



# Export Efficiency and Diversification in Ghana

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## Abstract

Ghana needs to expand its export base to generate sufficient foreign exchange earnings for economic transformation. There is, therefore, a need to examine the efficiency of the existing export basket and explore new products to add to it. This study employs the stochastic frontier gravity model to investigate the efficiency of bilateral exports of Ghana using a panel of 44 export destination countries for the period 2000 to 2018. In addition, a product space analysis is carried out to ascertain which other products Ghana must diversify into in order to engender the transformation required for the attainment of Sustainable

Development Goal 8. As a third objective, the study investigates the extent to which Ghana can leverage the African continental free trade area for its diversification agenda. The study finds that Ghana's bilateral export trade is inefficient, implying huge potential exists. It further reveals that Ghana's economic complexity is low leading to the production and export of primary commodities. Moreover, the African continental free trade area offers an opportunity for Ghana to crystalize its export diversification drive. It is recommended that Ghana takes advantage of its membership of trade blocs to negotiate access to foreign markets, improve on logistics, enhance macroeconomic stability, step-up vocational and technical education, and increase investment in land and reliable, cheap electricity to grow its exports.

## Introduction

Exports have become one of the channels through which most countries have integrated into the international market. Along with providing direct employment, income and foreign exchange for the exporting countries, exports allow countries to ameliorate the impact of the developmental challenge of small domestic markets on productivity by exposing these countries to the global market with huge economies of scale, increased capacity utilization, transfer of technology, managerial skills, productivity gains and greater product variety. Thus, harnessing export potential could offer countries the opportunity to attain Sustainable Development Goal (SDG) 8; economic growth and decent jobs (International Trade Centre, 2018). The downsides of openness, however, are that countries become vulnerable to external shocks and suffer terms of trade shocks with adverse implications for macroeconomic targets and economic growth (UNCTAD, 2012; Cavalcanti et al., 2011).

With the support of the IMF and the World Bank, Ghana carried out economic reforms in the early 1980s. Pivotal to the economic reforms was trade liberalization and tariff reforms. The trade and tariff reforms took the form of gradual removal of quantitative restrictions and reduction of the level and range of tariffs. In addition, the exchange rate was transformed from a fixed regime through auction to the current managed-floating regime. Furthermore, diversification of the export base was vigorously pursued with the introduction of a wide range of non-traditional exports. International competitiveness improved as a result, and exporters of non-traditional exports took advantage of it by expanding exports (Jebuni et al., 1992).

In addition to having one of the most liberalized economies in Africa (ECA, 2004), Ghana has also signed the interim Economic Partnership Agreement (iEPA) with the EU and the African, Caribbean and Pacific (ACP) countries, as well as the African Continental Free Trade Area (AfCFTA) agreement. Ghana is also a member

of the Economic Community of West African States (ECOWAS) and the West African Monetary Zone (WAMZ). This illustrates Ghana's subscription to regional and multilateral trade agreements. The AfCFTA, the most recent trade agreement in Africa, has a potential market of 1.2 billion people, and a cumulative GDP of more than US\$3.4 trillion. It is projected to lead to increased growth of 52% in intra-Africa trade from 2020 to 2022 (Cazares, 2018). It would be interesting to find out how these trade blocs, especially the AfCFTA, affect export growth and the products for export diversification in Ghana.

Despite all these developments, Ghana has not made much progress with exports over the years. In fact, Ghana's export intensity has decreased continuously from 2013 as captured in Table 1. The trade balance has been in deficit over the years, except for 2017 and 2018 as shown in Table 1. Moreover, Ghana was unable to meet the US\$5 billion target set for non-traditional export earnings in the 2012 National Export Strategy Programme (Ministry of Trade and Industry, 2012). Available evidence shows that earnings from non-traditional exports increased from US\$2.44 billion in 2013 to US\$2.8 billion in 2020. The new National Export Development Strategy, which is set to run from 2020 to 2029 is envisaged to raise non-traditional export earnings to US\$25.3 billion in 2029 (GEPA, 2020). It is evident that the old export structure dominated by primary commodities is not sustainable. Ghana needs scalable export transformation to promote sustainable growth, but the question is how must this be approached? That is, must Ghana continue with the diversification taking place within the old export structure, that is, adding value to existing raw materials or primary products, or should entirely new products (and markets) be found?

**Table 1: Trends in merchandise exports and imports for Ghana, 2010–2018 (US\$ million)**

Year	Merchandise exports	Merchandise imports	Trade balance	Export/GDP (%)
2010	7977.29	10769.79	-2792.50	34.2
2011	12772.73	15837.74	-3065.01	43.7
2012	13552.34	17752.46	-4200.11	44.7
2013	13751.92	17600.37	-3848.43	39.8
2014	13216.77	14600.20	-1383.43	34.3
2015	10321.32	13465.16	-3143.82	28.0
2016	11138.37	12920.10	-1781.77	25.8
2017	13835.01	12647.36	1187.65	23.5
2018	14942.71	13134.06	1808.65	22.8

Source: Author's computation using data from Bank of Ghana, 2021.

It is an established fact that export growth emanates from expansion in the existing export basket (Helpman et al., 2008; Besedes and Prusa, 2007) as well as the introduction of new export products (Hummels and Klenow, 2005; Amurgo-Pacheco

and Pierola, 2008). Unravelling the mystery surrounding Ghana's poor export performance requires taking a critical look at the efficiency of the existing export structure and scouting for new products to augment the export basket. Export efficiency refers to how much of the export potential of a country is being exploited (Deluna and Cruz, 2013) while export diversification involves either exporting new products to existing markets or new markets, or an existing product to a new destination (Amurgo-Pacheco and Pierola, 2008). To this study, export diversification encompasses identifying and exporting new products, with high potential for transforming an economy, to the same or new markets.

To the best of the knowledge of the author, no country-specific study has been done for Ghana. Related export efficiency studies identified include Kumah (2017) and Adam and Tweneboah (2009), while Chandra and Osorio-Rodarte (2007) carried out a product space analysis (PSA) for Ghana. Kumah (2017) studied the level of trade integration in the WAMZ zone. The author employed the Stochastic Frontier Gravity Model (SFGM) to investigate the export efficiencies of the member countries of WAMZ, which included Ghana. In the case of Adam and Tweneboah (2009), the authors employed the traditional gravity model to predict the trade potential of Ghana's trading partners. Chandra and Osorio-Rodarte (2007) carried out a PSA for Ghana and identified agro-processing as short to medium term, and wood and metal manufacturing as long-term diversification strategies.

The difference between these studies and the current study is that the current study utilizes current datasets to estimate the efficiency of the bilateral exports of 44 major export destination countries for the period 2000–2018 and explores new export products that Ghana can diversify into using the SFGM and the PSA, respectively. It is worth noting that the SFGM is more efficient than a traditional gravity model because it addresses internal and external frictions to export, and the product space analysis gives an indication of the potential of new products a country can add to its export basket given the current export structure. This study filled the gap in the empirical literature by answering the following research questions: First, what is the level of efficiency of Ghana's bilateral exports? Second, what new products must Ghana diversify towards? Third, what role can the AfCFTA play in Ghana's export diversification drive? The uniqueness of this study lies in the fact that it is the first to combine export efficiency with an actual determination of products for diversification for Ghana.

## Data sources

The data for the export efficiency are a balanced panel of 44 countries Ghana traded with, for the period 2000–2018. Data availability informed the choice of the study period. Yearly disaggregated bilateral exports were used to avoid the

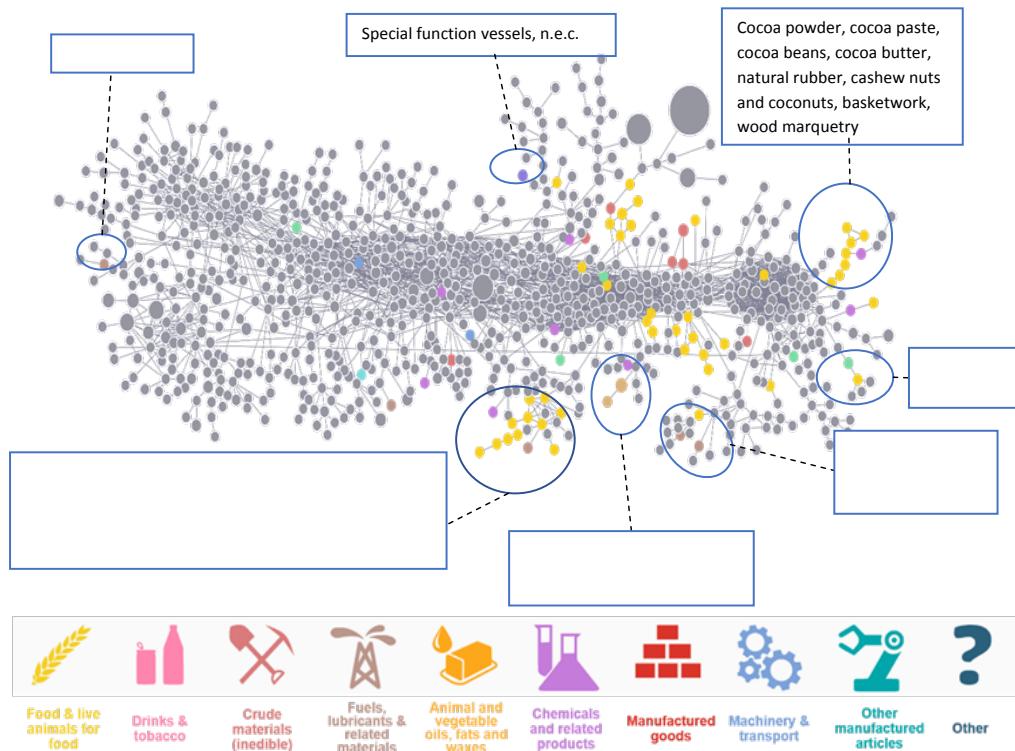
problem of aggregation that earlier studies faced for using aggregate export data. The data on disaggregated bilateral exports of Ghana to trading partners based on the international standard industrial classification and ad valorem tariff rates were sourced from the World Integrated Trade Solution (WITS), while data on Ghana's GDP, GDP of the trading partners and population of the trading countries of the trading partners and inflation rate were obtained from the World Development Indicators database of the World Bank. Also, the data on distance, common language, colonial links, and being landlocked were sourced from Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). Data on economic freedom were obtained from the Heritage Foundation database (2020). Finally, data on logistics performance index were collected from the World Bank's Logistics Performance Index database.

For the product space analysis, an unbalanced world dataset of yearly disaggregated exports and imports as well as measures of the economic complexity index (ECI), product complexity index (PCI), revealed comparative advantage (RCA), distance, and opportunity gain at the Harmonized System (HS) 4-digit classification level for 1,240 products for the periods 2000 and 2018 were sourced from the MIT Observatory of Economic Complexity and the Harvard Atlas of Economic Complexity websites.

## Product space analysis

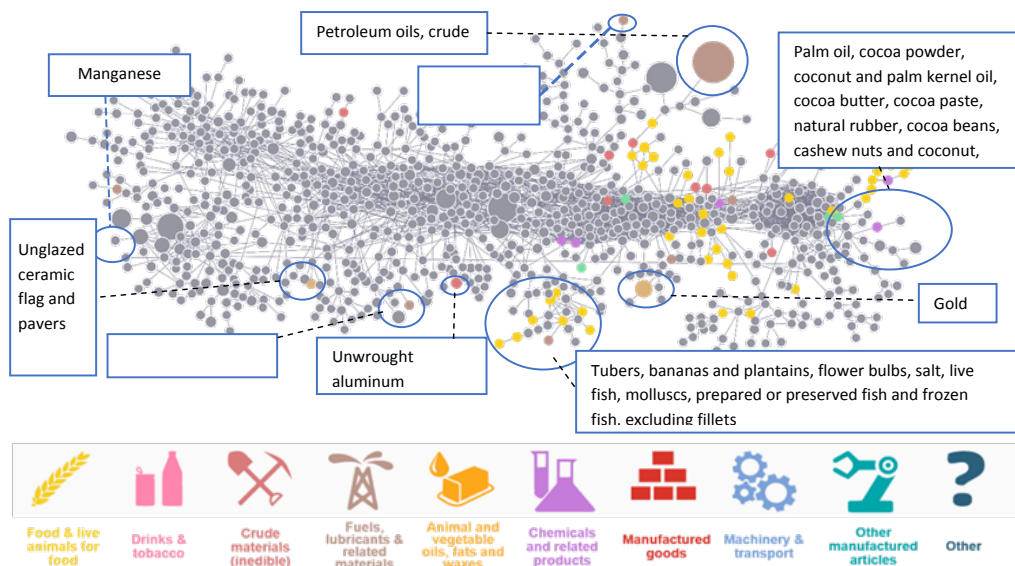
In this section, the evolution of Ghana's exports in the past decade is explored. Also discussed is the products Ghana should diversify towards, leveraging the AfCFTA. Using the product space visualization tool, the products Ghana exported in 2000 and 2018 are captured in Figures 1 and 2. The product space shows the connectedness of export products, with the most sophisticated and high know-how-required products situated at the centre and closely related to other products. Products located at the fringes are less sophisticated and less connected. The more products that are located at the centre and are well connected, the higher the level of economic complexity of the country. A critical examination of Figures 1 and 2, with the aid of the legend beneath each of them, shows that Ghana's export products (highlighted) are situated at the fringes and that they are less connected. The implication is that the level of economic complexity is very low. In fact, Ghana was ranked 110th complex country out of 133 countries in 2017 (Atlas of economic complexity, 2017).

**Figure 1: Product space of Ghana,2000**



Source: Atlas of economic complexity, 2019.

**Figure 2: Product space of Ghana, 2018**



Source: Atlas of economic complexity, 2019.

The level of complexity of an economy has implications for the products it produces. For Ghana, the detailed specific products exported in 2000 and 2018 are shown in Table 2. The products are arrived at by considering only products with a revealed comparative advantage greater than one ( $RCA > 1$ ). RCA is the share of a particular product in the total exports of a country relative to the world.  $RCA > 1$  means that the product is important as far as the export basket of the country is concerned. It is important to note that the number of products with  $RCA > 1$  exported by Ghana increased from 75 in 2000 to 93 in 2018. The value increased from about US\$2.1 billion in 2000 to US\$14.3 billion in 2018. This suggests that Ghana managed to double its share of global trade in value terms over the past ten years. However, this was achieved on the back of increased export concentration exposing the country to potential vulnerabilities from changes in the world prices of these few products.

## Conclusions and policy recommendations

Ghana's export promotion strategy has not led to much growth in exports. Information available on the website of the Atlas of Economic Complexity (2018) indicates that since 2003, only 10 products have been added to Ghana's exports basket, which contributed \$129 to per capita income in 2018. There is the need, now, to diversify exports to generate more export revenue for economic transformation. Meeting this objective requires an appreciation of the performance of existing export products and what new products to introduce. This study, therefore, employed the stochastic frontier gravity model to investigate the efficiency of bilateral exports of Ghana using a panel of 44 of its export destination countries for the period 2000 to 2018. In addition, a product space analysis was carried out to ascertain which products Ghana must diversify towards to engender the transformation required for the attainment of Sustainable Development Goal 8. As a third objective, the study investigated the extent to which Ghana can leverage the African continental free trade area for its diversification agenda. The study concludes that Ghana's bilateral export trade is inefficient, implying that huge potential exists for Ghana to further expand exports. It further reveals that Ghana's economic complexity is low, leading to the production and export of primary commodities. Moreover, the African continental free trade area offers an opportunity for Ghana to crystalize its export diversification drive. In conclusion, the promotion of Ghana's export growth requires enhancing the efficiency of existing products as well as discovering new ones.

The following policy recommendations are drawn from the findings of the study. With respect to improving the efficiency of existing exports, Ghana's Ministry of Trade should continue to sustain Ghana's interest in trade blocs and strengthen negotiations to remove barriers to trade flows and thereby increase Ghana's exports to partner countries. In addition to negotiating tariff reductions, the Minister of Trade must pay specific attention to the time-consuming and inefficient border procedures, multiple border crossings for goods to enter landlocked countries, and the construction of cross-country road, air, and rail infrastructure. There is also the need for Ghana to, among other things, improve the performance of its trade logistics such as trade infrastructure, reduce the documentation and time spent at the border, enhance digitization of trade and shipment, and to ensure an improvement in efficiency. Sustaining macroeconomic stability, the central bank will contribute to the competitiveness of exports to ensure efficiency in the existing export markets. Equally essential is for the country to improve on its economic freedom, which includes upholding property rights, an efficient legal system and liberalization of trade.

The product space analysis shows that Ghana has low economic complexity and therefore mostly agro-processing and light manufacturing activities such as textiles, pharmaceutical products, simple machinery, and construction materials were identified for the private sector of Ghana to diversify towards by leveraging the AfCFTA. In addition to the above recommendations, the successful production of these products will require the development of required human capital with the necessary skills to produce the products. In this respect, the country's vocational and technical educational institutions need to be well resourced by the Ministry of Education to produce the mid-level manpower, much needed to produce these products. Existing firms must also be encouraged to increase their research and development expenditure to produce these products. Government must encourage this through granting tax incentives and subsidies to both deserving domestic and foreign firms. Other constraints to investment in the country such as acquisition of land, regular and reliable supply of electricity and raw materials require attention for these products to be produced competitively. In this respect, Government will need to acquire land to lease to genuine investors. Also, regular, and reliable cheap electricity must be produced using gas produced from the country's oil fields, and a constant and adequate supply of raw materials must be made available through strengthening the agriculture system from one dependent on rainfall and practiced for only a few months of the year to a year-round activity.



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