

Ghana: Possibilities for Manufactured Exports

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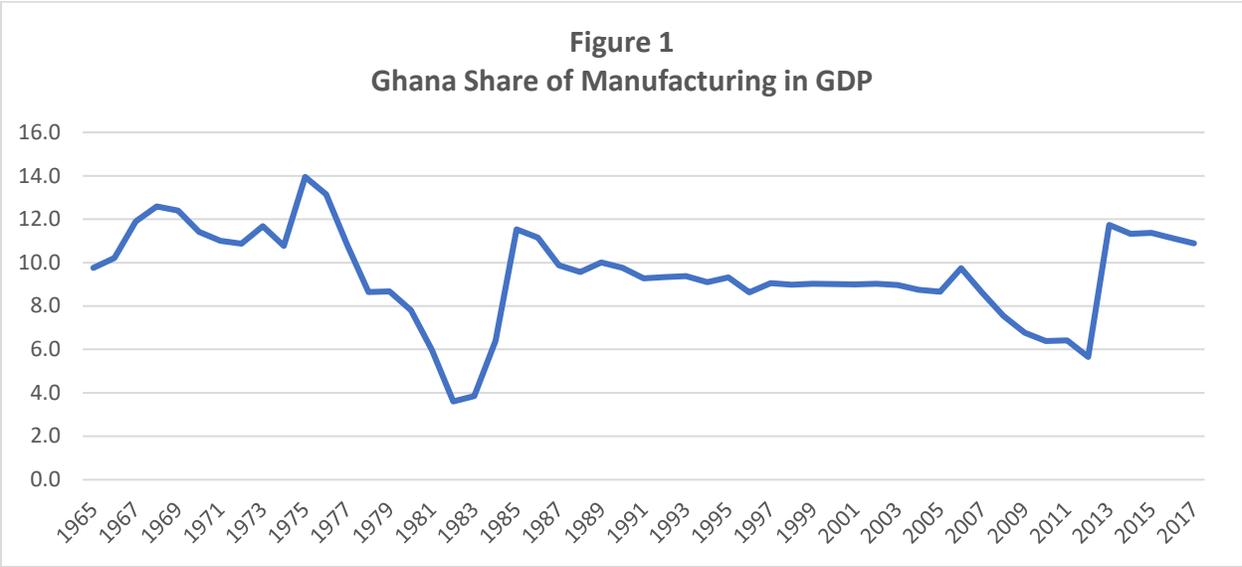
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I. A Snapshot of Manufacturing and Trade in Ghana

The Manufacturing Sector in the Economy

The manufacturing sector has played a modest role in Ghana over the years: its share in GDP has declined from a peak of 14% in 1975 to about 11% today (Chart 1). It is estimated that the sector provides employment for over 250,000 people¹. There are over 26,000 registered firms, though more than 85% of them are small size enterprises and more than half are located within the Greater Accra/Tema region.



Source: World Bank World Development Indicators, accessed 2/22/2019

Major industries include mining, light manufacturing, aluminum smelting, food processing, cement and small commercial ship building. Other industries include textiles, chemicals and pharmaceuticals, and the processing of metals and wood products; a relatively small glass-making industry has also developed.

The sector is underdeveloped and is characterised by a narrow industrial base dominated by agro-industries. One particular feature of the sector, noted by Francis Teal (2016), is the inability of larger firms, particularly those employing more than 100 workers, to grow in numbers and employment and that explains why the sector has not been able to create more productive jobs in the economy.

Current Exports and Imports

Ghana’s exports are heavily concentrated in commodities (Figure 2).

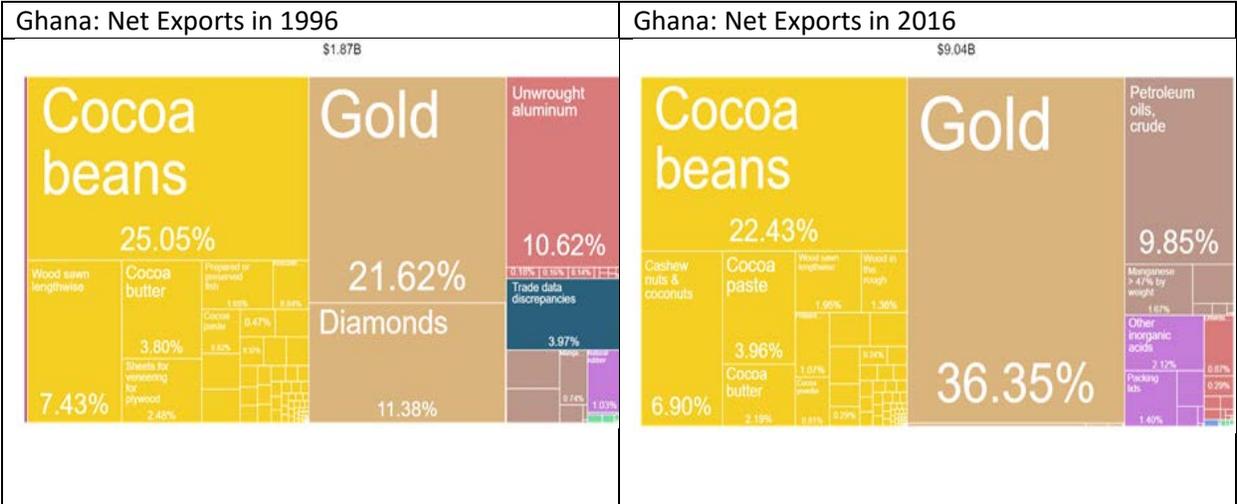
¹ Ghana does not have recent employment data. The 2003 Industrial Census, quoted in Teal (2016) is the latest source of information.

Ghana is the 70th largest export economy in the world and the 111th most complex economy according to the Economic Complexity Index (ECI). In 2016, Ghana exported \$9B and imported \$13B of goods. The top exports of Ghana are gold (36.4%), cocoa beans (22.4%), crude petroleum(10.0%), and coconuts and cashew nuts (6.9%), using the HS classification. Its top imports (Figure 2) are cars (3.8%), rice (2.9%), delivery trucks (2.2%), frozen fish (2%), electric generating sets (1.8%), cements (1.8%). The top export destinations of Ghana are Switzerland (31.3%), UAE (12.3%). Burkina Faso (9.3%), the Netherlands (7.8%), Mali (6.6%), India and Vietnam (each 5.8 %). The top import origins are China (41.3%), the United States (6.3%), the UK (6.1%), Nigeria (4.3%), and South Africa (3.8%).

Progress in Diversification

Over the last twenty years, Ghana hardly made any progress in diversification: the country export structure remains concentrated in gold and cocoa beans.

Figure 3: Structure of exports 1996 and 2016



Source: <http://atlas.cid.harvard.edu/explore/>

II. Identifying Potential Exports

Analytical Framework

We follow a simple framework based on the revealed comparative advantage (RCA) and the Economics of Complexity to identify the potential for new manufacturing subsectors in Ghana (Table 1). To minimize any measurement error, we focus on subsectors/products (used interchangeably) in which the country had a persistent comparative advantage over at least 4 – 5 years. Using RCA to analyse export data (in HS) from the 1990s until 2016, we disaggregate all exports into four types of export subsectors:

Table 1: Framework used to identify manufacturing subsectors for fostering diversification

Current Exports	Classics	Disappearing	Emerging	Marginals	Import -competing
RCA>1 in 1995-99	Yes	Yes	No	No	n/a
RCA>1 in 2000-11	Yes	Sporadic	Sporadic	No	n/a
RCA>1 in 2012-16	Yes	No	Yes	No	n/a
Sophistication (PCI)	Average -1.5	Average -0.7	Average -1.2		Select ones with PCI consistent with current capabilities
Recommended policy approach	Facilitate/remove constraints	Investigate why they declined	Facilitate, nurture	Facilitate, nurture	Explore feasibility/foster

1. **Classics:** subsectors which have maintained their comparative advantage (RCA>1) over an extended number of years, i.e., from the 1990s to the present. These represent Ghana’s traditional exports and are its proven strength;
2. **Emerging** subsectors in which Ghana did not have a persistent comparative advantage in the 1990s but has developed it in the 2000s. These promising new sectors should be fostered;
3. **Disappearing** subsectors in which Ghana had a comparative advantage (RCA >1) in the 1990s but either ceased to have a comparative advantage in the 2000s or did not maintain it consistently throughout the 2000; and
4. **Marginals** are subsectors in which Ghana neither had a comparative advantage in the 1990s nor in the 2000s. These sectors have had an RCA<1 for most years since the 1990s. They are not strong candidates for diversification until they develop an RCA>1.

In addition to the above four categories, import competition or the competitive production of import-substitutes offers as much if not more scope for growth and diversification in Ghana’s manufacturing sector. Following the Economics of Complexity approach, we select the sectors/products which have a Product Complexity Index (PCI, an indicator of knowledge and capability embodied in the production of a product) close to the current capabilities of the

country. PCI is calculated based on how many other countries can produce the product and the economic complexity of those countries explained as the variety and number of products a country produces. In effect, PCI captures the amount and sophistication of know-how required to produce a product.

Application of the Analytical Framework

Applying the above framework to Ghana yields a number of interesting results. Over the course of the last twenty years, a number of products have emerged and their output rose quickly from virtually zero to almost a quarter of total exports today (Table 2). This would have been good news had it not for the fact that petroleum accounted for most of this trend. Petroleum, together with other minerals such as gold, have had adverse impact on the development of manufacturing through the Dutch disease effects.

Over this twenty year period, Ghana's traditional exports or Classics remained robust, although its share in total exports declined slightly from 72% to 63%. A number of exports also disappeared almost completely from the scene. Reflecting the lack of progress in diversification, the vast majority of products belong to the Marginals category, in which Ghana never became globally competitive. The list of Marginals exports is long and the explanation for their presence unclear. They merit an investigation to understand why some firms can export them and others not.

Table 2: Application of the identification framework to Ghana

	No of products	1995-99 RCA>1	2000-11 RCA>1	2012-16 RCA>1
Classics	30	Yes (72%)	Yes	Yes (63%)
Emerging	15	No (0.7%)	Sporadic	Yes (24%)
Disappearing	19	Yes (14%)	Sporadic	No (0.6%)
Marginals	1178	No (%14)	No	No (13%)

Source: COMTRADE, Author's calculations.

What are the new opportunities for manufactured exports and manufacturing more broadly in Ghana? To answer this question, we examine below in detail the contents of the Classics, Emerging, Disappearing, and Marginals quadrants listed in Table 2.

Manufacturing Opportunities in the Classics (Traditional) Export Sectors

The two major categories in the Classics are vegetables/foodstuff and minerals (Table 3) which together account for about 61% of total exports in the 2012-2016 period. Within the vegetable/foodstuff, the largest export product is still cocoa beans (18%) which, as an unprocessed good, has a very low PCI (-2.5). The encouraging sign here is the strong growth of derived products such as cocoa paste and powder, both have a high PCI of -.6 and both have emerged to be a major export category. It would be useful for the Government to design new policies to encourage these two subsectors to expand further. Prepared and preserved fish are also an important subsector to expand, as their PCI is relatively high compared to others and they have already reached a respectable export level (Table 3). Although cashew nuts and coconuts do not have a high PCI (-2.5), in the short to medium term, they are a significant source of foreign exchange earnings and employment generation. In general, the wood subsector has a higher PCI than the agrobusiness, particularly in plywood sheets.

Table 3. Ghana's Classics (Traditional) Exports – in which it had a comparative advantage since mid-1990s

HS 4 digit code		PCI rank	1995-99	2012-16	Export share (%)		Export value (mil US\$)	
			RCA>1	RCA>1	2012-16	2016	2012-16	2016
	Vegetable, foodstuffs and wood							
303	Frozen fish, excluding fillets	-1.6	Yes	Yes	0.2	0.2	27.0	18.9
307	Molluscs	-1.6	Yes	Yes	0.1	0.1	11.1	10.4
714	Tubers	-2.4	Yes	Yes	0.3	0.3	29.3	30.2
801	Cashew nuts & coconuts	-2.5	Yes	Yes	2.3	5.9	257.3	624.4
804	Avocados, pineapples, mangos, etc.	-1.7	Yes	Yes	0.5	0.5	55.7	51.5
814	Peel of citrus fruit or melons	-1.5	Yes	Yes	0.0	0.0	0.8	0.7
1106	Flour of dried legumes	-1.6	Yes	Yes	0.0	0.0	1.8	1.7
1207	Other oil seeds	-2.0	Yes	Yes	0.2	0.2	22.8	22.8
1211	Plants used in perfumery, pharmacy or insecticide	-1.9	Yes	Yes	0.1	0.1	8.2	8.9
1604	Prepared or preserved fish	-1.4	Yes	Yes	1.3	1.5	148.6	155.8
1801	Cocoa beans	-2.5	Yes	Yes	17.7	19.2	1981.5	2029.3
1802	Cocoa residues	-2.2	Yes	Yes	0.0	0.1	5.1	8.2
1803	Cocoa paste	-0.6	Yes	Yes	3.1	3.4	352.9	358.6
1804	Cocoa butter	-1.3	Yes	Yes	1.6	1.9	175.3	198.1
1805	Cocoa powder	-0.6	Yes	Yes	0.8	0.7	90.4	73.5
4402	Wood charcoal	-1.3	Yes	Yes	0.0	0.0	1.1	0.9
4403	Wood in the rough	-1.2	Yes	Yes	1.1	1.2	127.0	129.1
4407	Wood sawn lengthwise	-1.1	Yes	Yes	1.0	1.7	117.7	177.8
4408	Sheets for veneering for plywood	-0.6	Yes	Yes	0.7	0.2	82.7	26.3
4602	Basketwork	-1.7	Yes	Yes	0.0	0.0	3.4	4.7
	Subtotal	(-2.5, -0.6)			31.3	37.1	3499.5	3932.0
	Mineral, Stone and glass							

7108	Gold	-2.1	Yes	Yes	27.4	31.0	3162.0	3289.0
2522	Quicklime	-0.5	Yes	Yes	0.2	0.2	22.2	21.6
2602	Manganese > 47% by weight	-2.1	Yes	Yes	1.7	1.4	196.5	151.5
2606	Aluminum ore	-1.9	Yes	Yes	0.5	0.7	54.8	70.2
	Subtotal	(-2.1, -0.5)			29.8	33.3	3435.5	3532.3
	Metal							
7404	Copper waste and scrap	-1.0	Yes	Yes	0.3	0.2	40.1	26.1
7601	Unwrought aluminum	-1.1	Yes	Yes	0.7	0.7	75.1	78.5
7802	Lead waste or scrap	-1.0	Yes	Yes	0.1	0.0	5.6	2.3
	Subtotal	(-1.1, -1.0)			1.1	1.0	120.7	106.8
	Others							
4001	Natural rubber	-2.6	Yes	Yes	0.4	0.4	46.2	42.0
9206	Musical instruments, percussion	-1.1	Yes	Yes	0.0	0.0	0.6	0.5
	Subtotal	(-2.6, -1.1)			0.4	0.4	46.8	42.6
	Total classics	avg. -1.5			62.6	72.0	7112.6	7623.0

Source: <http://atlas.cid.harvard.edu/> and author's calculations

Recommendations

- Continue to foster growth in all the Classics as they are crucial for the manufactured exports sector.
- The vegetable/food subsectors have remained a strong pillar for growth in Ghana. Policies should focus on removing constraints to get more value-addition/processing in the food sector which is an important source of better-paying jobs in rural areas as well as diversification in manufacturing. Examples are cocoa paste and powder and prepared fish.
- Adopt a twin-forked strategy that focuses on (i) diversification from Metals into other light manufacturing subsectors, and (ii) innovation to propel the production of more sophisticated products within all the Classics. In the medium term, this should increase the shares of the higher products even within the Classics export sectors.
- Explore why exports of more sophisticated Classics such as Musical instruments which have a higher PCI have not gained a larger market share. Ghana has been exporting them with a consistent comparative advantage since the 1990s. Policies should focus on removing the constraints to these subsectors as they create better paying jobs and can foster diversification in the manufacturing subsector.

New Manufactured Export Possibilities in Nascent Subsectors - Emerging Champions

Ghana's Emerging manufactured exports subsectors indicate some potential for diversification as they have consistently maintained a comparative advantage (RCA>1) since 2012. Ghana did

not have a comparative advantage in these subsectors in the late 1990s (Table 4). Unfortunately, this category was dominated by petroleum exports while the performance of other exports remained weak. Between 2012 and 2016, the share of these nascent exports subsectors was small and stagnant at about 1.5 % of total exports which suggests weak dynamism to propel their growth. Compared to the Classics, a positive characteristic of the Emerging subsectors is that on average, they are more complex products with a higher average PCI score. One potentially important emerging export is vegetable fat and oil (\$56 million in 2016). Another potential is Metal -related products which could take advantage of the production of minerals in Ghana.

Table 4. Ghana: Emerging exports in which it did not have a persistent comparative advantage in the 1990s and 2000s but has maintained it since 2012.

HS 4 digit code		PCI rank	1995-99	2012-16	Export share (%)		Export value (mil US\$)	
			RCA>1	RCA>1	2012-16	2016	2012-16	2016
	Vegetable, foodstuffs and wood							
803	Bananas and plantains	-2.1	No	Yes	0.5	0.6	50.2	60.0
812	Fruits and nuts, preserved	-1.0	No	Yes	0.0	0.0	1.3	1.0
1101	Wheat or meslin flour	-1.2	No	Yes	0.1	0.2	11.1	22.4
1102	Cereal flours	-1.1	No	Yes	0.0	0.0	0.9	1.5
1404	Vegetable products n.e.c.	-1.8	No	Yes	0.0	0.0	2.0	0.4
1515	Other vegetable fats and oils	-0.9	No	Yes	0.4	0.5	47.2	55.6
1517	Margarine	-0.9	No	Yes	0.1	0.1	8.4	7.9
2101	Coffee extracts	-0.7	No	Yes	0.1	0.1	9.2	10.0
2302	Cereal residues	-1.7	No	Yes	0.0	0.0	2.5	3.6
	Subtotal	(-2.1,-0.7)			1.2	1.5	132.9	162.5
	Mineral, Stone and glass							
2709	Petroleum oils, crude	-2.4	No	Yes	22.2	11.6	2567.4	1224.1
	Subtotal	-2.4			22.2	11.6	2567.4	1224.1
	Metal							
7602	Waste or scrap, aluminum	-0.7	No	Yes	0.1	0.1	13.1	9.1
7801	Lead refined unwrought	-1.3	No	Yes	0.1	0.1	13.7	7.5
	Subtotal	(-1.3, -0.7)			0.2	0.2	26.8	16.7
	Total emerging	avg. -1.2			23.7	13.3	2737.3	1408.8

Recommendations

Policy makers need to be aware of the acute need to develop the manufacturing sector in an economy driven by natural resources, which have had adverse consequences on volatility and

one job creation. To that end, it will be important for policymakers to foster the nascent manufacturing subsectors that have, despite underlying constraints, managed to gain comparative advantage. A discrete twin-forked strategy is recommended.

- Foster diversification in the Emerging champions in the agro-business subsector along Table 4 above, especially vegetable fat and oil and metal products.
- Facilitate innovation so that firms can diversify in more metals-related products.

Manufacturing Export Opportunities in Marginal and Declining Subsectors

In 2012-16, about 14 percent of Ghana’s total merchandise exports were generated by either the Disappearing or Marginals export subsectors (Table 2). While the Marginals exports comprise a long list of very small export values featuring zero exports in some years, the Disappearing exports category provides a few useful policy insights. Despite Ghana’s strong comparative advantage in vegetable and foodstuff, COMTRADE data shows that Ghana did not have a comparative advantage in a number of fruits and vegetable as well as in textiles and furniture (Table 5). Although their export values were small because these subsectors have been gradually declining since the 1990s when Ghana was competitive in them, this issue should be of concern to policy makers.

Table 5. Ghana’s exports – Disappearing manufactured export sectors since 2010

HS 4 digit code		PCI rank	RCA>1		Export share (%)		Export value (mil US\$)	
			RCA>1	RCA>1	2012-16	2016	2012-16	2016
	Vegetable, foodstuffs and wood							
106	Other live animals	-1.3	Yes	No	0.0	0.0	0.6	0.5
305	Preserved fish	-1.5	Yes	No	0.0	0.0	1.0	1.9
709	Other vegetables	-1.3	Yes	No	0.0	0.0	5.4	2.2
807	Melons and papayas	-1.6	Yes	No	0.0	0.0	1.9	1.5
1903	Tapioca	-1.4	Yes	No	0.0	0.0	0.0	0.1
4409	Wood shaped along its edges	-0.9	Yes	No	0.0	0.0	5.5	3.0
4412	Plywood	-0.9	Yes	No	0.2	0.1	29.7	9.1
4413	Densified wood	-0.6	Yes	No	0.0	0.0	0.4	0.5
4417	Wooden tools	-0.4	Yes	No	0.0	0.0	0.1	0.0
4420	Wood marquetry, ornaments, etc.	-1.2	Yes	No	0.0	0.0	0.5	0.3
	Subtotal	(-1.6,-0.4)			0.4	0.2	45.1	19.0
	Mineral, Stone and glass							

2501	Salt	-1.2	Yes	No	0.0	0.0	2.8	1.1
2716	Electrical energy	-0.3	Yes	No	0.1	0.1	12.2	15.7
7102	Diamonds	-0.9	Yes	No	0.0	0.0	5.5	3.3
7105	Diamond dust	1.0	Yes	No	0.0	0.0	0.1	0.1
	Subtotal	(-1.2,1)			0.2	0.2	20.6	20.2
	Metal							
7206	Iron and nonalloy steel	-0.8	Yes	No	0.0	0.0	0.1	0.0
7606	Aluminum plates > 0.2 mm	0.6	Yes	No	0.0	0.0	3.5	0.9
7615	Household articles of aluminum	-0.2	Yes	No	0.0	0.1	6.0	7.6
	Subtotal	(-0.8, 0.6)			0.1	0.1	9.6	8.6
	Textiles and furnitures							
6602	Walking sticks	0.1	Yes	No	0.0	0.0	0.0	0.0
9404	Mattresses and bedding	-0.6	Yes	No	0.0	0.0	0.6	0.5
	Subtotal	(-0.6, 0.1)			0.0	0.0	0.6	0.5
	Total classics	avg. -0.7			0.6	0.4	76.5	48.8

Recommendations

- We frequently find exports from declining or *Disappearing* subsectors have been affected by adverse domestic policy or global circumstances. Unless a clear explanation already exists, policy makers should try to understand the reasons underlying the Disappearing subsectors – why did they flourish in the past and what prompted their disappearance in recent years? Are there policy mistakes they can avoid?
- Policymakers should also investigate why certain *sophisticated* products such as mattresses and bedding and walking sticks in which Ghana enjoyed a comparative advantage in the 1990s have declined.

New Manufacturing Possibilities in Import-Competing industries

The above discussion suggests that the scope for rapid export diversification in the short to medium term may be limited on two counts. First, Ghana's traditional exports or Classics have a narrow range and have shown no dynamism towards diversification since the 1990s; and second, the growth of manufacturing continues to be affected by the dominance of minerals production which tends to discourage diversification through the Dutch disease effects. At best, the Emerging subsectors will grow sluggishly.

Policies to diversify the economy should therefore focus equally on import competing industries. This will be challenging as domestic technological capabilities to produce new products which are world-class and can compete with imports are limited both in sophistication

or quality and scale. Most of Ghana's manufactured exports fall in the low-complexity category with an average PCI score for Classics of -1.5 and of Emerging subsectors of -1.2.² The overall size of the domestic manufacturing sector is only 11 percent of GDP and most of it is concentrated in agro-business and mineral products.

In the short to medium term, the existing *scale* of the domestic manufacturing subsectors will also determine the scope for import-competition/substitution. Of course, for the longer term, appropriate investments in skills will open many pathways to a strong and diversified manufacturing sector. We therefore recommend that in addition to a discrete focus on diversification through exports and import-substitution, policymakers adopt a discrete strategy to propel innovation in manufacturing – this is essential to build the firm capabilities necessary to scale up modern manufacturing subsectors such as metal products as well as compete with imports in the domestic market.

For the short to medium term, the potential import-competing industries recommended are presented in Tables 6 and 7 according to the following criteria:

1. Their level of sophistication defined by PCI is relatively low and consistent with the PCI of Ghana's manufactured exports;
2. They are well aligned and correspond to Ghana's traditional export sectors in which it has proven comparative advantage;
3. Many have also been identified by the Product Space framework (Hausmann and Hidalgo) as export opportunities.

Table 6 lists the low-hanging fruit or import-competing opportunities in Ghana's traditional subsectors (Classics) while Table 7 identifies products/subsectors for which Ghana has comparative advantage in production for a number of years. Given its limited manufacturing experience, it is less-risky to facilitate import-substitution in traditional or nascent manufacturing subsectors where there is *already ongoing* production than jumpstarting brand new subsectors. In Table 6 for example, nearly all the subsectors identified as potential import-competing subsectors are in the agro-business subsectors. Most meet the selection criteria.

Table 6. Import Substitute – mostly food stuff

(criteria: import value > 3 mil US\$, PCI ≤ -0.8 for easy adoption)

² Technically, if one excluded petroleum which has a very low PCI (-2.4) the average PCI score for Emerging subsectors would be much higher. Lower scores represent technologically simpler products exported with relative ease by many countries, while higher scores illustrate more sophisticated products, more inputs, more skills and are therefore exported by fewer countries.

HS 4 digit	Product Name	PCI	Import Value (mil US\$)	Distance	Category
1701	Sugarcane & sucrose	-1.6	212.3	0.90	Marginal
1511	Palm oil	-2.0	199.1	0.87	Marginal
303	Frozen fish, excluding fillets	-1.6	189.8	0.89	Classics
2002	Tomatoes, prepared or preserved	-1.0	100.7	0.93	Marginal
1604	Prepared or preserved fish	-1.4	56.5	0.90	Marginal
2207	Ethyl alcohol > 80%	-1.0	53.7	0.91	Marginal
1901	Malt extract	0.0	45.3	0.92	Marginal
902	Tea	-2.0	43.1	0.91	Marginal
1902	Pasta	-1.1	40.6	0.91	Marginal
1517	Margarine	-0.9	36.8	0.90	Champion
2009	Fruit juices	-1.0	22.0	0.91	Marginal
1101	Wheat or meslin flour	-1.2	14.8	0.90	Champion
2101	Coffee extracts	-0.7	10.3	0.91	Marginal
1516	Vegetable fats, hydrogenated	-1.0	8.0	0.91	Marginal
2301	Flours of fish, for animal feed	-1.3	6.6	0.91	Marginal
302	Fish, excluding fillets	-1.3	5.4	0.91	Marginal
1208	Flours of oil seeds	-0.8	4.4	0.93	Marginal
2005	Other vegetables, prepared or preserved	-0.9	4.1	0.92	Marginal
1512	Sunflower seed oil	-1.0	4.0	0.92	Marginal
1509	Olive oil	-0.9	3.7	0.95	Marginal
4412	Plywood	-0.9	3.5	0.91	Disappear
1507	Soybean oil	-1.2	3.4	0.93	Marginal
1103	Cereal meals	-0.8	3.3	0.91	Marginal

Table 7 presents potential import-competing subsectors which offer a direct path to diversification in non-traditional and more sophisticated, yet close to the existing capabilities, subsectors. The textiles and furniture subsectors remain a promising area for import competing production. So are the metal products. These subsectors have strong forward and backward linkages with other sectors in the economy and are potential to seed modern manufacturing value chains.

Table 7. Other potentials – These are all “marginals”, however have showed RCA in some historical years which demonstrates some capacity in place, but not consistent, needs further scale up)

HS 4-digit	Product name	PCI	Export Value (mil US\$)	Import Value (mil US\$)	No of years RCA>1	No of RCA>1 in last 5 years
	Vegetable, foodstuffs and wood					
1511	Palm oil	-2.0	49.9	199.1	16	4
810	Other fresh fruit	-1.4	12.2	0.7	12	3
1901	Malt extract	0.0	13.5	45.3	9	3
1513	Coconut & palm kernel oil	-1.8	22.3	1.5	6	3
4401	Fuel wood	-0.5	6.1	0.0	6	3
1504	Fish oils	-1.4	1.2	0.6	5	3
4808	Corrugated paper and paperboard	0.2	1.3	0.7	4	3
1103	Cereal meals	-0.8	0.6	3.3	11	2
4421	Other articles of wood	-0.6	3.3	1.1	8	2
1301	Lac	-2.1	0.4	0.2	7	2
2002	Tomatoes, prepared or preserved	-1.0	2.2	100.7	7	2
2208	Spirits < 80% alcohol	-0.4	16.3	19.7	3	2
2209	Vinegars	-0.4	0.8	0.2	3	2
1403	Vegetable materials used for brooms	-0.1	0.0	0.0	2	2
1506	Other animal fats and oils	0.6	0.2	0.0	2	2
1202	Peanuts	-2.0	1.2	0.3	9	1
2306	Solid vegetable oil and fat residues	-0.9	3.9	0.8	8	1
1208	FLOURS OF OIL SEEDS	-0.8	5.1	4.4	5	1
1902	Pasta	-1.1	3.5	40.6	5	1
802	Other nuts	-1.9	37.3	0.3	5	1
901	Coffee	-1.8	29.1	0.7	6	1
1213	Cereal straw and husks	-0.4	0.1	0.0	3	1
2009	Fruit juices	-1.0	9.1	22.0	2	1
2207	Ethyl alcohol > 80%	-1.0	4.9	53.7	2	1
1514	Rapeseed, colza or mustard oil,	0.4	3.2	0.3	1	1
1519	Stearic acid	-0.2	3.3	0.6	1	1
402	Milk, concentrated	-0.7	6.5	95.6	8	0
2008	Fruits and nuts, otherwise prepared	-1.2	3.8	1.5	7	0
4404	Strips and other pieces of wood	-0.4	0.0	8.7	10	0
2104	Soups and broths	-0.3	1.0	16.2	7	0
2206	Other fermented beverages	0.3	0.3	2.8	6	0
4406	Wooden railway ties	-0.6	0.0	0.1	8	0
4411	Fiberboard of wood	-0.1	0.2	1.9	4	0
	Chemicals and Plastics					
3924	Plastic household articles	-0.9	25.2	50.6	15	3
3917	Plastic tubes and fittings	-0.2	15.6	52.5	7	3
2834	Nitrites, nitrates	-0.5	1.2	1.3	5	3
2824	Lead oxides	-0.6	0.1	0.3	9	2
3102	Nitrogenous fertilizers	-1.1	12.1	56.1	6	2
4005	Compounded rubber	0.3	4.0	1.1	6	2
3304	Make-up preparations	0.3	77.8	36.7	3	2

2847	Hydrogen peroxide	0.1	1.6	3.3	2	2
3605	Matches	-1.2	0.1	5.1	10	1
3923	Packing lids	-0.3	46.1	83.9	5	1
3203	Coloring matter of animal or vegetable origin	0.0	0.1	0.1	8	0
2843	Compounds of precious metals	0.9	0.2	0.1	6	0
3401	Soap	-1.2	2.8	42.4	6	0
	Metal					
8201	Hand tools for gardening	-0.1	1.9	10.0	12	4
7214	Other bars of iron, not further worked than forged	-1.1	11.4	26.1	3	3
7614	Aluminum wire, not insulated	-0.6	2.4	16.5	3	3
7806	Other articles of lead	-0.5	0.3	0.1	6	2
7325	Other cast articles of iron or steel	0.3	3.9	14.4	3	2
7902	Zinc waste and scrap	-0.5	0.1	0.0	5	0
	Mineral, stone and glass					
2523	Cements	-1.2	9.4	214.2	4	3
2521	Limestone	-0.5	0.8	2.9	4	2
2511	Natural barium sulfate	-1.6	0.8	1.9	2	2
2620	Slag, ash and residues containing metals	-0.4	1.5	0.1	6	1
7001	Cullet and other scraps of glass	-0.1	1.5	0.1	7	3
7112	Scrap of precious metal	-0.4	14.3	0.0	6	2
	Textiles and furniture					
5805	Hand-woven tapestries	-0.7	0.0	0.0	8	3
5208	Woven fabrics of cotton of > 85% weighing < 200 g/m ²	-1.3	9.5	104.0	14	1
5201	Raw cotton	-2.4	9.2	1.4	12	1
5202	Cotton waste	-1.9	0.2	0.0	3	1
5305	Vegetable textile fibers	-2.1	0.0	0.6	12	0
5204	Cotton sewing thread	-0.8	0.1	0.3	5	0
6115	Socks, stockings, etc., knit	-0.9	0.0	5.7	5	0
8908	Floating structures for scrapping	-0.7	1.1	0.0	7	2
8609	Containers for multimodal transportation	-0.8	3.4	8.2	6	1

Recommendations: Foster all subsectors listed in Tables 6 and 7.

III. Conclusions

The prospects for Ghana's manufacturing growth are affected by two factors. First, the growth of output and exports in the country have been led by natural resources with all the well-known adverse effects on the tradable sectors such as manufacturing. Second, given its currently small share of 11 percent of GDP in the economy, the sector cannot be expected to either leapfrog into new modern manufacturing activities, or scale up or become an export growth engine in the short term. Yet the case for output and export diversification, especially into manufacturing, has never been greater given the need to generate jobs for young people entering the work force each year. Moreover, Ghana's natural resources are exhaustible and are subject to price volatility in the international markets.

But growing the manufacturing sector in Ghana will require more than sectoral policies: it would require economy-wide measures to reduce the effects of the Dutch disease caused by development of natural resources. For instance, the system of export incentives such as the exchange rate, effective protection, etc. needs to be reviewed to reduce the anti-export bias in the labour-intensive manufacturing sectors.

As far as sectoral policies are concerned, our case for export diversification rests firmly in evidence of comparative advantage and is based on the framework introduced in Section II, as well as by the Product Space. For the short to medium term, we recommend the following manufacturing subsectors:

- Continue to foster growth in all the Classics as they are crucial for the manufactured exports sector.
- The vegetable/food subsectors have remained a strong pillar for growth in Ghana. Policies should focus on removing constraints to get more value-addition/processing in the food sector which is an important source of better-paying jobs in rural areas as well as diversification in manufacturing. Examples are cocoa paste and powder and prepared fish.
- Adopt a twin-forked strategy that focuses on (i) diversification from Metals into other light manufacturing subsectors, and (ii) innovation to propel the production of more sophisticated products within all the Classics. In the medium term, this should increase the shares of the higher products even within the Classics export sectors.
- Explore why exports of more sophisticated Classics such as Musical instruments which have a higher PCI have not gained a larger market share. Ghana has been exporting them with a consistent comparative advantage since the 1990s. Policies should focus on removing the constraints to these subsectors as they create better paying jobs and can foster diversification in the manufacturing subsector.
- Foster diversification in the Emerging champions in the agro-business subsector along Table 4 above, especially vegetable fat and oil and metal products.

- Policy makers should try to understand the reasons underlying the Disappearing subsectors – why did they flourish in the past and what prompted their disappearance in recent years? Are there policy mistakes they can avoid?
- Policymakers should also investigate why certain *sophisticated* products such as mattresses and bedding and walking sticks in which Ghana enjoyed a comparative advantage in the 1990s have declined.
- Facilitate the emergence of select import-competing or substitution subsectors in both traditional and non-traditional subsectors. They are listed in tables 6 and 7 and include modern manufacturing subsectors. Given its limited manufacturing experience, it is less-risky to facilitate import-substitution in traditional or nascent manufacturing subsectors where there is *already ongoing* production than jumpstarting brand new subsectors. In Table 6 for example, nearly all the subsectors identified as potential import-competing subsectors are in the agro-business subsectors.
- Table 7 identifies potential import-competing subsectors which offer a direct path to diversification in non-traditional and more sophisticated, yet close to the existing capabilities, subsectors. The textiles and furniture subsectors remain a promising area for import competing production. So are the metal products. These subsectors have strong forward and backward linkages with other sectors in the economy and are potential to seed modern manufacturing value chains.