (SDPRP) had life span of three-years period (2002/03 – 2004/05).

⁵A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) covered 2005/06-2009/10 era.

⁶Growth and Transformation Plan (GTP-I) covered, 2009/10-2014/15.

⁷This Growth and Transformation plan covers 2015/16- 2019/2020 period.

parks, tourism, air transport, and agricultural export sectors (OPM, 2019).

Studies (Mbate, 2016; Tewelde Gebresslase, 2016) argue that unless the government allows active participation of the societies during the formulation and implementation of policies and strategies, and a need to institutionalize industrial policy in national development frameworks, delineating clear strategies, objectives, measurable targets and timelines, it is inconceivable to recognize the challenges facing Ethiopia. In a similar vein, (Oqubay, 2018) pointed out that Ethiopia's manufacturing sector is still far from being an engine of growth and structural change. In contrast, Ethiopian policy ambition for industrialization comparing other African countries has been insurmountable (Brautigam et al., 2018). A case in point, Ethiopia is also one of the few African countries to have formulated a full-fledged industrial policy and has been aggressively pursuing it over the last decade (Mulu, 2013; Oqubay, 2018; UN-Habitat, 2014a). Generally, as mentioned earlier, Ethiopia's macroeconomic policies' goal is to transform the country into an industrialized economy and heighten the per capita income of its citizens to the middle-income level by the year 2025 (MoFED, 2016). However, it is not uncommon to find a kind of schizophrenia as what has been stated in the policy documents and practice often going in an inverse direction.

On the other hand, due to the shift of policies focus since 1991, massive foreign investments have been encouraging and stepping up the industrialization process of the country. In contrast, domestic investment comparing with its foreign counterpart, the acceleration appears to be less significant. On this point, a prominent Ethiopian writer has argued that:

"Where industrialization has been successfully implemented, it was under the leadership of an indigenous capitalist class or a strong state. In the absence of such a class in the Third World, ownership and leadership of industry has fallen in the hands of foreign entrepreneurs or those of the state, or some combination of these. Where a foreign enterprise has the upper hand, whatever industrialization takes place is likely to be dependent that is without any organic domestic base and therefore fragile" (Chole, 2004).

Notwithstanding, the inflow of foreign direct investment (FDI) should not be undermined for the growth of the country. However, foreign investment is very often a necessary but not sufficient condition for sustainable economic growth (Amendolagine et al., 2013; Verick & Ndikumana, 2008). Notably, however, the Ethiopian industrialization processes have been supported by prominent development partners such as the IMF¹ and WB². Arguably, nonetheless, the overall strategy remained "owned" by the Ethiopian government (Brautigam et al., 2018; Mbate, 2016). Above all, (Ogaboh & Odu, 2013) there should also be a paradigm shift from the IMF and World Bank "tele-guide" industrial policies to indigenous and home-grown industrial policies. Similarly (Arkebe Oqubay, 2015) also debated that industrial policies need to move into higher gear, as does structural transformation. Thus, further industrialization is central to the country's path of development with all its trickledown effect on enhancing input supply linkage

3. Conceptual and Theoretical Discourse

A number of theoretical concepts (Hirschman, 1958; Krugman, 1991; Leontief, 1966; Perroux, 1950; Porter, 1950; Williamson, 1995) in different streams of literature attempt to explain manufacturing linkage and input supplier selection decisions. The theory of business/industry/competitive cluster (Porter, 1950) for instance highlights the benefits of proximity to peers performing similar activities, around which will arise a lively ecosystem of enabling resources. The core challenge of economic development is to build clusters in order to realize external economies and that the cutting-edge public policy issues should focus on removing obstacles to productivity improvement and innovation in cluster development. In his earlier works on the Competitive Advantage of Nations, (Porter, 1950) introduced the concept of clusters being "groups of interconnected firms, suppliers, related industries and specialized institutions in particular fields that are present in particular locations".

The trend towards outsourcing both locally and offshore has been increasing dramatically in many economies. Unquestionably, transaction cost economics, and the resource-based view of the firm has made a valuable contribution to the study of outsourcing. The most influential theory on outsourcing has been Williamson's theory of transaction cost economics (Williamson, 1995). He (Williamson, 1995) argues that the decision will always be made in relation to the scope for cost reduction and the importance of asset specificity. The growth pole theory also stresses that the product of agglomeration economies in a leading, dynamic industry or sector serves as an "engine" for development via creating forward and backward linkages. This also promotes diversified production and consumption for a growing local urban population and also for other growth points throughout the pole's area of influence (Hite, 2004).

The other theory which explains about sourcing and why firms become involved in international production is referred to as 'Internalization theory' (Buckley & Casson, 2009). Here, the emphasis switches from the

¹ International Monetary Fund

² The World Bank

conventional act of (FDI) at the country level, to the level of the 'institution' making the investment. The essential argument of internalization theory is that firms aim at maximizing profit by internalizing their intermediate markets (typically the markets for intangible assets such as technology, production know-how, brands, etc.) across national borders in the face of various market imperfections (such as the public goods externality associated with pricing an intermediate product like knowledge, the lack of future markets, information asymmetries between buyers and sellers, government intervention in the form of trade barriers or the ineffective application of the national patent system).

Perroux, one of the prominent theorists of the growth pole added that a leading industry induces the phenomena of growth on affected industries through inter-industry linkages (Perroux, 1950). In sum, Perroux emphasized that a leading industry induces the phenomena of growth on affected industries through inter-industry linkages. If inter-industry linkages are deemphasized in growth pole theory other processes must be stressed like impacts of rising employment and improving wage levels generated by an expanding industry which may serve as stimuli for growth in other industries. The Leontief input-output model (Leontief, 1966) is another dimension of linkage that puts a framework to analyze the interdependence of industries in an economy. In this point, Input-output (IO) tables measure the flow of intermediate products used in production between different plants or establishments, both within and between sectors. More specifically, input-output models basically account for the linkages across the sectors or industries of a given economy.

Empirical shreds of evidence clearly portray the benefits derived from strong linkages. A closer look at the automotive industry in Japan and China reveals how important the linkages are and to what extent the input-output model supports planning at the sectoral level. Japanese automotive industry moving their production bases to many developing nation (such as Thailand) not only benefit the economies of the countries where factories are located but also the economy of Japan. The automotive industry is a driving force of the Thai economy. It ranks the fifth largest export industry and accounts for ten percent of the GDP of the country, employs more than 500,000 direct skilled-labor jobs, and creates spillover effects to other industries in the economy as of 2012 (Kippenberg, 2005; Kuah, 2002). Likewise, (Gouk, 2012) recognized that the agriculture and food industry are closely connected in the food system structure and input structure of agricultural products in South Korea. A study conducted by (Saikia, 2009) on agriculture-industry linkage in India also noted that the impact of government agricultural policies (e.g. minimum support price, input subsidy, etc.) as one of the serious issues that have not been given due attention in analyzing agriculture-industry linkages in the country.

Many development theories, inter alia, see development as a process of structural transformation from agriculture to manufacturing and service sectors (Chenery, 1982; Clark, 1940; Fisher, 1939; Kuznets, 1963). Vigorously (Tiffen, 2003) argued that this process involves a shift of labor out of rural areas into urban centers. Development economics theories (Adilson et al., 2017; Anderson, 1987) also debate that in the initial stage of the economic growth agricultural sector leads the GDP contribution to the national economy.

Discussion on manufacturing and agriculture linkages has been a contentious issue alongside. Hirschman's theory of "unbalanced growth", is the earliest to discuss the issue of linkages. As per (Hirschman, 1958) each sector has "linkages" with the other sectors in an economy, in the sense that it either purchases inputs from them from the production of its output or provides to them as inputs, its output. In fact, foreign and domestic firms' linkage has enormous benefits for the growth of the host country. A study conducted by (Amendolagine et al., 2013) states that the promotion of linkages between foreign firms and domestic ones is very high on the policy agenda of many countries across the globe. In fact, foreign investors that generate substantial linkages to domestic firms are more likely to create extensive benefits for the host country's economy, and in particular so in developing countries.

In the same vein, (Yan Yu, Qianwen Han, Wenwu Tang, 2018) have noted that FDI firms influence the industrial structure of the host economy in various ways. Increasing competition may lead to a crowding out of the domestic firms, while spillovers of technological and managerial skills may increase indigenous firms' competitiveness. The industrial structure may also be influenced by linkages between foreign and domestic firms. Yet, (UN, 2011) study lessons from Malaysia and Singapore show linkage-related benefits to domestic firms and the local economy are not automatic. The ability of a host country to fully benefit from linkage-related spillovers (i.e. the economy's "absorptive capacity") is determined to a great extent by the technological and managerial capabilities of existing domestic firms.

Arguably, the quality of manufacturing output depends on the quality of inputs. A somewhat similar study (Maina G., and Bwisa, 2014) has noted that a firm's quality performance (output) can only be as good as the quality performance of its suppliers (input). The authors on their Kenyan based survey revealed that the majority of the respondents (89%) indicating how supplier selection criterion affects the quality of input in manufacturing organizations. This (Maina G., and Bwisa, 2014) study concluded that manufacturing organizations in Kenya need to improve on their supplier selection criterion and also need to strengthen their relations with existing suppliers rather than getting new ones all the time. In terms of size, however, there is a strong probability that industrial sectors which are large when measured in terms of output will be better connected than small ones

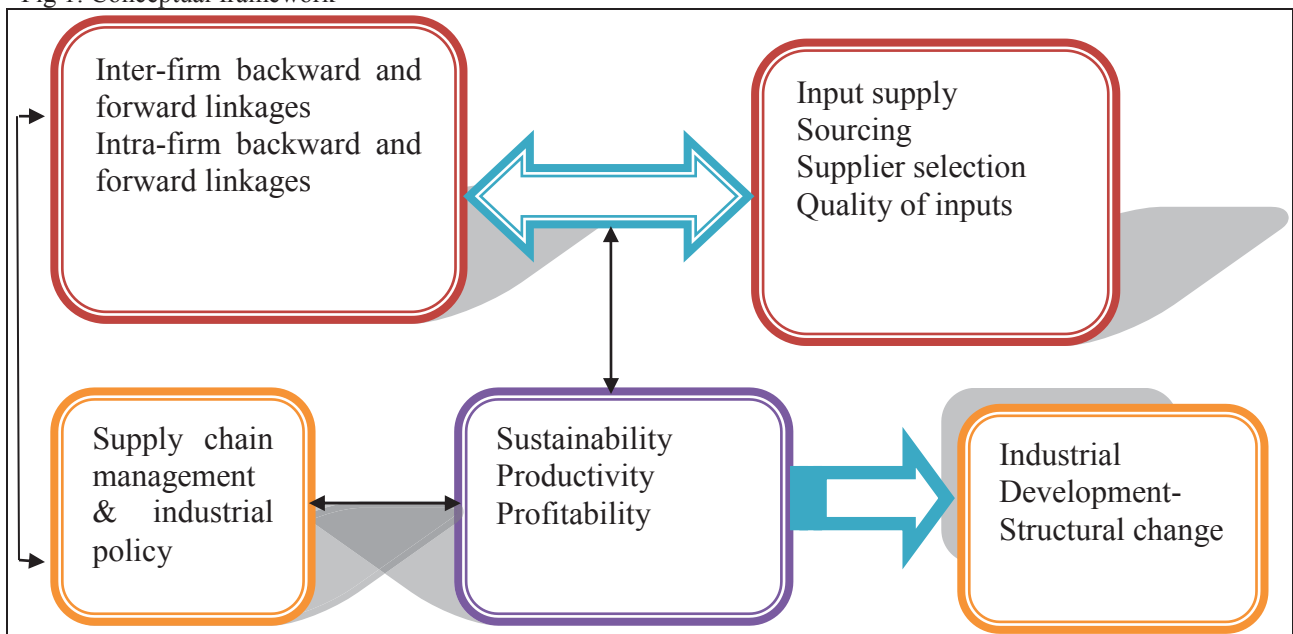
(W.F.Lever, 1979).

A study conducted in the Czech Republic (Kippenberg, 2005) shows that the linkages of FDI firms to the indigenous economy in the Czech Republic is strongly dependent on sectoral characteristics. In the aggregate, FDI inflows do not generate significant linkages on the host economy.

"Input-output is a scientific analysis method to study the quantitative relationship among various sectors of the national economy and production. Input-output theory can give full consideration to the characteristics of different sectors, be conducive to better understanding the industrial spatial structure and development characteristics in the urban agglomeration, and could provide more accurate information for the formulation of regional or national development plans" (Yan Yu, Qianwen Han, Wenwu Tang, 2018).

Following the above-mentioned theories and studies, based on two key relationships the underneath conceptual framework has been developed. The first is the 'Inter-firm backward and forward linkages' relationship, which captures the realities of different producers. The form of this relationship depends critically on whether there are open and effective inter-firm relationships are considered an essential component in creating and maintaining healthy competitiveness. Obviously, healthy competition among producers can foster innovation and promote upgrading. The second is the 'Intra-firm backward and forward linkages' relationship, which captures the effects of levels of within similar producers. It depends on the characteristics of a closed system.

Fig 1: Conceptual framework



Source: Authors' formation in 2020

4. The Data

We collected both primary and secondary data between February and March 2017. Primary data were generated from in-depth interviews, focus group discussions, and a sample survey. We gathered secondary data from desk review and different relevant sectoral offices situated in Addis Ababa and surrounding using relevant data collection tools. The qualitative data including key informant interviews and in-depth interviews were recorded using digital voice recorders and were transcribed and analyzed using qualitative techniques. About 64 medium and large scale manufacturing enterprises across five prioritized sectors by the Government of Ethiopia were sampled from Addis Ababa based on 1,584 sampling frame generated from the Ethiopian Investment Commission in November 2016. We then considered taking a 10% sample proportionally for the identified sectors that make the total sample size 54, but to increase accuracy, we decided to increase an additional 10 samples. Eventually, we reached and interviewed a total of 64 manufacturers. Proportional sample to size was considered to distribute the total sample size to the five priority sectors.

We deliberately selected Addis Ababa because one-third of the Country's entire large and medium scale manufacturing firms are clustered in the city (MOI, 2013). Likewise, (Bigsten et al., 2008) proclaimed this concentration of industries in and around Addis Ababa. Firms ostensibly get attracted to this primate city for its resource, market, infrastructure, and better communications.

Table 1: Sampled manufacturing enterprises by major industrial categories and firm size

Firm Category	Size of firm		Total	Percent
	Medium (between 10 and 49 employees)	Large (more than 50 employees)		
Agro processing	4	10	14	22%
Textile and garment industry	4	1	5	8%
Leather and leather industry	4	3	7	11%
Metal, wood, and engineering	9	18	27	42%
Chemical, construction and input industry	2	9	11	17%
Total	23	41	64	100%
Percent	36%	64%	100	

Source: Own survey, 2017

We conducted descriptive and quantitative analysis and information like frequency tables and graphs were prepared using Excel and SPSS computer applications. We summarized and presented information gathered from different sources in the form of narratives and also triangulated with the quantitative findings extracted from variegated secondary data sources.

5. Results and Discussion

5.1. Product Market Share

We learnt from our sample survey that two-third (66%) of the interviewed manufacturers had a domestic market share in the range of 75 and 100% while about only one-fifth (22%) of these acquire their lion share of inputs from local sources. Yet, as tabulated below, the prevailing ones having more than 75% domestic market orientation rely on domestic sources for their input requirement. Although there is a paucity of supporting pieces of evidence linking product market orientation behavior with the type of input supply linkage, our data suggest that a positive association between high domestic market share and local sourcing. In this regard (UNCTD, 2003) declared that firms targeting the domestic market will have heightened local input supply linkage than their foreign focused, which may likely signify the correlation between magnitude of market orientation and input supply linkage pattern.

Table 2: Domestic market share versus source of inputs

Description			Share of domestic input (percent)				Total
			1-25	25-50	50-75	75-100	
Domestic market share	25-50 percent	Count	0	0	6	0	6
		% of total	0%	0%	9%	0%	9%
	50-75	Count	0	0	11	5	16
		% of total	0%	0%	17%	8%	25%
	75-100 percent	Count	2	5	21	14	42
		% of total	3%	8%	33%	22%	66%
Total		Count	2	5	38	19	64
		% of total	3%	8%	59%	30%	100%

Source: Own survey, 2017

5.2. Plant Capacity Utilization

Manufacturing industries in the country have long been noticed for inefficient utilization of their capacity due to several reasons including a shortage of inputs. Results of the conducted sample survey also attest to this circumstance. In this regard, the majority of the respondents (52%) revealed that they are currently utilizing 50 to 75% of their full capacity, with another 38% specifying use of 75 to 85% capacity. All in all, it can be learned that about 89% of the entire manufacturing industries make use of their 50 to 85% capacity at the moment.

The respondents raised several reasons for their inability to achieve full capacity, with the leading ones (more than two-third) being a shortage of working capital (17%), lack of market for the products (20%), shortage of the necessary inputs (19%), shortage of foreign currency (13%) and low labor productivity (13%).

Table 3: Reasons for not working at full capacity

Description	Frequency	Percent
Shortage of inputs/ raw materials, spare parts etc.	12	19
Lack of market	13	20
Shortage of working capital	11	17
Shortage of foreign currency	8	13
Old plant, poor maintenance, and low plant productivity	2	3
Government rules and regulations/ tax/customs' clearance and related problems	4	6
Low labor productivity	8	13
Power shortages/ fluctuations	6	9
Total	64	100

Source: Own survey, 2017

Unreliable sources, shortages, poor quality, high input price, and other related factors have been widely noted as major reasons behind limited capacity utilization in the country. Weak input supply linkage and undeveloped system in the country for governing this are added attributes for production inefficiency. Different authors in fact called for the improvement of local sourcing for better capacity utilization. A case in point, (Simon-Oke & Awoyemi, 2010) in their Nigerian based study recommend the promotion of local inputs sourcing, inter alia, to ameliorate low capacity utilization in Nigerian manufacturing industries. Similarly, (Haider, 2010) identified the positive association between proximity to local sourcing and heightened sales profit, also calling for improved local sourcing. Correspondingly, (KFW, 2018) encouraged the advancement of local sourcing via citing company and societal level benefits.

5.3. Input Sourcing

5.3.1. Selection criteria for input supplier

Supplier selection is the process by which firms identify, evaluate, and contract with suppliers (Beil, 2011). The supplier selection process deploys a tremendous amount of a firm's financial resources. In return, firms expect significant benefits from contracting with suppliers offering high value (Beil, 2011). Depending on the size of the company and the nature of inputs supplied firms consider different factors as a determinant of input supplier selection. Generally, supplier selection can be said to be an art of identifying from a list of competitive suppliers, a potential one to satisfy the organization's needs.

One of the constraints manufacturers in Ethiopia face is the selection of appropriate input suppliers. This factor is crucial as it determines the success of a company on the higher side by the abilities of its suppliers. Our survey result portrays three-fourth (75%) of the manufacturers using the magnitude of input quality as the most important criterion to pick appropriate suppliers. Other less significant selection attributes identified subsume input price (9%) and delivery time efficiency (5%).

We highlighted in the theory and concept review section a direct association between the quality of input and quality of output. Based on the study conducted in Kenya, (Maina G., and Bwisa, 2014) elucidated the importance and strategy of suppliers selection screening criteria to achieve better input quality for better output.

With this backdrop, we inquired our sampled manufacturers to gauge the quality of inputs. Using a Likert scale quality measurement, the result generally shows that the quality of inputs generated from both sources rated as 'good' in qualitative terms. Although the quality attribute is subjective depending on the attitude and evaluation parameters of both the supplier and procurer, almost certainly that input quality significantly determines the value of the final output.

Table 4: Rating quality of inputs

Description	Domestic source		Foreign source	
	Frequency	Percent	Frequency	Percent
Excellent	1	2		
Very good	13	20	9	14
Good	48	75	41	64
Fair	2	3	3	5
Poor			1	2
Total	64	100	54	84

Source: Own survey, 2017

5.3.2. Local sources

Our survey result ponders that the lion share (44%) fulfill their raw material and other input requirements from multiple sources making use of both direct input suppliers/producers and intermediaries. Others either generate directly from input suppliers (30%) or solely from intermediaries (27%). As to the source of domestic inputs by district, about nine-tenths revealed sourcing from Addis Ababa conglomerate including the capital city (63%)

and the neighboring Oromia region localities (31%). Inputs originate from domestic sources usually arrive at factories within less than five days from the day of purchase. According to the sample survey, 73% replied that the acquired inputs elapse 1 to 3 days to reach their factory with 19% indicating 3 to 5 days. In sum, almost all (98%) confirmed that inputs take less than five days to reach production lines.

This manufacturers-input suppliers contiguity phenomenon seemingly advocates Shwank's (Schwank, 2010) nascent product – space theory in linkage body of knowledge. The theory tries to explain how firms locate themselves in close proximity to their input source for ease of access. It also lacks nuance, the other way round could also feature our phenomenon. Input suppliers may fashion themselves to secure the market for their products. This clustering of manufacturers and input suppliers in Addis Ababa also reminds of Perroux Growth pole theory (Perroux, 1950). As has been briefed in the conceptual and theoretical discourse section a leading firm/sector-based agglomeration economy would enhance linkage effects and provision and consumption of goods in the epicenter's influence zone (Hite, 2004). In a similar vein, (Kim & Masser, 1994; Meliciani & Savona, 2015) heralded the agglomeration – linkage nexus which also resonates with Hirschman's and Perroux's thoughts on the subject matter. As per them, discussion of industrial linkage often affiliates with the benefits of agglomerations in certain geographic enclaves. This is due to the fact that manufacturing industries established in close proximity and exchange resources will have advantages from agglomeration effects in terms of cost minimization or revenue maximization due to trimming in transport, raw material, and other input costs. They refer to this situation as 'local external economies of agglomeration'.

5.3.3. Foreign sources

Firms often opt for foreign sources for their inputs due to several reasons. The shortage of input supply in Ethiopia however has been largely heralded by numerous sources (CSA, 2012; ETIDI, 2017; USAID, 2013). Akin to previous findings, our survey result evinces that the overarching intention for opting for foreign sourcing is a shortage (62%) and unavailability (32%) of inputs from domestic sources. Unreliability, expensiveness, and inferior quality of locally sourced inputs are other less eminent causes identified by the respondents.

According to our sampled interviewees, the major challenges commonly faced while doing global sourcing are difficulty in finding qualified foreign sources (44%), logistics problems (19%), lack of duty/custom requirements (16%). Additional challenges encountered include fluctuation in the exchange rate (11%), lack of knowledge about foreign business practices (9%) and others (2%).

The effect of foreign currency shortage appears not as such significant in terms of influencing the manufacturing enterprises to replace preferred foreign input suppliers as signaled by the respondents. Accordingly, about 54% of the respondents replied that shortage/fluctuation of foreign currency did not force them to replace preferred suppliers, with about 44% occasionally encountering the opposite effect. Despite the respondents' indication on the matter, no doubt that currency exchange variations significantly impact global sourcing. In this regard, (Chunnan & Yue, 2009) insist on the colossal effect of currency fluctuation on global sourcing.

5.3.4. Sourcing Characteristics

Source of inputs vary among manufacturing industries depending on availability and quality of input locally. Industries such as metal, chemical and pharmaceutical highly depend on imported inputs while leather and textile and agro-processing source mainly from domestic. Though the magnitude varies, almost all of them use an imported component in their production process.

Hereof our sample survey shows that almost all of the manufacturing industries that make use of local sources for input supply approach both local producers (direct access) and intermediaries to obtain inputs. The degree/extent of use however varies from sector to sector. Hence, Textile and garment along with chemical and pharmaceutical industries tend to rely highly on both sources while the leather, food and beverage as well as chemical industries were found to significantly contact local producers and intermediaries independently.

5.4. Input supply linkage

5.4.1. Types and features

The industrial linkage can be broadly defined as the contacts and flows of information and/or materials between two or more industrial sectors or firms. The concept is widely used in industrial and economic analysts to portray inter-firm interdependence.

Hirschman, who is often dubbed as the father of linkage theory, evinces linkage in his famous proverbial phrase "one thing leads another". He categorizes linkage into three broad categories: fiscal, consumption, and production (Hirschman, 1958; Kaplinsky, 2011; Morris et al., 2012; W.F.Lever, 1979). Fiscal linkage refers to the situation whereby revenue generated in one sector in the form of taxes and spent in other areas for economic development reasons. Consumption linkage emanates when the demand for goods and services of another sector emerge by amassing income sourced from the commodities sector. The last category, production linkage, involves forward (giving input) and backward (demanding inputs) connections in a given production system. For Hirschman, the optimum type of linkage is the production one due to limitations in fiscal and consumption

linkages and hence countries aiming at economic growth need to give precedence for production linkages.

Using an added concept on Hirschman's definition, production (in this case industrial) linkages can be divided into: (i) backward linkage, which provides goods and services for its production activities; (ii) forward linkage, which refers to links with customers purchasing its products; and (iii) sideways linkage, interactions with other firms involved in the same processes. Here information linkages are as important as material linkages (He & Zhu, 2016; Kaplinsky, 2011; Kim & Masser, 1994; Leoncini & Montresor, 2001; Schwank, 2010; Tariyal, 2017; UNCTD, 2003; W.F.Lever, 1979).

Notwithstanding, its significance, the extent, and form of linkage matter equally when it comes to the developing countries' context. For instance, (Amendolagine et al., 2013) consider the extant of strong backward linkage as an effective tool to bring positive spillover effects on the local economy. Likewise, (UNCTD, 2003) calls for backward linkages especially with foreign transnational corporations (TNCs) to better glean fruits of positive linkages. The core tenet the later argument lies on is developing nations must understand the dynamics of foreign direct investment (FDI) and what influences TNCs to locate their branches. Realizing this would help developing nations devise pertinent policy framework to excerpt the possible fruits.

Coming to our case, most of the manufacturing industries surveyed by in this study have backward linkages with domestic firms (97%) and foreign firms (81%) compared to forward linkages. A number of anecdotes that probed types and patterns of linkage commonly touted on the presence of linkage-type differences across sectors. In this regard, (Kibre Mogs, 2013) elaborated that agro-processing industries have had relatively high backward linkages in Ethiopia with also chemical and metallurgy industries bringing inputs from abroad. Likewise, (Tariyal, 2017) using data from the Indian economy, deduced how some sectors such as agro-processing exhibited higher backward linkages. For (Tariyal, 2017), the service sector has the strongest backward linkage than forward linkage in his inter-industry linkage analysis. As per (Leoncini & Montresor, 2001), some sectors such as the automotive industry elucidate dominant backward linkage than forward. Despite assorted empirics suggesting differences in the type of linkage across sectors, this study finding highlights backward linkage prevalence in the manufacturing industry.

Input supply linkage can be measured in two ways: with manufacturing industries and across different other sectors (service, agriculture, mining, etc.). The general observation made in this regard is the presence of weak linkage both between manufacturing industries and across different other sectors. Although weak, backward linkage was found to be better compared to the forward linkage in the Ethiopian case as mentioned above. Our data also shows that input supply linkage among manufacturing industries is better in those utilizing raw materials from the agriculture sector and particularly in the leather sector. Overall, manufacturing industries in Ethiopia are not yet ready for linkage as they are currently trying to make vertical integration or accomplish the entire process along the value chain by themselves (from accessing raw material to final product) instead of leaving a room for players across backward and forward linkage. Poor investment pattern is also observed in the production of inputs required for manufacturing industries along the value chain.

5.4.2. Determinants of linkage

Factors affecting the success of industrial linkages vary across the breadth of economic, social, cultural, political, technological, firm-specific, and other dimensions (Amendolagine et al., 2013). Economic factors may embrace the size of a nation's (GDP), transportation and input outlay, quality of infrastructure and labor as well as proximity to an input source. Length of working in a specific country, size of the firm, nature of business (being joint venture or greenfield), specific industrial activity, and market orientation (standardized vs advanced products) are among the major firm-specific attributes affecting the quality of linkage. A given society's socio-cultural and political setup indisputably matter the linkage strength. Whether the investment is undertaken by diaspora or not, knowledge of the local language, level of government involvement, the efficiency of the legal system as well as firm selection criteria of the host nation are examples of political, institutional, and societal factors. Technological factors manifested in terms of, for instance, technological and skill readiness of host country (firms, nation) can also be named under the linkage determination umbrella (Amendolagine et al., 2013; He & Zhu, 2016; Kim & Masser, 1994; Morris et al., 2012; UNCTD, 2003; W.F.Lever, 1979)

In our case firms, we found out that the surveyed manufacturers principally consider trust (53%), followed by availability of good transport (23%) and time/speed it takes for backward and forward linkages (11%) as a decision criterion when picking input suppliers. Other less important factors cited encapsulate availability of favorable policy environment, flexibility in linkages, and use of high technology. We also asked them to point out those most important factors for strengthening input-supply linkages. More than half (41%) replied that developing trust (41%) and improving the quality of inputs (14%) as the leading factors. Other factors mentioned encompass accessibility of timely market information, price of inputs, proximity (to input supply) and delivery time, access to foreign currency and loan for raw material, market availability for final goods, and other miscellaneous. It can generally be seen that firm-specific traits take high precedence over other economic, policy, or other factors while choosing suppliers. This vividly evinces the shallowness in breadth and depth of linkage in the country.

5.4.3. Linkage intensity

Understanding the degree of strength worth discussion while probing the issue of manufacturing linkage (Wood, 1969). This is important for scrutinizing the challenges and opportunities which later help for proper policy formulation. A large body of literature backs the tacit role of MNCs in bringing strong forward and backward linkages in developing countries. For instance, (Mariotti et al., 2013) evoke that MNCs in host countries are more efficient and productive than local/domestic firms due to their strong vertical linkage behavior. Citing the Italian case, they highlighted the positive spillover effect of MNCs presence in the host country for local firms' productivity enhancement, especially in the manufacturing and service sectors. (Kippenberg, 2005; Kuah, 2002) also, draw similar deductions related to linkage benefits of MNCs by referring to the Chinese and Japanese Automotive industry practices. A closer look at the automotive industry in Japan and China reveals how important the linkages are and to what extent the input-output model supports planning at sectoral level. Japanese automotive industry moving their production bases to many developing (such as Thailand) not only benefit the economies of the countries where factories are located but also the economy of Japan. But some admonish this touted success saga of FDIs. A study conducted in Czech Republic (Kippenberg, 2005) shows that FDI inflows do not generate significant linkages on the host economy. Foreign enclaves in the form of zones (special economic zones, industrial parks, etc.) and green fields often criticized for their poor backward and forward linkages (Bach, 2011; Kaplinsky, 2011; Morris et al., 2012; Nel & Rogerson, 2014).

Weak backward and forward production linkage is often a ubiquitous feature of most developing nations including Ethiopia (Tilman Altenburg & Rosendahl, 2001; Brautigam et al., 2018; Mbate, 2016; Mulu, 2013; Oqubay, 2018). Some authors (Kim & Masser, 1994) once revealed the presence of poor linkages among manufacturing industries in Korea. We also highlighted articulation made by (Kibre Mogs, 2013) on the presence of enervated domestic industry linkage in Ethiopia. Our finding however shows that a moderate level of linkage as gauged by the interviewed manufacturers. As mentioned by them, the intensity of input–supply linkage has been gauged ‘average’ with both domestic and foreign input suppliers.

Table 5: Rating of input supply linkage

Description	With domestic suppliers		With foreign suppliers	
	Frequency	Percent	Frequency	Percent
Very strong	1	2	2	3
Strong	13	20	10	16
Average	48	75	38	59
Loose			4	6
No response	2	3	10	23
Total	64	100	64	100

Source: Own survey, 2017

In fact, the status of input supply linkage is expected to improve with the establishment and operations of different supporting institutes in the country (such as Leather Industries Development Institute/LIDI, Textile Industries Development Institute/TIDI, Metal Industries Development Institute/ MIDI). In this regard, a few endeavors have been identified. For instance, though limited, MIDI has tried to create an industrial linkage between cork factories and beverage industries, mobile phone manufacturers with accessories (ex: cartoon package) producers, automobile assemblers with metal profile providers, etc. The same applies to the leather industries. Unlike other sectors in the manufacturing industry of the in fact country, there is a good track of linkages between raw materials suppliers (skin and hide) and leather processing industries. Raw skin and hide collectors (could be formal/informal) usually pass/sell their gathered skin and hide to those formal large-scale collectors that would store and properly keep the raw material in warehouses which later destined to factories.

To build long-term, win-win market supply linkages between producers and buyers or suppliers, it is important to consider several factors in addition to which the producers link with or the type of contracting arrangement they enter. As also highlighted before, critical factors for establishing successful, long-term linkages range across socio-economic, technological, political, and other dimensions.

5.5 The answer is: strengthening Linkages but what is the question?

Manufacturers often face tons of operational hurdles in Ethiopia with an apparent implication on linkage effects. Some of the factors identified by the sampled manufacturers align with findings of other works related to determinants of linkages denoted elsewhere in this paper. The key challenges identified by our case manufacturing firms for input supply linkages subsume low quality and productivity of raw materials (23%), lack of sufficient market (23%), lack of supporting institutions (14%), shortage of finance (9%), high cost of raw materials (8%), unpredictable international market (8%) and others. Among the policy, legal and regulatory constraints that affect input supply linkages, the leading ones encompass unfavorable local tax regimes (38%), discouraging customs clearance laws (47%), lack of good governance/corruption (11%) as well as challenges in relation to procurement laws and enforcing contracts (5%). The absence of an appropriate institutional

framework (78%) and weak institutional capacity (22%) are the principal institutional hurdles named by the manufacturers.

These all immutable linkage related challenges require multifarious interventions as there is no one-fits-all remedy. Albeit the sampled manufacturers' narration focused on economic, policy and institutional hurdles, the problems have all-round features that also include socio-cultural, technological, and firm-specific barriers.

The current industrial development policy of Ethiopia underscores the importance of the linkage between agriculture and industry to bridge a smooth transition to full-fledged development of the industry. A number of regulatory reforms such as revisions in business registration procedures, investment code and the modernization of the tax regime and incentives package can be considered as an opportunity given for the manufacturing sector. As stated earlier in this paper, the industrial development strategy of the country which was formulated in 2000, based on ADLI had purported to promote linkage. The main premise of the strategy is the promotion of industries that have strong linkages with other sectors of the economy, especially with the agricultural sector (i.e. agro-processing) and that are labor-intensive. Specifically, the strategy focuses on selected manufacturing activities such as textiles (garment industry), meat, leather and leather products, which generate substantial stimulus for the economy on account of their strong linkages with the domestic economy, and in which Ethiopia has a relatively high degree of comparative advantage. The Succeeding growth strategies including PASDEP, GTP-1 and GTP-2 had however little effect on promoting linkage despite their aim of burgeoning linkage.

Policy measures suggested to promote linkage vary. As elaborated before, overseas investors promoting linkages with local firms would greatly benefit the country anchoring the investment (Amendolagine et al., 2013). Yet, promoting FDI for linkage purposes may end up with mixed outcomes as such firms influence the industrial structure of the host economy in various ways. On the positive side, it may promote the competitiveness of domestic firms through technological and skill spillover effects while it may also risk displacing weaker local firms (Yan Yu, Qianwen Han, Wenwu Tang, 2018). Again as clued earlier, FDI related benefits may depend on the host country's domestic firms' technological and managerial capabilities (UN, 2011).

Referring to Hirschman's recommendations, (Tariyal, 2017) suggested the need for prioritizing sectors with high backward and forward linkage effects. (Schwank, 2010) reinforces that using the effect of linkage as selection criteria of manufacturing industries in a country is not a new phenomenon. Taiwan for instance used linkage criteria as one of the deciding factors to nominate priority sectors in the manufacturing industry. The Taiwanese government selected certain manufacturing industries as priority areas based on six major criteria, namely, large linkage effects; high market potential; high technology intensity; high value-added; low energy intensity; and low pollution (Schwank, 2010).

The government of Ethiopia has offered different incentives (exemption of customs duty and income tax, loss carryforward, export incentives and remittance of capital) applicable to all manufacturing industries for those investors engaged in eligible new enterprises or expansion projects. This indeed has its tacit advantage in terms of attracting FDI which may have a formidable impact on catapulting industrial backward and forward linkage phenomenon.

Information availed from the Ethiopian Investment Commission (EIC) however does not clue the presence of input supply linkage connected to FDIs in the country. As per the source, Ethiopia recorded about 5,318 foreign direct investment (FDI) projects between August 1992 and January 2019 with 56% of them operational, 19% under implementation and the remaining 25% in pre-implementation stages. The operational ones have registered 121.8 billion Birr (4.33 billion USD¹) capital and created employment opportunities to 612,540 individuals in the country. Unlike the domestic ones, most of the FDI projects are registered to engage in the manufacturing (49%), real estate (19%) and agriculture (11%) sectors. Addis Ababa takes the largest share in terms of operational FDIs taking 57.6% of the total. Although the statistics portrayed doesn't utterly demonstrate the association between FDI and input supply linkage, the FDI influence on input linkage can't be denied despite the ambiguous level of linkage strength intensity. This can be manifested in terms of labor, raw material, capital, knowledge, and other linkage attributes. Nonetheless, authors sharing their findings on input linkage in the country commonly agree on persisting weak linkage (Kibre Mogs, 2013; Urgaia, 2007). On this point, it is important that the government of the host country take a systematic approach to FDI-local linkage development (JICA, 2016).

The recommendations made by our case manufacturers have moderate alignment with the linkage frontier body of knowledge as the suggestions made have narrower gamut. As inscribed beneath, the leading suggestions to stride linkage among domestic firms inculcate improving productivity and the logistics sector as well as assaying to broaden information network and trustworthiness. With a similar tone, improving the issue of LC (letter of credit) facilitation has been mentioned in an added manner to heighten linkage with foreign firms.

¹ 1 USD = 28.1 ETB as of January 2019

Table 6: Suggestions to improve linkages with domestic and foreign firms

Suggestions	Linkage with domestic		Linkage with foreign	
	Frequency	Percent	Frequency	Percent
Increase productivity	9	14	8	13
Improve the logistics sector including transport	16	25	13	20
Improve the trustworthiness of each actors by giving reliable information	13	20	16	25
Solve the finance problem	5	8	1	2
Integration of market shall be improved	3	5		
Crating information network	15	23		
Need government support for capacitating the actors by establishing efficient institution	2	3		
Facilitated LC system must be in place			9	14
Make an effort by government in its embassies to have reliable input suppliers			6	9
Others	1	2	1	2
No response			10	16
Total	64	100	64	100

Source: own survey, 2017

As can be seen, their suggestion highly engenders economic-related measures, similar to what has been pronounced on challenge description. While these are not less eminent, broader perspectives are necessary to bring positive outcomes. Theorists like Alfred Marshal, Perroux and Hirschman call for promoting agglomeration of firms for better linkage effects by citing the likely benefits of clustered firms although it takes time to burgeon (He & Zhu, 2016; Hirschman, 1958; Hite, 2004; Kim & Masser, 1994; Meliciani & Savona, 2015; Perroux, 1950). Experiences of other countries vividly portray the need for promoting FDI by giving a nuance for domestic linkage promotion strategies. Interweaving with macro-economic aims through regular monitoring of performances has proven effective in multifaceted ways. Paying heed for application of Leontief input-output model for instance is among the widely practiced measures across the globe (Hewings & Sonis., 2009; Leontief, 1966; Tariyal, 2017). As (He & Zhu, 2016) also noted, industrial linkage studies could be based on: i) macro-level studies employing an input-output framework, industrial employment analysis, an agglomeration approach, or spatial linkage analysis; (ii) static micro-level studies of national linkages using cross-section data; (iii) dynamic and quasi-dynamic micro-level studies of material linkages; and (iv) information flow studies. Countries like Vietnam used linkage criteria to prioritize sector as macro-economic measures (Schwank, 2010). Selecting priority investment sectors, often giving focus to those comparative advantages has also been suggested by others (Schwank, 2010). As per (Kaplinsky, 2011), government measures to enhance linkage shall include promoting growth and employment, economic diversification, use linkage as a fulcrum to build future capabilities to generate external economies. Promoting the service sector has also been identified for having a trickle-down effect for nudging linkage effect in the manufacturing sector (Mariotti et al., 2013; Tariyal, 2017)

5. Conclusions and Standpoint

This paper attempted to analyze different types and statuses of sourcing and input supply linkage in the manufacturing sector and their multifarious effect. Admittedly, we cannot run a model to show Leontief's input-output matrix due to data lacunae. Notwithstanding, the paper has discussed and presented strong pieces of evidence that Ethiopian manufacturing industries tend to have weaker domestic and foreign input-output linkages. On top of this, to what extent the quality of inputs, selection of sourcing and linkages inhibited the development of the manufacturing sector and how they embed the other sectors including agriculture has been covered. Relatedly, we have traced how the extent of input quality has been scaled up to foster manufacturing growth.

Most of the analysis results portray that linkages should play an eminent role in economic development of a country and are likely to be key provenance of manufacturing expansion and productivity. As has been demonstrated, the source of inputs varies among manufacturing industries depending on availability and quality of input locally. We revealed in our findings that most of the surveyed manufacturers have domestic market orientation; entangled with limited input capacity utilization; the foremost ones use input quality attribute for supplier selection; dominant use of multiple sources for input generation; sourcing local inputs from closer geographic zone (in this case Addis Ababa and its surrounding); shortage and unavailability of inputs leading firms to explore sourcing from foreign origins; the dominance of backward (often average level of) linkage; as well as the use of trust, good transport and time/speed elapsed for delivery as decision criteria for soliciting input

suppliers. Incontestably, input supply linkage can be gauged with manufacturing industries and across different sectors (service, agriculture, mining, etc). The general observation made in this regard is the presence of weak linkage both between manufacturing industries and across different other sectors.

The two leading challenges of linkages recognized by our sampled manufacturers, inter alia, encompass low quality and productivity of raw materials and lack of sufficient market. Other hurdles echoed also include lack of supporting institutions, shortage of finance, exaggerated inputs costs, unpredictable international markets, and others. Overall, manufacturing industries in Ethiopia are not yet ready for linkage as they are currently trying to make vertical integration or accomplish the entire process along the value chain by themselves (from accessing raw material to final product) instead of leaving a room for players across backward and forward linkages. Poor investment pattern is also observed in the production of inputs required for manufacturing industries along the value chain. With regard to policy tools, the notion of linkages and sourcing has also been not addressed as a strong policy arm. It is clear that different policies should be applied to foster manufacturing.

We generally learnt from our analysis that the Ethiopian manufacturing sector is trapped with poor input supply linkage despite variegated policy support from the government. In line with the pertinent theoretical and empirical body of knowledge, planning for the Ethiopian manufacturing sector entails rigorous measures which promote input-supply linkages among manufacturing sector enterprises and with other fields. As also noted in the policy review section, the Ethiopian government has recently heralded adopting a homegrown economic reform agenda (OPM, 2019). Admitting past efforts and successes, the new agenda accentuates on the need for tackling forex shortage the country faced via promoting operations of industrial parks, the tourism sector, air transport and agricultural export fields. While the effect of this ‘Agenda’ is yet to be seen, acculturation of input supply and sectoral linkage is no doubt needs top consideration.

The body of knowledge related to sourcing and manufacturing input linkage generally discourse the strong association between vertical linkage, TNCs and their spillover effect on local firms; the correlation between linkage and agglomeration effects; the importance of input-output model to properly trace and gauge linkages as well as the need for critical evaluation of forward and backward linkages to meet specific country needs. Dissimilar to Hirschman’s and Marshall suppositions (Hirschman, 1958; Marshall, 1890) that argue industrial clustering being induced by demand for inputs, we did not find in our analysis supporting evidences in the Ethiopian case related to this. Further research may also probe the relationship between weak industrial linkages and lagged regional development as seemingly idiosyncrasies of the Ethiopian case. Hirschman in this regard stated that those with strong backward/forward linkage are likely to grow thereby bringing regional development (Hirschman, 1958). Our finding depicts the presence of weak industrial linkage in Ethiopia with cases from Addis Ababa also featuring lagged regional development which seemingly aligns with Hirschman’s view. Furthermore, we mentioned in the analysis that the GoE has identified manufacturing sectors to be prioritized and flourish. This prioritization exercise however has not been executed based on the input-output matrix analysis as suggested by the Leontief and others, apparently entailing revisit (Kaplinsky, 2011; Leontief, 1966; Schwank, 2010). No supporting evidence evinces the Ethiopian case for the benefits of investing in the service sector to exploit its catalytic effect for enhancing linkages in the manufacturing sector. We also call for further investigation on the applicability of the product-space and the new economic geography prepositions in the Ethiopian case which asserts firms concentrate because they need market and inputs as our data did not show us any supporting evidence.

Evidently, that only massive industrialization efforts will enable Africa to eradicate poverty and achieve sustainable development. Linkage development to commodity sectors can open important opportunities in this respect (Morris & Fessehaie, 2014). Likewise, linkage policies and programs must be designed and implemented as an integral part of a national industrial policy (JICA, 2016).

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