Democratic Republic of Congo (DRC): Possibilities for Exports of Light Manufactures

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Acronyms	Full Name
DFID	Department for International Development
DRC	Democratic Republic of Congo
IDP	Internally Displaced Person
SITC	Standard International Trade Classification
SSA	Sub-Saharan Africa
UN	United Nations

Introduction

While the current state of fragility continues to fuel a volatile economic context and uncertain political environment that makes investors skittish, DRC's policymakers have an opportunity to change the course of the country's current underdevelopment and turn it toward a sustainable path of inclusive growth and job-creation. DRC is rich in natural resources which have played a critical role in propelling governance related problems and prolonged periods of conflict. In recent years, the growing youth population and refugee problems have further exacerbated the need for some 'quick wins' in job-creation to preserve peace and give the economy a chance to grow.

The ingredients of growth and peace rest on a smart diversification strategy that can employ DRC's natural resources, agricultural-base, and large and young pool of relatively low-skilled but also low-wage labour[1] to create millions of jobs. Apparently, 1 million young Congolese are joining the labour market every year. Unemployment and joblessness rates are already high. Further, the scale of forced displacement is swelling the numbers of refugees arriving in DRC.[2]

By the end of 2016 there were an estimated 2 million IDPs within DRC. These factors are perfect fuel for perpetuating civil conflict.

In addition to the need to create large numbers of jobs, there is also a need to ensure that they are relatively low-skill jobs as the level of human capital in DRC is low. Although it has a large variety of mining and metals-production related activities, these sectors are capital-intensive and lack the employment potential needed to absorb the currently unemployed. While agriculture absorbs large numbers of the workforce, it is mostly subsistence and unproductive, although in recent years, government and donors have invested heavily to promote agriculture value-chains. This is good progress but will clearly not deliver millions of better jobs. DRC does not have a modern services sector that can deliver large numbers of jobs. In contrast, manufacturing, especially light manufacturing, which is well-known to create millions of jobs, especially for low-skilled workers, has not been given a chance in DRC for several reasons. East and South Asia, and indeed some SSA countries too, provide a compelling case for why light manufacturing at a very basic level deserves a chance in DRC. The following sections present this case.

Snapshot of Current Exports and Imports

DRC's export basket today is extremely concentrated in minerals and metals (Table 1). Its exports have plummeted sharply in recent years from a total of USD 8.3 billion in 2014 to USD 6.4 in 2015 (UN COMTRADE). In 2016, they are reported to have fallen even more to USD 4.7 billion. Some of the reduction can be attributed to the commodity price collapse of 2015 and some to delayed reporting. It is

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[1] The DRC is characterized by a low level of labour remuneration, with monthly income averages at CDF 113,000, CDF 249,386, and CDF 166,738 for jobs in public administration, para public, and the private sector, respectively.

[2] According to UN High Commission for Refugees data (UNHCR 2016), the DRC is the fourth largest host of refugees in Africa, after Ethiopia, Kenya and Uganda. As of December 2016, the DRC was host to over 452,000 refugees, including 245,000 from Rwanda, 102,000 from the Central African Republic, 67,000 from South Sudan, and 36,000 from Burundi. Almost all refugees are living in rural areas (98.7 percent) and a minority in the urban areas of Kinshasa, Lubumbashi, Goma, and Bukavu). Females comprise 52 percent, and the majority (64.4 percent) are youth and children under age 18.

noteworthy that DRC's trade data is poorly reported. The top 15 products comprised mostly of minerals and metals accounted for almost 95 percent of DRC's total exports between 2014 – 2016. The situation was similar in 1990. In contrast, DRC's imports are well diversified and signal substantive local demand for a diverse range of products varying from simple food items to complex machinery.

Table 1: DRC's net exports in 2015 (SITC4 - 2 digit)

Source:
Growth Lab @ Center for International Development at Harvard University, Atlas 2.2

Case for diversification in Manufacturing

The overwhelming dominance of metals, minerals and precious stones, and their by-products in the form of alloys indicates that diversification in *any* direction *away* from these commodities would be a positive step. In addition, diversification *within* the metals and minerals sectors into manufactures made from further processing these natural resources would *also* constitute progress since DRC is already endowed with them. Mineral deposits in the country are, in many locations, accessible using artisanal methods or light equipment. With the exception of copper and cobalt, the majority of mineral production and exports derive from artisanal mines which are labour intensive.

In comparison to mining and agriculture,[3] the policy focus on manufacturing is currently very slim. Beyond its capacity to stimulate job creation, the strong connection between light manufacturing and trade also supports the development choice to focus on light manufacturing. The case for export-led growth is well established among developing countries (Chenery 1980; Commission on Growth and Development 2008; Harrison and Rodríguez-Clare 2010). Harrison and Rodríguez-Clare (2010) find that export-oriented countries have grown more rapidly, though establishing causality is difficult. Trade also enables developing countries to take advantage of the important learning that is derived from exposure to global competition and then to import the skills and technology necessary to move up the value chain. These countries can follow the course pioneered by a succession of Asian countries by accelerating the realization of latent comparative advantage in segments of light manufacturing in which specific, feasible, sharply focused, low-cost policy interventions can deliver a quick boost to output, productivity, and perhaps exports, opening the door to expanded entry and growth.

Since policies designed to foster mining and agricultural value chains in the direction of food processing are receiving adequate attention (notably from DFID), this Note will not explore the diversification potential of these two sectors. It will focus exclusively on diversification opportunities in manufacturing subsectors by drawing on trade data (UN COMTRADE SITC 4-digit). Ideally, this analysis should be conducted with production data but since it is unavailable, we study the set of tradable subsectors, i.e. exports and imports. Our coverage includes subsectors that use the alloys or processed metals and minerals to manufacture simple products for consumers and producers, any nascent manufacturing subsectors, as well import-competing subsectors. The subsectors it analyses are intended to support both export sectors as well as the larger domestic market where many products also compete with imports. It is hoped that in due time, the learning by doing that will occur in the domestic market, will eventually position DRC to start exporting some of those products.

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[3] Agriculture and Agribusiness has become a top priority for the government in recent years. The DRC allocated 8 percent of the national budget to agriculture in 2016, an increase of 3 percent. The government's National Agriculture Investment Plan (2013 Programme National d'Investissement Agricole) comprises five pillars: (1) fostering value chains and agribusiness; (2) achieving food security; (3) enhancing research and training; (4) improving sectoral governance, gender participation, and institutional capacity; and (5) adapting to climate change. The total program cost is estimated at US$ 5.7 billion up to 2020. The government aims to attract private investment in agro-industrial parks, where it plans to provide basic infrastructure (transport, water, power, ICT) and a transparent administrative and fiscal framework (for example, land titles and special economic zone status).

Identifying Potential Exports

How might policy makers determine whether the products of their country reflect a comparative advantage? If a country's products are being successfully exported to global markets or are beating out imports in domestic markets with no government help, the country is sure to have a comparative advantage in these products. Similarly, if, without heavy government subsidies, an industry producing exports is attracting a growing amount of foreign direct investment (FDI), the country has a comparative advantage in those goods as well. Foreign direct investors have a keen sense of what countries produce that is competitive on international markets. For existing products, the concept of revealed comparative advantage (RCA) can be used to pinpoint industries in which increased production could accelerate overall industrialization. This is a traditional method based on a country's trade data. The RCA based on trade data can be determined either quantitatively using the Balassa index, after Balassa (1965), or qualitatively through the inspection of detailed import data. For new products, the concept of **latent** comparative advantage, as introduced by Lin (2009, 2011),[4] can be used to identify new industries that are likely to be consistent with a country's comparative advantages. In the case of DRC, we use modifications of both these approaches to derive a list of reasonable potential manufacturing subsectors.

Typically, comparative advantage, measured by RCA or revealed comparative advantage,[5] is a useful starting point to identifying subsectors in which countries can grow their exports.

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[4] The Lin-Monga framework is presented in Annex 2.

[5] Comparative advantage is calculated from Revealed Comparative Advantage (RCA) defined as the share of an exported product in total exports relative to the share of the same product in total world exports. An RCA greater than 1 indicates that the exporter has a comparative advantage in exporting a particular product; and RCA of 1 implies that the exporter has no particular advantage relative to the world in exporting the products, whereas an RCA of less than 1 indicates that the exporter is not competitive relative to the world in exporting that product.

Table 2: DR Congo's export trends in Traditional exports, 1990-2016

SITC Code	Product name	Tech Definition	Product Complexity Index 2014	RCA> 1 in 1990, 2010, 2014-2016	Share of total exports				USD	
					sh1990	sh2010	sh2014	sh2016	Exports 1990	Exports 2016
6821	Copper and copper alloys, refined or not	PP	-0.69094	1	45.4%	34.3%	45.4%	50.2%	$881,539	$2,065,79
6899	Base metals, nes and cermets, unwrought	RB2	-0.62966	1	6.0%	10.2%	9.1%	18.5%	$115,577	$760,41
6672	Diamonds (non-industrial), not mounted or set	RB2	-0.96469	1	14.1%	4.8%	2.7%	8.1%	$274,432	$331,86
3330	Crude petroleum and oils	PP	-1.86612	1	10.1%	9.7%	11.8%	6.5%	$196,935	$265,78
2879	Ores and concentrates of other non-ferrous meta	RB2	-1.86505	1	0.3%	17.4%	7.5%	5.5%	$6,496	$227,21
2876	Tin ores and concentrates	RB2	-2.01	1	0.6%	0.4%	0.8%	1.3%	$11,355	$52,99
2771	Industrial diamonds	PP	-1.49886	1	1.0%	0.3%	0.3%	1.1%	$19,398	$46,57
2472	Sawlogs and veneer logs, non-coniferous species	RB1	-0.45822	1	1.9%	1.4%	1.1%	1.1%	$37,806	$44,87
2483	Wood, non-coniferous species, sawn, planed	RB1	-1.15869	1	1.1%	0.8%	0.5%	0.9%	$21,620	$35,35
2924	Plants & parts of trees used in perfumery/pharm	PP	-1.67623	1	0.2%	0.1%	0.2%	0.3%	$3,029	$13,74
711	Coffee green, roasted; coffee substitutes	PP	-1.72166	1	9.7%	0.3%	0.2%	0.3%	$187,792	$12,92
812	Bran, sharps and other residues derives of cereal	PP	-1.65947	1	0.1%	0.1%	0.1%	0.2%	$2,908	$6,39
	Total				90.6%	79.6%	79.8%	93.9%	$1,758,887	$3,863,93

Source: COMTRADE, Authors calculations

Note: In column 3, PP denotes Primary products; RB1 and RB2 denotes Resource-Based products. These definitions are based on UNIDO's technology definitions.

The subsectors in which a country has a consistent comparative advantage (RCA>1) are ideal candidates for expanding and diversifying through greater value addition. However, a stocktaking of DRC's export subsectors shows that there are only 12 subsectors in which it consistently had a comparative advantage since the 1990s (Table 2). The collective share of these subsectors ranged between 80 - 93 percent during these last 26 years, and fluctuated closely with global commodity price cycles, and conflicts. All 12 subsectors are comprised of primary or resource-based commodities such as metal ores and alloys, precious metals, timber/wood, and agricultural products. Fostering these same sectors will be good for growth but will reinforce the concentration of exports in natural resource-based sectors which tend to be capital-intensive.

A. Manufacturing Possibilities in Traditional resource-based export sectors

While there was a remarkable absence of manufactured exports,[6] the subsectors in Table 2 have withstood the test of conflict and offer firm footholds on which DRC can build its new export possibilities. Explicitly, after excluding agricultural products and metals and minerals, we identify the timber/wood subsectors which currently export sawlogs, and wood provides a solid foundation for DRC to leverage for new manufacturing industries. Defining manufacturing as the process of converting raw materials or other material inputs into final or intermediate products, suggests large possibilities ranging from **simple furniture to wood and paper products for construction and residential use. With the proper policy incentives, DRC should foster development of a domestic wood-based manufacturing sector.**

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[6] According to the World Development Indicators, manufactured exports are represented by UN COMTRADE, SITC4 codes 5, 6,7 and 8 excluding 68.

B. New Manufacturing Export Possibilities in Import-Competing industries

For the identification of other manufacturing export subsectors, we have adopted several approaches as it is difficult to discern a strong and consistent comparative advantage in any given manufacturing sectors. We examined sectors in which DRC did not have a RCA>1 in the 1990s but developed one after 2010. This approach also did not point to any promising subsectors. The primary reason is technical – since the share of the metals and minerals in overall exports is too large, smaller export subsectors such as manufactures do not have comparative advantage. However, this does not mean that DRC was not exporting manufactures.

Table 3 below is constructed from DRC's manufactured *exports* data. Even though DRC presently does not have a comparative advantage (RCA>1) in the proposed manufacturing subsectors, we use the data and validate our recommendations in three ways in Table 3.

i. We first scour DRC's exports between 1990 and 2016, searching for **traces of manufacturing export activity**. Unsurprisingly, like many of its low-income neighbours, DRC exported small amounts of manufactures though many of these were not done consistently and at scale. Most of these are in the category of low-tech exports that are low skill-intensive and are not subject to large scale economies. Firms producing these light manufactured exports are quick to shut down in times of conflict and war which seems to have happened in DRC, and restart when stability seems to have returned. This is no surprise in a fragile state. If we believe in export data, these nascent sectors suggest that the basic skills to produce these manufactures exist in small numbers in the country. DRC's government should pay close attention to successful discoveries by private firms and support the expansion of such subsectors (Lin and Monga, 2011).

ii. Given that DRC does not presently have a comparative advantage in our list of recommended subsectors, **can we verify where there is adequate domestic demand for them?** Yes. In the absence of domestic production data, import data is used as a proxy for domestic demand. In 2014 – 2015, DRC's total imports ranged between US $6 – 6.7 billion[7] and the share of manufactured exports in total imports ranged between 49 and 52 percent during the same period. These ranged from very simple garments and wood products classified as low-tech, to more sophisticated machines needed for the mining, transport and construction industries (Medium and high-tech). In the short to medium term, the potential for developing import-competing manufacturing subsectors lies in the **low-tech subsectors** which are (a) subsectors in which there were sporadic manufactured exports from DRC in the previous 26 years, reflecting some nascent skills; and (b) for which there is steady import demand ranging between 11 – 12 percent of total manufactured imports between 2014 and 2015. Table 3 lists these products by subsector. Clearly, the potential for diversification in these is large. In the longer term, through learning-by-producing for the domestic and export market, DRC should be able to develop a comparative advantage in these low-tech simple manufactures. These will then spawn the manufacturing capabilities needed for more sophisticated manufacturers.

iii. Is our list of recommended sectors realistic given that DRC remains one of the poorest countries and a fragile state? We verify this with two comparisons.

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[7] The figure for 2016 is significantly lower at US $ 4.3 billion and unreliable.

- First, we analysed the export baskets of other low-income SSA countries that have either been subject to fragility in recent times, equally poor or only marginally richer. We find that our recommended subsectors are modest and reasonable, given current domestic conditions and endowments of which the most notable are DRC's rich natural resource-base that facilitates local availability of metal alloys and timber, and low-wage labour pool. Table 3 lists some countries that export the same products today. This approach is also consistent with the Lin-Monga (2009, 2011) framework used to identify a country's latent comparative advantage (Annex 2).

- Second, we verify the complexity of the recommended subsectors using the Product Complexity Index (PCI) (Hausmann-Hidalgo, 2010) which is an innovative measure that incorporates the complexity of the skills and technology used to produce a product. The simplest products have lower PCI scores and are produced by a large number of countries, whereas more sophisticated products require capabilities not found in poor or less-developed countries. The PCI ranges between -4.6 and +6.6 (Atlas). In Table 3, the recommended low-tech manufactures range between -1.9 for Bags, sacks of textile materials, and +1.2 for Nails, screws, nuts and bolts. To put things in perspective, the PCI of Coffee is -1.7, which suggests that the Bags and sacks require simpler skills. We recommend that any strategy to jumpstart light manufacturing should start with the subsectors that require the simplest capabilities and evolve slowly. These would be ones with the lowest PCI.

Table 3 illustrates that a large potential for jumpstarting or scaling up light manufacturing industries for exports or for the import-competing domestic market. Which of these is best placed to grow and succeed requires a more in-depth investigation on the ground. An example of some of the factors that should be taken into consideration in making such an assessment is the Ethiopia Light Manufacturing Study that was done to inform the launch of the leather footwear exports sector in 2012 (Dinh et al, 2012).

Table 3: Recommended list of potential import-competing manufacturing subsectors

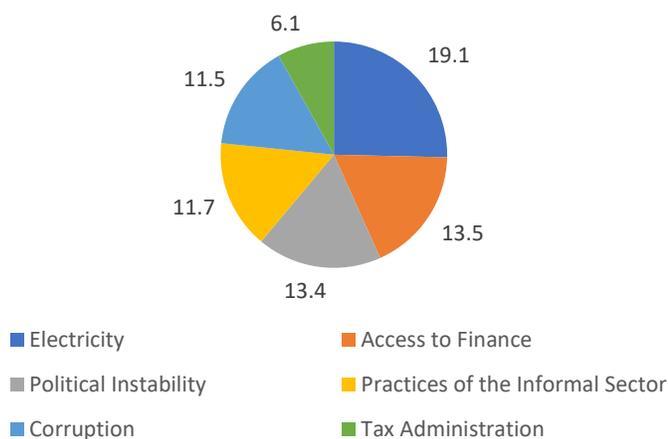| SITC Code	Product name	Tech Definition	Product Complexity Index 2014	DRC imports in 2014-15	Some comparator countries that export the same manufactures
	Garments - from imported Textiles			x	
8421 - 8429	Men's and boys' outerwear, textile fabrics not kni	LT1	-0.489		
8431 - 8439	Womens, girls, infants outerwear, textile, not kni	LT1	-0.682		
8441-8433, 8461-8464	Under garments of textile fabrics, not knitted or	LT1	-0.892		
8451 - 8459	Outerwear knitted or crocheted, not elastic nor r	LT1	-1.124		
	Clothing accessories - from imported & local raw materials			x	
8471 - 8472	Clothing accessories, knitted or crocheted, nes	LT1	-0.719		
8482	Articles of apparel, clothing accessories of plastic	LT1	-0.773		
8484	Headgear and fitting thereof, nes	LT1	-0.559		
6123	Parts of footwear of any material	LT1	-0.412		
6589	Other made-up articles of textile materials, nes	LT1	-1.161		
8310	Travel goods, handbags etc, of leather, plastics, te	LT1	-0.091		
	Floor covering and mats - - from local raw materials			x	
6594	Carpets, rugs, mats, of wool or fine animal hair	LT1	0.166		
6596	Carpets, rugs, mats, of other textile materials, nes	LT1	-0.136		
6592	Carpets, carpeting and rugs, knotted	LT1	-0.993		
	Miscellaneous Home/office products - from imported & local raw mat			x	
6664	Porcelain or china house ware	LT2	0.099		
6666	Ornaments, personal articles of porcelain, china,	LT2	-0.143		
8997	Basketwork, wickerwork; brooms, paint rollers, et	LT2	-0.261		
8931	Plastic packing containers, lids, stoppers and othe	LT2	-0.407		
6581	Bags, sacks of textile materials, for the packing of	LT1	-1.918		
8994	Umbrellas, canes and similar articles and parts th	LT2	0.031		
6953	Other hand tools	LT2	0.997		
8998	Small-wares and toilet articles, nes; sieves; tailors	LT2	0.399		
6665	Articles of domestic or toilet purposes, of other k	LT2	-0.213		
6993	Pins, needles, etc, of iron, steel; metal fittings for	LT2	0.581		
6421	Packing containers, box files, etc, of paper, used i	LT2	-0.552		
	Simple metal products/machinery - from imported & local raw materia			x	
6960	Cutlery	LT2	-0.356		
6749	Other sheet and plates, of iron or steel, worked	LT2	-0.003		
6747	Tinned sheets, plates of steel (not of high carbon	LT2	0.191		
6744	Sheet, plates, rolled of or of iron or steel	LT2	0.699		
6974	Base metal domestic articles, nes, and parts there	LT2	-0.161		
6733	Angles, shapes, sections of iron or steel	LT2	-0.205		Burundi, Cote d'Ivoire, Ethiopia, Tanzania, Uganda, Zambia
6746	Sheet, plates, rolled of thickness less 3mm, of iron	LT2	0.313		
6731	Wire rod of iron or steel	LT2	0.409		
6760	Rails and railway track construction materials, of	LT2	0.636		
6793	Steel and iron forging and stampings, in the rough	LT2	0.243		
6940	Nails, screws, nuts, bolts, rivets, etc, of iron, steel	LT2	1.258		
6992	Chain and parts thereof, of iron or steel	LT2	1.124		
6975	Base metal indoors sanitary ware, and parts there	LT2	0.411		
6924	Cask, drums, etc, of iron, steel, aluminium, for pa	LT2	0.307		
6732	Bars, rods (not wire rod), from iron or steel	LT2	-0.443		
6794	Castings of iron or steel, in rough state	LT2	0.173		
6973	Domestic, non-electric, heating, cooking apparatu	LT2	0.091		
6996	Miscellaneous articles of base metal	LT2	0.339		
6911	Structures and parts of, of iron, steel; plates, rods	LT2	0.322		
8939	Miscellaneous articles of plastic	LT2	0.408		
8932	Plastic sanitary and toilet articles	LT2	0.373		
	Wood manufactures - from local raw materials				
6341	**Wood sawn lengthwise, veneer sheets etc, up t**	**LT1**	**-0.040**	x	
6349	Wood, simply shaped, nes	LT1	-0.311		
6359	Manufactured articles of wood, nes	LT2	-0.036		
6342	Plywood consisting solely of sheets of wood	LT1	-1.094		
6343	Improved wood and reconstituted wood	LT2	-0.278		
6354	Manufactures of wood for domestic use	LT1	-0.338		
6418	Paper and paperboard,	LT2	0.499		
6353	Builders` carpentry and joinery	LT2	0.351		
6330	Cork manufactures	LT1	-0.431		
6344	Wood-based panels, nes	LT1	0.000		
6351	Wood packing cases, boxes, cases, crates, etc	LT1	-0.365		
	Light furniture - from local raw materials			x	
8211	Chairs and other seats; and parts thereof, nes	LT1	0.256		
8219	Other furniture and parts thereof, nes	LT1	0.264		
6428	Articles of paper pulp, paper, paperboard	LT2	-0.091		
	Leather and products - from local raw materials			x	
6129	Other articles of leather or of composition leather	LT1	-0.131		
6118	Leather, specially dressed or finished, nes	LT1	-0.617		
6115	Sheep and lamb skin leather	LT1	-1.787		
6114	Leather of other bovine cattle and equine leather	LT1	-1.186		
6116	Leather of other hides or skins	LT1	-1.865		
8481	Articles of apparel/accessories of leather	LT1	-0.608		
8510	Footwear -Leather	LT1	-0.582		
	Approximate value of imports in proposed subs-sectors (tbc)			US $ 362-408 mln.	
	Share of proposed products in total low-tech imports			11 - 12 %	

Source: COMTRADE, SITC3, 4-digit; UNIDO tech-definition; Atlas of Economic Complexity for PCI data, 2016.

Constraints

The Enterprise Surveys are conducted by the World Bank as a means to obtain a representative sample of firms in the non-agricultural formal private economy. The latest survey for the DRC occurred in 2013. Within that survey, respondents cited what they considered to be their one "main obstacle" to success.

Top Six Main Obstacles for DRC Firms as a Percentage of Total Firms Surveyed

- Electricity
- Access to Finance
- Political Instability
- Practices of the Informal Sector
- Corruption
- Tax Administration

The most cited obstacles in order were access to electricity (19.1%), followed by access to finance (13.5%), and then political instability (13.4%). The enterprise survey dives deeper into each of these "main obstacles" and provides statistics that can explicate why firm owners choose these obstacles. Although there many other constraints cited, the most efficient approach would seem to be one that addresses the most cited obstacles because they impact the greatest number of firms. However, as noted in the following section which discusses elements of the policy framework that has delivered successful light manufacturing industries, constraints are usually sector-specific. While they are can be many, it is critical to ensure that all the leading ones are resolved in a sector – else a little bit here, and a little bit there type of policy approaches which have been tried in most developing countries have usually failed in scaling up light manufacturing export industries.[8]

When comparing DRC's constraints to Sub-Saharan Africa (survey data ranged from 2010-2017 in the aggregation to create Sub-Saharan Africa's data), access to electricity and political instability were more often cited by DRC firms. However, Sub-Saharan African firms cited access to finance more frequently than DRC firms.

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[8] For this reason, industrial zones are a promising path forward as they bring the key factors together in one location and attract industries for which the zone is best suited.

Comparison of Main Obstacles between Sub-Saharan Africa and DRC
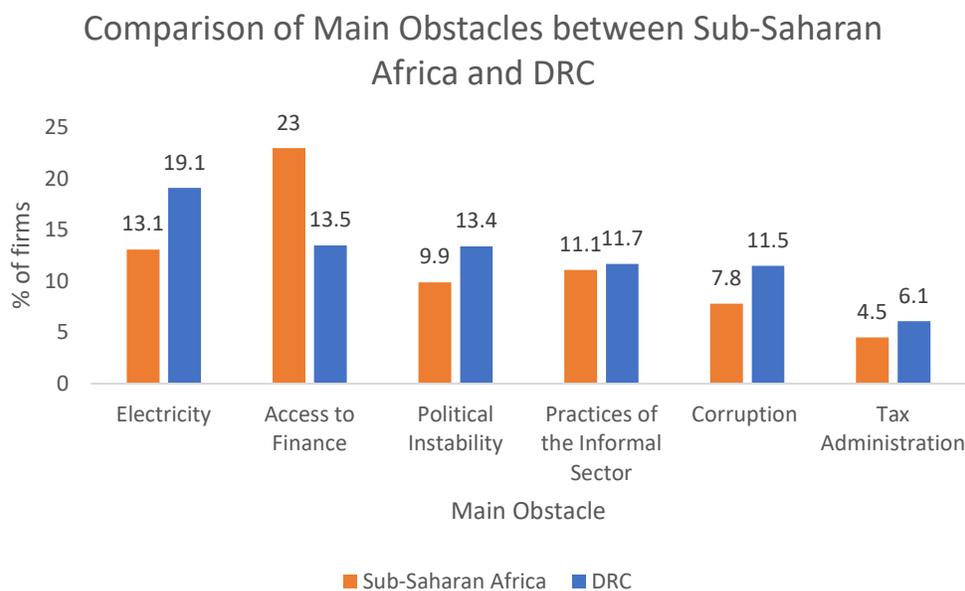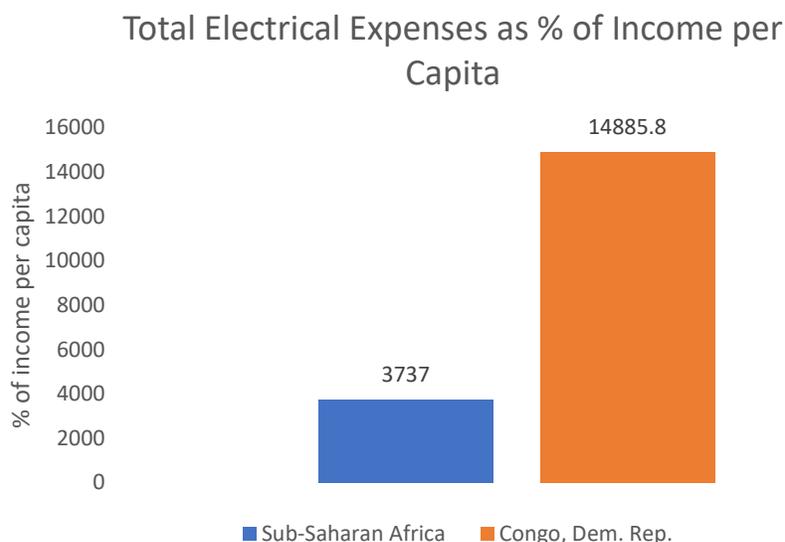

A. Access To Electricity

The most pressing concern for DRC firms is access to electricity with almost one in five firms citing the constraint as their main problem. This citation can be explicated by the number of electrical outages that occur in a typical month.

Economy	Number of electrical outages in a typical month[9]
Sub-Saharan Africa	8.9
Congo, Dem. Rep.	12.3

DRC firms experience almost 33% more power outages than their Sub-Saharan firm counterparts. Furthermore, the expenses that DRC firms pay relative to their income per capita is more than 11,000 percentage points greater than their Sub-Saharan counterparts.[10]

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[9] Enterprise Surveys (http://www.enterprisesurveys.org), The World Bank.
[10] Doing Business 2018

Total Electrical Expenses as % of Income per Capita

Both the number of outages as well as cost to establish an electrical circuit are major impediments to firm development. Reforms should take place to improve the ability for firms to access electricity.
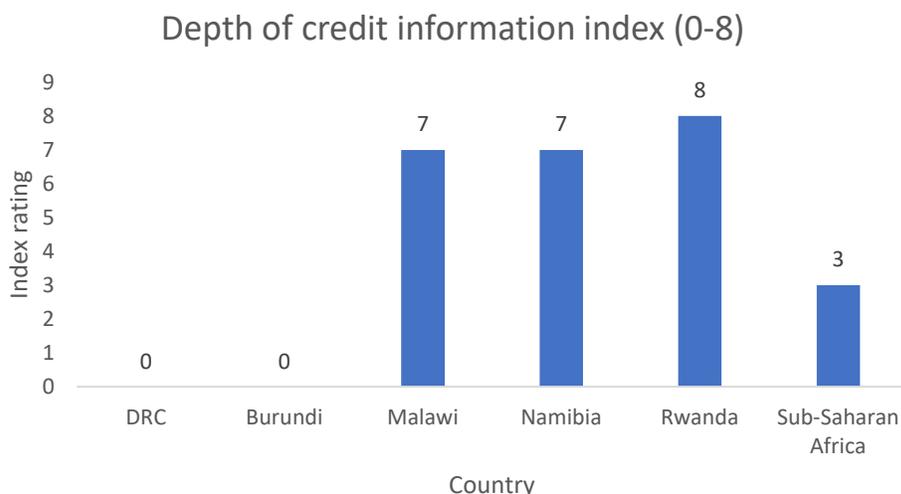
B. Access to Finance

The second most cited main constraint was access to finance. Sub-Saharan African firms had more than double the amount of lines of credit than DRC firms did according to the Enterprise Surveys.[11]

Economy	Percent of firms with a bank loan/line of credit
Sub-Saharan Africa	21.6
Congo, Dem. Rep.	9.4

The World Bank's Doing Business project measures business regulations to compare environments around the world. One of the measures the project utilizes is a credit information index, defined as measuring "rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau."[12]

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[11] Enterprise Surveys (http://www.enterprisesurveys.org) , The World Bank.
[12] http://www.doingbusiness.org/data/exploreeconomies/congo-dem-rep#getting-credit

Depth of credit information index (0-8)

DRC has an index rating of zero, while the Sub-Saharan African average is three. This low credit information rating could explain why DRC firms do not have lines of credit. Plausible explanations are that firms do not know of credit availability, or that the regulations that govern available credit are not clearly delineated and thus, are too risky for firms.

C. Political Instability

Political instability is a difficult measure to define because the Enterprise Survey simply asked respondents to choose their biggest obstacle from a list, without clearly defining what constraints such as political instability meant.[13] Other constraints such as access to electricity are much more easily understood.

Economy	If there were visits, average number of visits or required meetings with tax officials over the past year
Sub-Saharan Africa	3.2
Congo, Dem. Rep.	10.3

A possible explanation for the citation of political instability were the requirements of tax official meetings. DRC firms had to meet with officials about seven more times than their Sub-Saharan counterparts in the past year.[14]

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[13] See "manufacturing module questionnaire" at http://microdata.worldbank.org/index.php/catalog/2026
[14] Enterprise Surveys (http://www.enterprisesurveys.org), The World Bank.

A Policy Framework to Facilitate Export Diversification

As almost all of DRC's exports are concentrated in either minerals or metals, or agricultural commodities, the strategy for DRC would be to diversify into other sectors that are not subject to the same terms of trade fluctuations as minerals and metals, are more labour-intensive, productive and can grow fast and create better-paying jobs. Most of the current jobs outside of government or the military are largely informal and concentrated in agriculture or services sectors. To this end, DRC needs a combination of appropriate macroeconomic policy including a more export-oriented growth strategy and a stable business environment.

Economy-wide policies: As is well known, in addition to maintaining peace and stability, DRC would benefit greatly from policy measures to maintain macroeconomic stability, build good institutions, and infrastructure (including resolving trade logistics issues), and develop human resources. Building roads, boosting electricity generation, and enhancing trade logistics are a top priority for DRC, yet addressing infrastructure needs in DRC is a time-intensive challenge and cannot be achieved rapidly. Hence, while infrastructure investment and reforms should start without delay, priority has to be placed on providing infrastructure to specific areas where clusters and industrial parks are located before solving the infrastructure problems in other areas. Additional measures in this group include the simplification of regulatory policy and foreign labour management. Similarly, as the Investment Climate Assessment[15] notes, the investment climate is fraught with complex regulations and distortionary measures yet fixing them all is a longer-term agenda.

Sectoral policies include helping existing products grow. There is a fair amount of consensus on what is needed to accelerate growth in mining and agriculture but the agenda for sectoral policies to help break into *new products* has to be defined. The list of agenda items varies from tariff policies, to duty drawbacks, to trade logistics, to all aspects of the investment climate. Lessons from some successful countries in Asia will be useful for DRC but the bottom-line is that in addition to economy-wide policies, DRC also needs to resolve sector-specific constraints. What will work for a successful garment industry which will need firms to organize production of simple garments from imported raw and intermediate inputs will not suffice for the leather industry which needs better integration between the livestock, meat producing, skins, leather and leather products producing subsectors.

Sector-Specific Issues: Industrial clusters are the best way to deal with a plethora of binding constraints in DRC. For each subsector, governments should first find out where enterprises are already clustered and should then ease the most binding constraints (identified in the report) within the clusters. Similarly, successful industrial parks provide enterprises with security, basic infrastructure, streamlined government regulations, and affordable industrial land. Policy makers in DRC need to open up and attract foreign direct investment on a mass scale, particularly in labour-intensive activities such as those identified in the report. They should also harmonize and improve customs procedures and facilitate access to inputs for light manufacturing. A close public-private cooperation will be needed to implement the proposed policy reforms.

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[15] Investment Climate Assessment undertaken by the World Bank.

Future directions

Beyond its capacity to stimulate job creation, the strong connection between light manufacturing and trade also supports the development choice to focus on light manufacturing. The case for export-led growth is well established among developing countries (Chenery 1980; Commission on Growth and Development 2008; Harrison and Rodríguez- Clare 2010). Harrison and Rodríguez-Clare (2010) find that export-oriented countries have grown more rapidly, though establishing causality is difficult. Trade also enables developing countries to take advantage of the important learning that is derived from exposure to global competition and then to import the skills and technology necessary to move up the value chain.

DRC, together with many other low-income countries, has the necessary inputs for a competitive light manufacturing sector: a comparative advantage in low-wage labour (at the proper exchange rate), abundant natural resources sufficient to offset the lower labour productivity compared with their Asian competitors, privileged access to high-income markets for exports, and a sufficiently large local or regional market to allow emerging producers to develop capabilities in quick-response.

These countries can follow the course pioneered by a succession of Asian countries by accelerating the realization of latent comparative advantage in segments of light manufacturing in which specific, feasible, sharply focused, low-cost policy interventions can deliver a quick boost to output, productivity, and perhaps exports, opening the door to expanded entry and growth.

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Annex 1 - Revealed Comparative Advantages

For existing products, the concept of RCA can be used to pinpoint industries in which increased production could accelerate industrialization. This is a traditional method based on a country's trade data. Another method, domestic resource cost, can also be used, but would require detailed field work not available for this report.

The RCA based on trade data can be determined either quantitatively using the Balassa index, after Balassa (1965), or qualitatively by inspection of detailed import data. The Balassa index is an index that shows the relative advantage or disadvantage of a country in exporting a commodity as revealed in its actual export patterns relative to those of all other countries in the world. It is defined as follows:

RCA = (Eij / Eit) / (Enj / Enm)

where *Eij* refers to exports of commodity *j* by country *i*; *n* is the set of countries; and *m* is the set of all commodities. A country has a revealed comparative advantage in commodity *j* if *RCA* is greater than 1 and a comparative disadvantage in commodity *j* if RCA is less than 1.

Annex 2 – Lin-Monga Framework: Latent Comparative Advantage

The Lin-Monga framework postulates that, while a country's natural endowments, including infrastructure, are fixed at any specific moment and determine the country's comparative advantage at that moment, they change in a rapidly growing economy. Thus, the comparative advantage of a successful country is dynamic (Grossman and Helpman 1991; Krugman 1987; Lin 2009; Lin and Chang 2009). Some of a successful economy's dynamically growing industries will lose their comparative advantage as the economy's endowment structure upgrades. For instance, Hong Kong SAR, China, had shifted from a garment and electronic component assembly centre in the 1980s to a high-technology and financial services centre by the late 1990s. The garment industry moved to Shenzhen, a city slightly north in Guangdong Province, China, and then beyond, and even this industry is beginning to close down in the newer locations as wages rise in Guangdong, and the switch occurs to more value-added industries and services. Sunset industries in China are thus already becoming sunrise industries latecomer countries with lower income and less capital-intensive endowments, which means a latent comparative advantage in the industries.[16] Government's facilitating role is mainly limited to providing information, coordinating hard and soft infrastructure improvements, and compensating for externalities. Government facilitation through the above approach is likely to help developing countries tap into the potential advantages of backwardness and achieve dynamic, sustained growth.

Drawing on the experiences of successful and failed industrial policies and applying the theories of comparative advantage and the benefit of backwardness, the Lin-Monga growth identification and facilitation framework proposes a six-step process for identifying industries in which developing countries may have latent comparative advantages and for creating the conditions and removing the constraints that impede the emergence of these industries. The criteria used in the growth identification and facilitation framework are useful for low-income countries in Sub-Saharan Africa.

Step 1: Governments should first identify tradable goods and services that have been produced for about 20 years in dynamically growing countries with similar endowment structures and with per capita incomes about twice their own.

Step 2: Among industries producing the goods and services identified, governments may give priority to those that domestic firms are already producing and try to identify any obstacles preventing these firms from upgrading their products or any barriers limiting entry by other firms. This could be done using a combination of methods such as value chain analysis or the growth diagnostic framework proposed by Hausmann, Rodrik, and Velasco (2005). Policies could then be implemented to ease the constraints by using randomized controls to test effectiveness as policies are scaled up nationwide (Duflo 2004).

Step 3: Some of the industries identified may be completely new to domestic firms. In such cases, governments could encourage firms in the higher-income countries identified in the first step to invest in these industries. These firms would have incentives to relocate their production to lower-income countries to take advantage of lower labour costs. Governments in the lower-income countries could also create incubation programs to encourage private domestic firms to enter these industries.

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[16] For example, in Fujian and Guangdong provinces in China, the industrial labor force swelled from 6 million in 1985 to 11 million at the end of 2001, which is (likely an understatement, given the large number of internal migrant workers (Naughton 2007). In 2002, 83 million people were employed in manufacturing (NBS 2003).

Step 4: In addition to the goods and services identified on in the first step, developing-country governments should pay close attention to successful discoveries by private firms and support the expansion of these firms and industries.

Step 5: In developing countries with poor infrastructure and unfriendly business environments, governments should invest in industrial parks and export processing zones as well as make other improvements that attract investments by both domestic and foreign firms. Industrial parks and export processing zones also encourage industrial clustering.

Step 6: Governments may also provide incentives to domestic pioneer firms or foreign investors that work in the industries identified in the first step to compensate for the nonrival public knowledge created by their investments. Such incentives should have limited timeframes and costs and may take the form of corporate income tax holidays, directed credits to co-finance investment, or priority access to foreign reserves to import key equipment (Lin and Monda 2011).

Beyond its capacity to stimulate job creation, the strong connection between light manufacturing and trade also supports the development choice to focus on light manufacturing. The case for export-led growth is well established among developing countries (Chenery 1980; Commission on Growth and Development 2008; Harrison and Rodríguez-Clare 2010). Harrison and Rodríguez-Clare (2010) find that export-oriented countries have grown more rapidly, though establishing causality is difficult. Trade also enables developing countries to take advantage of the important learning that is derived from exposure to global competition and then to import the skills and technology necessary to move up the value chain. These countries can follow the course pioneered by a succession of Asian countries by accelerating the realization of latent comparative advantage in segments of light manufacturing in which specific, feasible, sharply focused, low-cost policy interventions can deliver a quick boost to output, productivity, and perhaps exports, opening the door to expanded entry and growth.