Research on the Impact of International Trade on Human Development of Ghana

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Abstract:

Trade and globalization are vital means of economic development for any country, and they have played a major part in Ghana's and the African continent's development (World Bank 2015). However, simple trade openness does not guarantee a country's human development. Even a substantially enhanced and liberalized total trade cannot guarantee economic growth, and the positive impact of trade on growth is strongly reliant on the economic structure, institutions, and other social elements of a country. Economic growth, on the other hand, is a necessary but insufficient prerequisite for human progress. Instead of producing jobs, poverty reduction, participatory, culturally protected, and eco-friendly growth, it might be unemployed, cruel, voiceless, rootless, and futureless. This type of expansion is harmful to human development (Akmal *et al.* 2007). The motivation for evaluating the triangulation of trade, economic growth, and human development is the contribution of trade liberalization to economic growth and the contribution of economic growth to human development, with the study focusing on the trade-human development relationship as the third side of the triangle. Furthermore, the impact of international trade on human development in Ghana will be investigated in this study.

Keywords: international trade; free trade; welfare; human development; international trade; HDI; cointegration.

JEL Classification: F19; O15; P46.

Introduction

Trade and human development are entwined. Trade can perform a crucial role in delivering better livings, welfare and in opening societies to socioeconomic and political change. However, the relationships between trade and human development are not involuntary; they are multifaceted and obscure (UNDP 2011). A prior study has suggested that trade and human development have a complicated relationship (Adeyemi *et al.* 2009).

Ghana is classified to have a medium level of human development. According to the UNDP Report 2019, the country's HDI score for 2018 was 0.596, placing the country 142 out of 189 countries. Ghana's HDI rating improved by 31.1% from 0.455 to 0.596 between 1990 and 2018. Table 1 and Figure 1, document the movement in Ghana's HDI scores on time series data. Figure 1 tries to depict the trend of HDI and total trade as a percentage of GDP. There is an interesting movement between HDI and trade as a percentage of GDP but the import is not to predict the relationship between HDI and trade but rather the effect of trade on HDI.

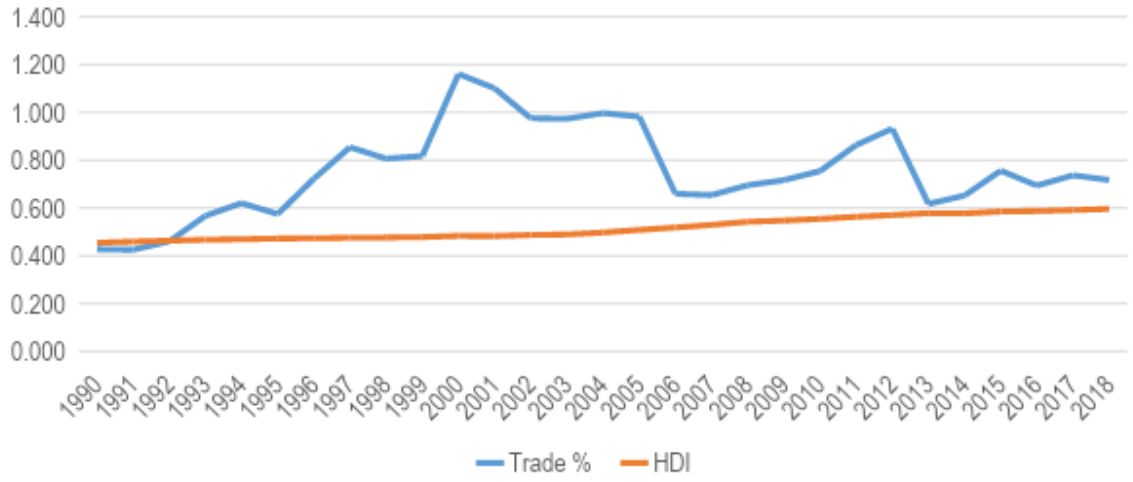
Human progress can be aided by trade, but it can also be hampered by it. There is a two-way causal relationship between trade and human progress, and vice versa (United Nations Development Programme 2006). Many studies have used cross-country or panel data to analyze the impact of international trade on human development. Only a few time-series studies have been done on the subject. Specifically, Ghana has not been included in cross-country studies. Furthermore, this study will examine the impact of international trade on human development in Ghana.

Table 1. Ghana HDI Rank vs SSA vs World

HDI rank	Ghana	Sub-Saharan Africa	World
1990	0.465	0.404	0.601
2000	0.494	0.426	0.644
2010	0.565	0.501	0.699
2014	0.590	0.530	0.720
2015	0.590	0.535	0.724
2017	0.602	0.542	0.732
2018	0.606	0.544	0.734

Source: UNDP Data

Figure 1. Movement of HDI and Trade (Export and import as % of GDP) of Gha



1. Literature Review

1.1. The Concept of Trade and Human Development

Researchers have engaged in the never-ending research on the effect of trade on human development. It is evident that exchange enhances human development, but it is not clear-cut how. The literature has, over the period, described this relationship between human development and trade as multifaceted and obscure.

There has, however, been evidence of conclusions that commerce has a good impact on human growth. The following works examine for the first time the effect of “aggregate and disaggregate” trade on human development in Pakistan, using annual time series data from 1981 to 2014 (Jawaid and Waheed 2017). This long-term relationship between human development and business was examined using the co-integration test. The first results were robust, according to a sensitivity study. The relationship between international trade and human development was also investigated using causality analysis. Except for imports of consumer goods and exports of semi-manufactured goods, all variables have a strong positive link with human development, according to co-integration and ordinary most negligible square results. Overall, they concluded that commerce has a good impact on Pakistan's human development.

When Mbabazi and Johansson (2017) examined In Sub-Saharan Africa, trade impacts income, education, and life expectancy (SSA). Using a generalized method of moments (GMM) methodology in a panel data setting encompassing 38 nations over 11 years, the empirical findings show that an increase in trade is positively associated with an increase in social welfare in SSA. In the same line as trade's impact on human development, (Ali and Panhwar 2017) uses the ARDL bound testing technique to assess the effects of trade liberalization on economic growth in Pakistan from 1972 to 2015. The Human Development Index (HDI) was employed as a proxy for economic development, drawing on Sen's "capacity" concept. According to the study, trade liberalization has a considerable and favorable impact on HDI (with and without income component) in all parameters in the long run. GDP growth has a significant beneficial impact on HDI in both the short and long run, whereas inflation has only a short-term negative impact. They rejected anti-trade liberalization arguments based on empirical data in favor of both standard and broader discussions. According to the report, to attain the dream job of development as the main

macroeconomic objective in the country, policymakers need to pursue more friendly policies with "growth-enhancing" and "inflation-targeting policies". In addition, Mahmood Ali *et al.* (2018) investigated the influence of international trade on development and the impact of trade openness on economic development in Pakistan. The effect of trade liberalization was investigated using annual data on macroeconomic variables such as "per capita" income for the industrial and agricultural sectors, inflation, and "per capita GDP". They used short and long-term relationships among variables. To evaluate the causal relationship between trade openness and other variables, the Granger causality test was used. Trade openness negatively links per capita income in the industrial sector, employed labor force, and inflation in the short run. In contrast, it has a positive relationship with per capita income in the agricultural industry. In the long run, trade liberalization has a positive relationship with agricultural and industrial per capita income, employed labor force, and inflation, but an inverse relationship with per capita GDP.

From the visited literature, trade also has been cited to help in poverty reduction. Poverty reduction comes with many factors that point to human development and improved HDI for that country on text of your research paper the literature review should be a critical synthesis of previous research in the subject field. The evaluation of the literature leads logically to the research question. Who is doing what? Who has done what? Who first did it or published it? Taken from published papers, research monographs, catalogues etc. based on primary sources. Offering a, probably new, structured view of the field of study.

1.2. Two-way Causality Between Trade and Human Development

This theory offered the argument that investment in human development has a positive impact people's life and encourages incredible economic growth and commerce in Asia Pacific Human Development. This theory postulates that since there is two-way causation: from trade to human development and business, there is also a feedback cycle from human development to change, which works directly or is facilitated through the domestic policy framework. This response affects work through higher income, higher technical competence, and skills or the power of advocacy on policymakers. Conclusively, human development can also directly impact the structure of the economy, the growth rate, and finally on the trade itself.

"Human capital" is one of the essential variables in boosting output and speeding up economic growth. According to (Ali and Mahmood 2018) in their paper, Human Capital and Economic Growth Nexus Pakistan: The Role of Foreign Aid, adequate human capital stock is required for economic and human development. They are using the methodologies of Johansen co-integration and Granger causality. The long-term link between human capital, foreign aid, economic growth, and the human development index is expressed through Johansen co-conclusions. Integration The empirical findings revealed a one-way causal association between economic growth and foreign assistance, as well as a two-way causal relationship between human capital and HDI.

In addition, Chikalipah and Okafor (2019) looked into the assertions that investing in human development improves people's lives and fosters strong economic growth. They used three statistical frameworks (Gregory - Hansen Cointegration, Stock - Watson Dynamic Ordinary Least Square, and Vector Error Correction Model) to assess the two-way causation between economic growth and human development in Nigeria from 1962 to 2016. Their findings suggest the following. First, there is a long-term relationship between economic progress and human development; they are cointegrated. Second, even though the two variables have a long-term link, only economic expansion can positively impact human development, and there was no evidence of reverse causality.

The review of the literatures has shown mixed relationship between human development and trade. Some researchers have found insignificant relationship between human development and trade whilst other studies have found significant relationship between human development and trade. In this work, for the first time, a robust econometric technique will be used to establish the impact of total trade on human development.

2. Methodology

The econometric method used for the study is the ordinary least square (OLS) as the main regression method and fully modified ordinary least square (FMOLS) as the robust check method. Conversely, fully modified ordinary least square (FMOLS) estimation technique provides the optimal estimates of the cointegration equation (Phillips and Hansen 1990, An and Jeon 2006) and modifies the OLS to control the problems of serial correlation and endogeneity in the regressors (Hansen 1995, Phillips and Hansen 1990).

Upon review of relevant literature, the study derived the function below to ascertain the impact of international trade on human development:

$$HDI = f(RGDP, TRADE)$$

In the equation, human development is a function of economic growth and trade as both aggregate and disaggregate trade effects are considered in the models. However, the econometric models for the two methods (OLS and FMOLS) can be written as:

$$HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lntrade_t + \varepsilon_t \quad HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lntrade_t + \varepsilon_t \quad (1)$$

$$HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnexp_t + \varepsilon_t \quad HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnexp_t + \varepsilon_t \quad (2)$$

$$HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnimp_t + \varepsilon_t \quad HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnimp_t + \varepsilon_t \quad (3)$$

$$HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnarexp_t + \beta_3 lnfdexp_t + \beta_4 lnfuelexp_t + \beta_5 lnmnexp_t + \varepsilon_t$$
$$HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnarexp_t + \beta_3 lnfdexp_t + \beta_4 lnfuelexp_t + \beta_5 lnmnexp_t + \varepsilon_t \quad (4)$$

$$HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnarimp_t + \beta_3 lnfdimp_t + \beta_4 lnfuelimp_t + \beta_5 lnmimp_t + \varepsilon_t$$
$$HDI_t = \beta_0 + \beta_1 lnrgdp_t + \beta_2 lnarimp_t + \beta_3 lnfdimp_t + \beta_4 lnfuelimp_t + \beta_5 lnmimp_t + \varepsilon_t \quad (5)$$

where: HDI - represents human development index as a proxy to measure human development. In the past literature, the use of proxy variables like labor force employment, average years of schooling, educational attainments, the number of employed workforces with tertiary education, public expenditure on education and health, R&D expenditure, secondary school achievement test scores, and literary rates, etc were used to measure human development. However, these proxy variables cannot fully capture the notion of HD and have been questioned and criticized (see Judson 2002). So, in order to ascertain the realistic effect on human development caused by trade, a more reliable measure of human development is needed. Therefore, this study adopts the composite measure of human development known as HDI put together by the UNDP since 1990; *Lnrgdp* - represents economic growth thus real gross domestic product in value of US$ annually. Real GDP is adopted as an independent variable in this study due to the reason that the effect of trade on human development is not direct. Economic growth serves as the link between trade and human development and real GDP is the accurate measure of economic growth, see Afzal *et al.* (2009) and Jawaid and Waheed (2017).

Total trade captured as trade is a percentage of GDP is disaggregated and captured as follows: *Lnexp* - represents total export of goods and services as a percentage of GDP; *Lnimp* - represents total import of goods and services yearly as a percentage of GDP; *lnarexp/lnarimp* - represents agricultural raw material exports/imports in value of US$ yearly; *lnfdexp/lnfdimp* - represents food exports/imports in value of US$ yearly; *lnfuelexp/lnfuelimp* - represents fuel exports/imports in values of US$ yearly; *lnmnexp/lnmnimp* – represent manufactured goods exports/imports in values of US$ yearly. Moreover, ®$_0$ represents the intercept of the model, ∑represents the error term or stochastic disturbances that could occur in the model or equation, and t represents the time period from 1990 to 2018 as the sample years for the study.

3. Estimation and Results

To accomplish the research's goal of evaluating the contribution of international trade to human development in Ghana, data was gathered from the World Bank Data Repository's World Development Indicators from 1990 to 2018, resulting in a time-series analysis. However, the data must be converted and thoroughly reviewed to ensure that it is statistically appropriate for the research. In this case, unit root tests are used to ensure that the data series is stationary. The null hypothesis (H0) of the unit root test is anticipated to be rejected at a 5% significance level or below, and H1; therefore, the alternative hypothesis is expected to be accepted to designate the data as unit root free. From Table 2 test results confirmed that all variables are non-stationary at levels but stationary at first difference. Therefore, it could be inferred one or more series when combined might show a long-run correlation in all the studied models.

Table 2. Group Stationary Test Results

	LEVEL		1ST DIFFERENCE	
Method	Statistic	Prob.**	Statistic	Prob.**
Levin, Lin & Chu t*	2.24043	0.9875	-5.78873	0.0000
Im, Pesaran and Shin W-stat	-1.5418	0.0616	-10.8629	0.0000

	LEVEL		1ST DIFFERENCE	
ADF - Fisher Chi-square	54.7632	0.0008	163.307	0.0000
PP - Fisher Chi-square	100.580	0.0000	199.660	0.0000

Note: Variables: HDI, LNAREXP, LNARIMP, LNEXP, LNFDEXP, LNFDIMP, LNFUELEXP, LNFUELIMP, LNIMP, LNMNEXP, LNMNIMP, RGDP, LNTRADE

Source: Authors estimation

The next step is to apply Johansen and Juselius (1990) cointegration method to check for the long-run relationship among all the models. At this stage, two test statics were used. Trace statistics and maximum eigenvalue were used to test for cointegration. Test results could be found in Table 3. The null hypothesis cannot be rejected if the test statistic is smaller than the critical values of the trace tests. The results presented in Table 3 reveal the rejection of the null hypothesis of no cointegration in all the models at 5% significance levels. Therefore, it can be settled that there exists a long-run relationship between human development and trade in all models.

Table 3. Johansen and Juselius Cointegration Test Results

Models	Hypothesized no. of CE(s)	Trace Statistic	5% Critical Value	Max-Eigen Statistic	5% Critical Value
Model 1	None *	43.90830	35.01090	23.28676	24.25202
	At most 1 *	20.62154	18.39771	13.35534	17.14769
	At most 2 *	7.266197	3.841466	7.266197	3.841466
Model 2	None *	35.44056	35.01090	17.40273	24.25202
	At most 1	18.03783	18.39771	12.01292	17.14769
	At most 2 *	6.024912	3.841466	6.024912	3.841466
Model 3	None *	53.22602	35.01090	24.19017	24.25202
	At most 1 *	29.03586	18.39771	19.80117	17.14769
	At most 2 *	9.234681	3.841466	9.234681	3.841466
Model 4	None *	366.5652	125.6154	229.2912	46.23142
	At most 1 *	137.2740	95.75366	44.87839	40.07757
	At most 2 *	92.39556	69.81889	40.69372	33.87687
	At most 3 *	51.70184	47.85613	21.57726	27.58434
	At most 4 *	30.12458	29.79707	17.12239	21.13162
	At most 5	13.00218	15.49471	12.95392	14.26460
	At most 6	0.048265	3.841466	0.048265	3.841466
Model 5	None *	364.7810	107.3466	180.0575	43.41977
	At most 1 *	184.7235	79.34145	96.48406	37.16359
	At most 2 *	88.23948	55.24578	43.44069	30.81507
	At most 3 *	44.79880	35.01090	29.47452	24.25202
	At most 4	15.32428	18.39771	13.60830	17.14769
	At most 5	1.715976	3.841466	1.715976	3.841466

Source: Authors estimation

Based on the OLS results presented in Table 3, we can infer that Trade has both significant and negative statistical influences on HDI. The reason can be attributed to the minus trade surplus which leaves Ghana with more outflows of resources than the inflows of resources. However, EXP, IMP, FUELEXP, AREXP, and MNIMP have both positive and significant statistical influences on HDI in Ghana. ARIMP, FDEXP/IMP, FUELIMP, and MNEXP have both negative and significant effects on HDI in Ghana. FUELEXP has the highest effect on HDI this is justifiable because of the discovery of oil in commercial quantities and following the commercial production of oil in 2010 brought a big jump in the GDP growth of Ghana. AREXP has the next big coefficient on HDI this is also expected because of cocoa export that has been Ghana's big earner for decades before the discovery of oil in large quantities.

On the other hand, negative ARIMP, FDIMP and FUELIMP are expected. For ARIMP will discourage a large number of Ghanaians the sector employs, the sector employs about 60 percent of the labor force so this can have a negative effect on the income of many people that could worsen their quality of life. Also, FUEIMP is the single most determinant factor for general pricing in Ghana. An increase in fuel affects almost every price in Ghana. So, with regular price increases in fuel, it has the potential to cut down the purchasing power of people in Ghana that could affect their quality of life. However negative FDEXP and MNEXP are unexpected. The justification could be a net knock-off effect because Ghana's outflows on these items are bigger than the inflows from the export of these items.

Table 4. Long-run Determinants of Human Development

Variable	Model 1 – Prob. 0			Model 2				Model 3				Model 4				Model 5			
	Coefficient	Std. Error	t-Statistic	Coefficient	Std. Error	t-Statistic	Prob	Coefficient	Std. Error	t-Statistic	Prob	Coefficient	Std. Error	t-Statistic	Prob	Coefficient	Std. Error	t-Statistic	Prob
RGDP	0.1045	0.0018	56.8225	0.0713	0.02299	3.10003	0.0046	0.0752	0.0143	5.2531	0	0.1092	0.006	18.2337	0	0.09585	0.0041	23.5258	0
LNTRADE	-0.021	0.0033	-6.1904																
LNEXP				0.014	0.01055	1.3307	0.1948												
LNIMP								0.0132	0.007	1.87918	0.07								
LNAREXP												0.007556	0.0052	1.45785	0.158				
LNFDEXP												-0.00697	0.0043	-1.6356	0.116				
LNFUELEXP												8.95E-05	0.0009	0.10099	0.92				
LNMNEXP												-3.3E-05	0.0031	-0.0104	0.992				
LNARIMP																-0.0113	0.0034	-3.28639	0.0032
LNFDIMP																-0.0046	0.0043	-1.07266	0.2945
LNFUELIMP																-0.0031	0.0016	-1.92429	0.0668
LNMNIMP																0.00421	0.0025	1.67766	0.107
C	-1.893	0.0427	-44.35	-1.499	0.31762	-4.71971	0.0001	-1.579	0.1885	-8.37354	0	-2.08254	0.1395	-14.924	0	-1.771	0.0947	-18.6966	0
Adjusted R-squared	0.9916				0.98049				0.9817				0.9806				0.9905		
Durbin-Watson stat	0.9324				0.27607				0.2516				0.4013				0.9231		
F-statistic	1649.2				704.65				704.65				283.38				581.94		

Source: Authors estimation

3.1. Test for Robustness

For the robustness check, the sensitivity analysis has been done with the help of a fully modified ordinary least square (FMOLS). The fully modified ordinary least square (FMOLS) was developed by Phillips and Hansen (1990). The FMOLS method gives the best estimates of the cointegration equation (An and Jeon 2006). The FMOLS adjusts the OLS to regulate the problems of serial correlation and endogeneity in the regressors (Hansen 1995, Phillips and Hansen 1990). The results of the FMOLS can be found in Table 4. The results of the estimation by FMOLS reveal the coefficient in all the models has the same kind of significance. Therefore, the relationship between HDI and trade in Ghana could be resolved as robust.

Table 5. Long-run Coefficient Robust by FMOLS

Variable	Model 1 – Prob. 0			Model 2				Model 3				Model 4				Model 5			
	Coefficient	Std. Error	t-Statistic	Coefficient	Std. Error	t-Statistic	Prob	Coefficient	Std. Error	t-Statistic	Prob	Coefficient	Std. Error	t-Statistic	Prob	Coefficient	Std. Error	t-Statistic	Prob
RGDP	0.105	0.002	42.745	0.063	0.039	1.622	0.117	0.0693	0.024	2.8701	0.008	0.1095	0.009	12.266	0	0.095	0.005	19.97	0
LNTRADE	-0.023	0.005	-4.8771																
LNEXP				0.019	0.018	1.0467	0.305												
LNIMP								0.0163	0.012	1.3729	0.182								
LNAREXP												0.0077	0.008	0.99532	0.33				
LNFDEXP												-0.0072	0.007	-1.10008	0.28				
LNFUELEXP												8.8E-05	0.001	0.06703	0.95				
LNMNEXP												0.0004	0.005	0.0831	0.93				
LNARIMP																-0.01	0.004	-3.366	0
LNFDIMP																-0.01	0.005	-0.987	0.33
LNFUELIMP																-0	0.002	-1.832	0.08
LNMNIMP																0.005	0.003	1.531	0.14
C	-1.907	0.059	-32.161	-1.402	0.536	-2.6161	0.015	-1.508	0.318	-4.7408	1E-04	-2.09	0.209	-10.0146	0	-1.76	0.111	-15.83	0
Adjusted R-squared		0.991			0.98				0.982				0.979				0.989		

Source: Authors estimation

3.2. Stability Analysis

To determine the stability of the coefficient of the period under review, Hansen parameter instability test has been used. Hansen (1992) forms a test of the null hypothesis of cointegration versus the alternative of no cointegration. He indicates that in the alternative hypothesis of no cointegration, one should expect to see evidence of parameter instability. He suggests the use of the test statistic, which results from the theory of Lagrange Multiplier tests for parameter instability, to assess the stability of the parameter. The result of the Hansen parameter instability is presented in Table 6. From the results, Hansen test does not reject the null hypothesis that the series are cointegrated.

Table 6. Hansen Parameter Instability Test

Model	Lc statistic	Prob.
Model 1	0.250247	> 0.2
Model 2	0.047543	0.3053
Model 3	0.432831	0.0672
Model 4	0.740066	0.1207
Model 5	0.470271	> 0.2

Source: Authors estimation

3.3. Causality Test

To check the causal effects of the variables in the models, Granger (1969) causality test has been used. The optimal lag length selection should be an ad hoc process and it is better than any statistical method to select optimal lag length (Jones 1989). For the purpose of this study causality test was applied up to 2 lags to estimate the causal relationship between HDI and all the other variables under study. The Granger test results are reported in Table 7.

The results reveal that at lag 2 there is unidirectional causality from HDI to Trade and vice versa. On the other hand, bidirectional causality exists between FUELIMP to MNIMP, FDEXP to MNIMP, AREXP to MNIMP, FDEXP to FDIMP, and AREXP to FDIMP all the other variables can be said to have a unidirectional causality existing among each other at lag 2.

Table 7. Pairwise Granger Causality Test

Pairwise Granger Causality Tests			
Null Hypothesis:	F-Statistic	Prob.	Result
LNRGDPG does not Granger Cause HDI	0.80582	0.4595	Unidirectional
HDI does not Granger Cause LNRGDPG	0.60820	0.5532	HDI→RGDPG
LNTRADE does not Granger Cause HDI	0.37239	0.6933	Unidirectional
HDI does not Granger Cause LNTRADE	1.52461	0.2398	Trade→HDI
LNMNIMP does not Granger Cause HDI	0.00342	0.9966	Unidirectional
HDI does not Granger Cause LNMNIMP	12.4403	0.0002	HDI→MNIMP
LNMNEXP does not Granger Cause HDI	0.26938	0.7663	Unidirectional
HDI does not Granger Cause LNMNEXP	1.32085	0.2873	HDI→MNEXP
LNIMP does not Granger Cause HDI	2.07302	0.1497	Unidirectional
HDI does not Granger Cause LNIMP	0.20175	0.8188	IMP→HDI
LNFUELIMP does not Granger Cause HDI	0.04874	0.9525	Unidirectional
HDI does not Granger Cause LNFUELIMP	15.3265	7.00E-05	HDI→FUELIMP
LNFUELEXP does not Granger Cause HDI	7.46706	0.0033	Unidirectional
HDI does not Granger Cause LNFUELEXP	2.76847	0.0846	FUELEXP→HDI
LNFDIMP does not Granger Cause HDI	0.29568	0.7469	Unidirectional
HDI does not Granger Cause LNFDIMP	2.60508	0.0965	HDI→FDIMP
LNFDEXP does not Granger Cause HDI	0.05906	0.9428	Unidirectional
HDI does not Granger Cause LNFDEXP	7.31330	0.0037	HDI→FDEXP
LNEXP does not Granger Cause HDI	1.14246	0.3372	Unidirectional
HDI does not Granger Cause LNEXP	1.97578	0.1625	HDI→EXP
LNARIMP does not Granger Cause HDI	0.15590	0.8566	Unidirectional
HDI does not Granger Cause LNARIMP	1.17251	0.3282	HDI→ARIMP
LNAREXP does not Granger Cause HDI	0.16994	0.8448	Unidirectional

Pairwise Granger Causality Tests			
Null Hypothesis:	F-Statistic	Prob.	Result
HDI does not Granger Cause LNAREXP	20.1833	1.00E-05	HDI→AREXP
LNMNIMP does not Granger Cause LNTRADE	0.31653	0.7319	Unidirectional
LNTRADE does not Granger Cause LNMNIMP	5.04757	0.0157	TRADE→MNIMP

Note: Granger test was performed at 2 lag lengths
Source: Authors estimation

Conclusion

From 1990 to 2018, this research looked at the impact of international trade (aggregate and disaggregate) on human development in Ghana. The study considered a five model where human development is studied against 1) trade in total 2) exports 3) imports 4) export of raw agricultural products, food, fuel and manufactured goods 5) import of raw agricultural products, food, fuel, and manufactured goods. Empirical research was conducted using the cointegration and ordinary least square (OLS) techniques, and it was found that total trade has a significant but negative relationship with human development, same time ARIMP, FDEXP/IMP, FUELIMP, and MNEXP also have a negative relationship to human development in Ghana. All other variables have a significant positive relationship with human development. For the robustness check, the sensitivity analysis has been done with the help of a fully modified ordinary least square (FMOLS) which came out that the relationship between HDI and trade in Ghana is robust. Hansen parameter instability analysis revealed that the series are cointegrated. Finally, Granger causality tests indicate unidirectional and bidirectional an optimal lag length of two.

Generally, we can conclude that trade has a positive impact on human development in Ghana. The highlight from this study is on the export of agricultural product which Ghana has an advantage, fuel export and serious look should be given to import of fuel as well. The study has also shown that Ghana should take opportunity of the various trade agreement with the various jurisdictions to attain a positive surplus of trade because positive trade will have a greater impact on human development in Ghana. Furthermore, import of items of food and manufactured goods which are being made by local manufacturers should be discouraged through regulations to protect the employment and production, which in turn will affect human development in Ghana.

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