



DRUSSA
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in Sub-Saharan Africa



POLICY BRIEF

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Determinants of Ghana's Bilateral Trade Flows

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Summary

This policy brief examines the factors that influence the pattern of Ghana's bilateral exports and imports and implications for trade policy in Ghana. Exploiting data from nine destinations of Ghana's exports and ten origins of her imports spanning the period between 1960 and 2014 within the gravity model framework, results show that GDP and population of trading partners, Ghana's GDP and trading partner's openness to trade have a positive impact on Ghana's exports. Distance expectedly had a negative impact on the direction of Ghana's exports. On the converse, Ghana's GDP, trading partner's GDP and population positively affect the level of imports to Ghana. The implications of the results are that: (1) strengthening of regional trade agreements could be beneficial since trade costs will be reduced significantly; (2) inflation should be stabilized so that nominal depreciation could improve the competitiveness of Ghana's exports in the world market.

Introduction

Ghana has signed bilateral agreements with a number of countries with the objective of taking advantage of opportunities offered in key strategic markets, fostering business cooperation and technology transfer and encouraging foreign direct investment. The aim of this policy brief is to identify economic forces behind bilateral trade flows of Ghana. In particular, the policy brief attempts to estimate the effect of potential determining factors on Ghana's exports to and imports from specific destinations. This information is vital for trade policy, particularly in negotiations and signing bilateral trade agreements. Export promotion policies and strategies and their corresponding import substitution policies and strategies must be firmly based on research evidence.

Ghana's Bilateral Trade Flows - Some Stylized Facts

Some important stylized facts about Ghana's external trade with special emphasis on bilateral trade flows with her major trading partners are discussed here. Figures 1a and 1b depict trends in Ghana's trade flows between 1960 and 2014. Four distinct episodes from the trends have been identified:

- Phase 1 - Seemingly balance of trade which ended in 1972;
- Phase 2 - Relatively volatile (1973 – 1991);
- Phase 3 - Early deteriorating (1992 – 2004); and
- Phase 4 - Worsening trade balance (2005 – 2014).

During the first decade after Ghana became a Republic, Ghana's exports and imports were about the same, albeit imports were slightly higher than exports. During this period, total exports and imports averaged US\$ 327.6 million and US\$352.3 million respectively, thus creating a little over US\$24 million trade deficit. This was the period when Ghana embarked on massive industrialization and development; and consequently created a number of import substitution industries. It was also the period when the Ghana Export Promotion Council (GEPC) was established whose main objective was to ensure that export trade played a role in aiding the economic growth and development process of Ghana.

The subsequent decade (1971 – 1980) witnessed an enormous improvement in both exports and imports, with growth in the former surpassing the latter. Within this period, exports averaged US\$790.7 million and imports US\$707.1 million which represents a

Exchange rate: Bilateral exchange rate movements also affect the flow of Ghana's bilateral imports. However, contrary to the expectation that nominal depreciation of the cedi against the currency of partner country leads to a decrease in imports from that market, a positive and statistically significant relationship between nominal bilateral exchange rate and imports of Ghana is found. This implies that a percent depreciation of the Ghana cedi relative to the currency of trading partner will lead to a 0.18 percent rise in imports from the market whose currency appreciated. Again, this result is inconsistent with theoretical expectation. The incorrect sign on the coefficient on bilateral exchange rate may be the results of higher relative price which has the potential of causing real appreciation in the presence of nominal depreciation.

Conclusion and Policy Recommendations

It can be concluded that GDP and population of trading partners, Ghana's GDP and trading partner's openness to trade showed a positive impact on Ghana's exports. Distance expectedly had a negative impact on the direction of Ghana's exports. It was also found that, Ghana exports more to countries that officially speak the English language. Quite surprisingly, bilateral exchange rate hindered the flow of exports from Ghana to its trading partners. Higher domestic inflation relative to those of trading partners might have eroded the potential boost that nominal depreciation of the Ghana's currency could have on exports of Ghana. On the flip side, Ghana's GDP, trading partner's GDP and population positively affect the level of imports to Ghana. Distance also negatively affects the flow of Ghana's imports. Again, bilateral exchange rate has positive and statistically significant effect on the level of import flows to Ghana, contrary to intuition.

Since the countries considered in this research are mostly large relative to the size of the Ghanaian economy, the results imply that Ghana should take the initiative to increase its trade with larger economies. Another revealing implication of the results is that nominal depreciation and appreciation will be able to drive trade flows in the expected direction if and only if domestic inflation is kept low and stable, so that nominal depreciation can lead to improvement in export competitiveness.

References

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Exchange rate: Another important factor that affects the occurrence of trade is bilateral real exchange rate. Contrary to theoretical expectations that nominal depreciation of Ghana's currency will cause her exports to increase, the empirical results points otherwise. From the estimated results, one percent depreciation of the Ghana cedi causes exports to fall by 0.71 percent. This coefficient is statistically significant at 1% error level. A possible reason could be that the gains from nominal depreciation is more than offset by higher domestic inflation relative to trading partner prices, leading to over-valued exchange rate regime and real appreciation under flexible exchange rate regime.

Geographical distance: Geographical distance has been found to be an important determinant of Ghana's bilateral trade flows. Geographical distance significantly reduces trade flows between Ghana and her trading partners. The regression analyses indicate that difference in distance of one percentage point reduces trade by approximately 1.03 percent. This suggests that Ghana trades less with countries that are far away, holding other factors constant.

Colonial link: Colonial links also has a significant influence on the direction of Ghana's bilateral exports. The regression analyses revealed that Ghana's exports to its colonial master is high compared with the remaining countries. This is consistent with the results from Figure 1 which indicates that UK has been the largest destination market for Ghana's exports within the period under investigation.

Determinants of Ghana's Bilateral Imports

From the regression analyses, the following emerged as some of the key factors that influence the flow of Ghana's bilateral imports.

GDP of Ghana (importing country): The statistical analyses identified the GDP of Ghana as important determinant of her imports. Specifically, a positive and statistically significant relationship between Ghana's imports and the size of its GDP was found. On the basis of the estimations, an increase in Ghana's GDP by a percentage point causes her imports to increase by 1.33 percent, all things being equal.

GDP of trading partner (exporting country): Consistent with general expectations, the GDP of the trading partner significantly affect Ghana's choice of the market for her imports. There is a strong evidence of a positive relationship between Ghana's imports and the GDP of Ghana. For instance, the estimations revealed that a percentage point increase in trading partner's GDP causes Ghana's import from that country to increase by about 1.02%, all things being equal.

Population of trading partner: Trading partner population also emerged from the analysis as one of the important determinants of Ghana's bilateral imports. According to the estimations performed, there is a positive and statistically significant relationship between the bilateral imports of Ghana and population of the exporting country. On the basis of these estimations, an increase in exporting countries population by one percent leads to approximately 5.72% increase in Ghana's imports from the country in question. This implies that country size, either measured by GDP or population of trading partner has significant influence on the choice of origin of Ghana's imports.

141.4 percent average decadal growth in the former and 100.7 percent in the latter. This achievement swept up the average trade balance to US\$83.7 million. The period when Ghana experienced economic turmoil also saw both exports and imports plummeting before picking up again after 1984. This decade experienced fluctuating rates in exports and imports, albeit trade generally was plunged into series of deficits (see Figure 1a). This phase in sum was characterised by significant fluctuation in both exports and imports.

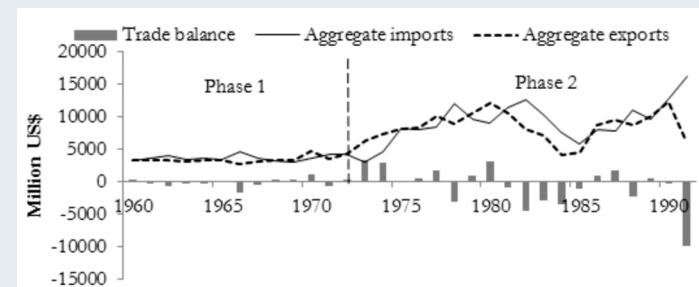


Figure 1a: Exports, Imports and Trade Balance in Ghana (1960 - 1991)

Figure 1b presents the trends in the same series from 1992 to 2014. An obvious trend is observed within this period as both series increased consistently, albeit with mild fluctuations. Phase three was mainly characterised by slow rising rates in exports and imports. However, trade has consistently been unfavourable as the gap between imports and exports keep widening which constituted the last phase. Essentially, Ghana's dependence on imported goods in recent years has increased. For the entire period under consideration (1960 – 2014), and on per annum basis, exports grew by approximately 9.6 percent whereas imports grew by 11.2 percent

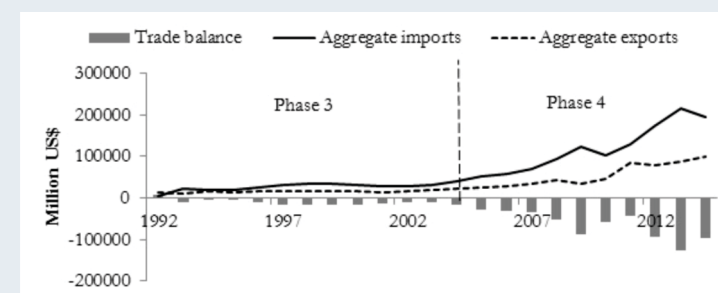


Figure 1b: Exports, Imports and Trade Balance in Ghana (1992 - 2014)

In terms of directions of Ghana's trade, most have been highly concentrated amongst some few major trading partners. For the past fifteen years, Ghana's export destinations have mainly been France, Italy, Netherlands, United Kingdom and the United States of America. On the converse, Ghana's imports have mainly come from China, Netherlands, Nigeria, India, United Kingdom and the USA. Due to the recent expansion of the Chinese market, Ghana's imports from that market soared surpassing the

volumes imported from the other markets. Also, Nigeria's contribution to Ghana's imports has been significant over the years and has remained an important trading partner. Though the countries presented in Table 1 are the major trading partners, the other export destination markets absorb a significant proportion of Ghana's aggregate exports. Likewise, a significant share of Ghana's imports comes from other countries apart from the major countries (see Table 2).

Table 1: Shares (%) in Ghana's exports by major trading partners, 2000 – 2014

	2000	2005	2008	2010	2011	2012	2013	2014
France	4.4	5.5	5.5	5.8	18.9	13.5	11.5	9.0
Iran	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1
Italy	4.8	3.6	1.9	1.7	8.0	12.3	8.9	6.5
Netherlands	16.8	12.2	13.0	11.8	10.2	8.8	7.3	7.3
South Africa	0.2	0.5	0.4	0.2	0.2	2.8	7.6	6.2
Switzerland	1.2	1.4	1.5	2.2	1.2	1.0	0.8	0.7
UAE	0.0	0.7	0.8	0.8	0.5	0.6	0.6	0.5
UK	9.3	9.6	7.7	7.1	4.7	3.8	4.1	3.8
USA	13.8	6.5	5.0	5.7	8.5	3.5	4.0	2.5
Other	49.6	60.0	64.2	64.5	47.9	53.5	55.1	63.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculation from Direction of Trade Statistics

Table 2: Shares (%) in Ghana's imports from major trading partners, 2000 – 2014

	2000	2005	2008	2010	2011	2012	2013	2014
China	3.6	14.2	20.1	20.7	26.5	30.2	20.3	23.3
Germany	4.3	3.7	3.3	2.8	3.1	2.6	2.0	1.9
India	2.0	4.1	6.5	5.5	7.4	4.7	4.4	3.8
Korea	1.8	1.9	2.3	2.3	2.8	1.8	1.8	1.2
Netherlands	4.2	4.5	4.5	4.6	6.7	7.3	5.9	7.5
Nigeria	8.9	17.2	18.9	15.9	16.1	13.0	10.7	12.0
Singapore	0.5	0.8	0.8	0.7	0.6	5.3	0.5	0.4
South Africa	3.3	5.1	4.5	4.6	3.6	3.1	2.2	1.8
UK	8.6	5.8	5.6	5.6	5.4	4.9	2.9	2.9
USA	8.6	5.8	5.6	5.6	5.4	4.9	2.9	2.9
Others	54.4	36.8	28.0	31.8	22.4	22.2	46.5	42.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculation from Direction of Trade Statistics

Preliminary Analyses

Figures 2 and 3 show the preliminary plots of the logarithm of exports (imports) against other variables used in the regression analysis. The plots are intended to provide a first-hand impression about the association between exports (imports) and its determining factors. From Figure 2, the relationship between exports and distance is not very clear as the fitted line seems relatively flat. However, in Figure 3 distance seems to be negatively correlated with imports. The other variables are all positively associated with bilateral exports (imports) as indicated in Figures 2 and 3. However, the causality between exports (imports) and these variables has been established in the next section

more firmly using standard econometric methods.

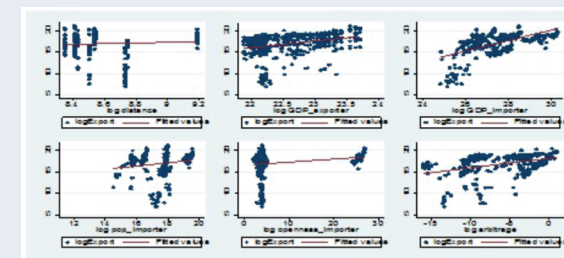


Fig 2: Fitted plots of log Exports against its determinants

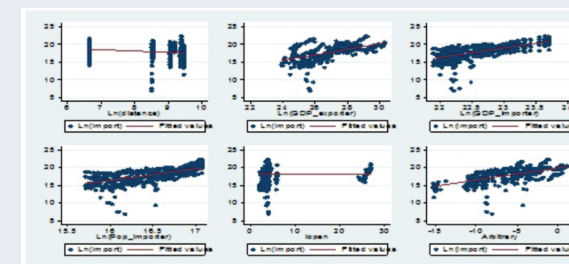


Fig 3: Fitted plots of log Imports against its determinants

Determinants of Ghana's Bilateral Exports

There are some key variables that influence the behaviour of bilateral exports of Ghana as shown below.

GDP of Ghana: The regression analyses revealed that the size of Ghana's GDP is an important determinant of her exports to partner countries. According to the results, there is positive relationship between the GDP of Ghana and exports. This indicates that, Ghana's exports are highly sensitive to changes in her GDP, and thus increase in domestic production increases the propensity to export.

GDP of trading partner: There is a significant positive relationship between Ghana's exports and the GDP of her trading partner (importing country). For instance, a percentage point increase in importing country GDP causes Ghana's export to that market to increase by about 1.64 percent, all things being equal.

Population of trading partner: The analyses conducted in this policy brief revealed that there is a significant positive relationship between Ghana's exports and the population of the importing country. Thus, Ghana exports more to countries with larger populations relative to countries with smaller population. For instance, an increase in the population of a trading partner by one percentage point causes Ghana's exports to this country to increase by 2.36 percent, holding other factors constant. The implication here is that it is beneficial to establish trade ties with larger countries. This finding then suggests potential gain, in terms of export growth, from the Economic Partnership Agreement (EPA) with the EU, on the basis of the fact that the EU has a larger population.