TRADE FLOWS AND INCOME DISTRIBUTION: A Survey of Theoretical and Empirical Findings

Article *in* The Nigerian journal of economic and social studies · March 2023

3 authors, including:

Jonathan Oniore
BINGAM UNIVERSITY, KARU, NIGERIA
32 PUBLICATIONS **113** CITATIONS
SEE PROFILE

Anthony Ojonugwa Bernard
Air Force Institute of Technology, Kaduna, Nigeria
59 PUBLICATIONS **306** CITATIONS
SEE PROFILE

TRADE FLOWS AND INCOME DISTRIBUTION:
A Survey of Theoretical and Empirical Findings

Oniore O. Jonathan[1], Bernard O. Anthony[2], Emily Gyang[3]

[1&3]*Department of Economics, Faculty of Social Sciences, Bingham University, Karu, Nigeria*

[2]*Department of Economics, Faculty of Social and Management Sciences, Air Force Institute of Technology, Kaduna, Nigeria*

ABSTRACT

This study reviewed theoretical and empirical studies that connect trade flows and trade policies to income distribution/inequality, driven by data uncertainty, and inconclusive, mixed empirical and theoretical proof. The paper may also help to clarify the winners and losers of the African Continental Free Trade Area Treaty that was recently signed. The paper deployed a systematic analysis of the relative strengths and shortcomings of existing literature on the subject matter, concentrating on economic journal articles. The paper found that trade flows and trade policies have a major effect on the distribution of income and on inequality across countries. In addition, the study found that winners and losers also exist from every other trade policy; however, depending on the use of available labour and economic growth performance, there could be an increase or decrease in income distribution/inequality. Economic growth, for instance, offers a channel through which free trade decreases inequality by increasing both initial income and subsequent growth. It also appears that trade flows rely on the level of human capital endowments, as relatively well-educated countries appear to have higher trade export shares and lower income inequality than countries with poor primary export shares. The study therefore proposed the formulation of effective complementary domestic policies aimed at expanding basic education to have the requisite inequality-reducing effects, and economic diversification away from primary exports with high market volatility. Finally, when linking trade flows to income

distribution, the continuity and sustainability of trade policies, such as the African Continental Free Trade Area should be considered.

Keywords: Trade Policy, Growth, Nigeria, International trade, Income distribution

JEL classification: O24, 040, N47, F16, D30

1. Introduction

The relation between trade flows and income distribution is important, but the connection is very unclear theoretically. However, theoretical models such as Ricardo's theory and Heckscher-Ohlin have shown trade flows to improve the productivity of the allocation of world resources, and a comparative advantage gained will improve production and trade. As a result, national income will increase above the production frontier curve. In developing countries, for instance, with a surplus of skilled labour, the salaries of skilled workers should increase compared to those of unskilled workers, and trade disparity should increase. But in less-developed countries this is not the case as trade flows more often have a detrimental effect on unskilled labour in the short and medium-term, especially if low-skill sectors were originally protected. This may create social tensions unless compensatory measures are put in place by the governments.

There is inconclusive and mixed empirical evidence regarding the effect of trade flows on income distribution. The controversy could be attributed to data limitations, sample selection bias, econometric methods, lack of good theoretical foundations, and differences in trade openness measurement. Empirical studies can be divided into two groups. The first group simply evaluate whether trade flows reduce or strengthen income distribution (see, Milanovic, 2002; Fischer, 2001; Calderon & Chong, 2001; Chakrabarti, 2000; Barro, 2000; Lundberg & Squire, 1999; Savvides, 1998; Edwards, 1997). Empirical studies in this group do not rely explicitly on a given theoretical framework. Rather, in order to explain the test for various effects in developed and developing countries, the HOS hypothesis is referred to. This group's results are mixed and show that trade flows neither affect inequality, nor have an equalizing effect, nor aggravate the distribution of income. The second set of studies is more in line with the theory of foreign trade, in the sense that the relative factor endowment of a country is structured to assess

the effect of trade flows on revenue distribution (see Bourguignon & Morrisson, 1990; Spilimbergo, Londono, & Székely, 1999, and Fischer, 2001).

In light of the above, this paper analysed theoretical and empirical studies connecting trade flows and trade policies to income distribution, propelled by data limitations, uncertain empirical evidence, and an unclear theoretical framework. The study focused on economic journal articles that model the effect of trade and trade policy on the distribution of income. The survey will help to clarify the African Continental Free Trade Area (AfCFTA) treaty winners and losers. Throughout this study, the word "income distribution" refers to the dispersion of personal incomes and the smoothness or equality with which income is distributed among members of society.

Following the introduction, the rest of the article is organized as follows: a short synopsis of trade theories is given in section 2. Section 3 starts with theoretical models that relate international trade flows and trade policies to income distribution. Section 4 provides empirical studies based on the relative strengths and limitations of existing literature on the subject. Within each section, the studies are discussed in the order of publication. Section 5 concludes.

2. Brief Synopsis of Trade Theories

This study presents a brief synopsis of trade theories starting from the Mercantilist principles, a classical example of comparative advantage to the theories of New Trade currently used to direct industrial policy and trade by many advanced countries.

Throughout the 17th and 18th centuries, mercantilist policy dominated economic thought in Europe. In order for nations to have a trade surplus, the mercantilist approach was adopted which limits imports and promotes exports. Mercantilism encourages government interference to achieve a trade balance surplus and considers trade as a zero-sum game, one in which one country's benefit results in another nation's loss. Classical economics,

however, questioned whether these merchants behaved in their own interest or in the interest of the country.

In 1776, Adam Smith countered mercantilist ideas by developing the notion of total advantage. He found mercantilists to be rent-seekers (Brezis, 2003). He claimed that a country has an absolute advantage in manufacturing a commodity if it is more successful in producing it than any other country and increases global productivity through participation in free trade.

David Ricardo (1817) extended Adam Smith's free trade argument and developed the comparative advantage theory. He proposed that a country specialize in producing and exporting goods that they can produce more efficiently than other countries. Conversely, he proposed that a country should import a product for which it has a comparative disadvantage in production. He was opposed to any form of import tariffs. He further argued that, by focusing on the production of a commodity in which it has a greater advantage, a nation may simultaneously have an absolute and a comparative advantage in the production of that product. Both hypotheses, however, are constrained by assumptions that may not be completely true.

The Heckscher-Ohlin factor endowment theory, named after two Swedish economists, Eli Heckscher, and his student, Bertil Ohlin, was the next trade theory. The theory states that the exports of a country depend on its resource endowment, whether abundant in capital or abundant in labour. If capital is plentiful, the production and export of capital-intensive goods would be comparatively cheaper than in other countries. Similarly, it will be comparatively cheaper to manufacture and export labour-intensive goods in a labour-abundant country than in others. A framework for understanding the potential link between trade and inequality is provided by the Heckscher-Ohlin factor endowment theory. The Heckscher-Ohlin (HO) model predicts that countries export goods that intensively use the most abundantly supplied factor. This means that in developed countries, where there is an abundance of skilled labour, the salaries of skilled workers should increase compared to those of unskilled workers, and trade inequality should increase. In developing countries that are well-endowed with unskilled labour, the opposite is expected to occur; trade inequality should decrease.

A number of studies published between 1990 and 2010 have dealt severe blows to the H-O model, which has documented an increase in inequality in

developing countries, often accompanied by major trade reforms. (e.g., see Goldberg & Pavcnik 2007a &b, Topalova 2007, Harrison & Hanson 1999).

In terms of technological differences and factor endowments, international trade has long been explained by supply-side factors. The H-O theory is a good example. On the contrary, Staffan Burenstam Linder developed a hypothesis in 1961, which approaches international trade from the demand side. Linder argued that the principles governing trade in manufacturing goods were not identical to those governing trade in primary goods. He argued against the common belief that the basis for trade in manufactured goods is factor endowments. The argument behind his opposition was that: between the developed countries there is a large volume of trade (Markusen et al., 1995).

Linder's hypothesis has been tested in several empirical studies, as this new approach is rather provocative and has brought new perspectives to explain the patterns of international trade. Recent studies support the hypothesis of (See Choi, 2002). Critics of Linder's theory, however, argued that while Linder explained the pattern of trade in manufactured products, he did not clarify that trade could go both ways (intra-industry trade). In addition, his philosophy was intended for developed economies only, but not for developing economies.

The new theory of trade (NTT) comes from the new theory of growth (NGT) that emerged in the literature on international trade and economic growth and development during the early 1990s (Ezeala-Harrison, 1999). The link between the NGT and the NTT is the common magnitude of technology and the dissemination of knowledge in the relative flow of trade gains to trading countries. These theories are considered 'new' because they derive from traditional neoclassical trade theories based on comparative advantage principles, which emphasize the differences between the resource endowments of nations (Ezeala-Harrison, 1999). To explain the high levels of intra-industry trade and the large proportion of world trade between similar countries, the NTT was developed (Dicken, 1998; Poon 1997). It suggests that increasing returns to scale and imperfect competition, even when

countries are similar in factor endowments, provide reasons for specialization and trade (Krugman, 1979; Helpman & Krugman 1985).

Although the majority of work within the NTT assumes that increasing returns are internal to the firm, several of the Marshall studies (1920) show that increasing returns are external to the firm (e.g. Krugman 1991; Krugman & Venables, 1993). The lack of sufficient justification for the initial establishment of the industrial core and for changes in the position of the core is a key problem with this model and with other external increasing return models.

3. Theoretical Models that Relate Trade Flows to the Distribution of Income

Saleh, Lu, Sokvibol and Nazir (2019) traced the theoretical developments of the trade model of gravity. The research identifies the dominant features of the gravity trade model. A variety of methods, including historical, descriptive, and empirical methods, were adopted in the research. The model has been given a firm theoretical basis by a wide body of literature but there is no consensus on the model's proper method of econometric estimation. Both historically and analytically, the gravity model is important. In the literature of international economics, gravity is regarded as one of the most popular models. The strength of this study is to streamline the clear historical development of the gravity model over a long period of time, spanning 1885 to 2018. However, as the study is primarily theoretical, the lack of econometric modelling to support the conclusions raised is a limitation of this paper.

Basco and Mestieri (2019) studied trade in intermediates, also known as unbundling of output and trade in the capital with the development of a dynamic factor-proportion model of trade-in final products. Their model's core finding is that heterogeneous intermediate exchange in capital intensity produces a reallocation of capital across countries that exacerbates global inequality in both per capita GDP and welfare. High-productivity nations sort into the output of capital-intensive intermediates with unbundling. They increase their capital stock (via capital imports and accumulation), and, ultimately, their real wages. This exacerbates initial disparities in productivity

across nations and raises inequalities in world incomes. The model has also shown that income inequality increases with unbundling (i) even in the case of ex-ante similar countries (symmetry breaking), (ii) when developing countries begin to participate in intermediate trade, and (iii) when labour-saving technologies (computerization) are implemented. For an empirically inspired model parametrization, middle-income countries experience the highest production decrease with unbundling.

McCalman (2017) built a theoretical model to research the relationship between income distribution and international integration in a canonical trade setting with one shift. Prices are merely a function of (constant) marginal costs and (constant) elasticity in the standard model, meaning that customer income knowledge is of little benefit to a typical business. The strategy space of a business is extended to include nonlinear prices in order to allow a more practical function for consumer-level information (i.e., potential to offer product lines). In equilibrium, firms use the information on income distribution to develop a product for each income class, with prices that induce each category to choose their intended product optimally. Some objects below the first best are involved in equilibrium designs, while others surpass it. This has consequences for the scale of these distortions as countries with different income distributions integrate, affecting the benefits from trade both within and across countries. These effects are quantified and shown to be potentially important variables influencing integration welfare outcomes, with more pronounced consequences at lower trade costs. A variety of empirical trends often fit the structure of trade, investment patterns and prices that arise. These findings are motivated by a firm strategy focused solely on income differences, as preferences are presumed to be similar and homothetic across countries, putting income distribution at the centre of the study.

Isabelle, Sébastien and Aude (2011) developed a theoretical model that indicates that the relationship between changes in international trade and income inequality is conditional. It depends on the magnitude of the proportion of households that derive their income from uneducated labour. The point is to link net changes in exports to price changes as a factor. A

more specific case is then considered, with three production factors: labour without any education (UN), labour with at least basic education (L), and capital (K). Lastly, the relation with income distribution is created. In the adopted theoretical framework, the number of goods and factors is not defined, and no inference is made about the rest of the globe. In particular, no statement is made about the equalization of factor rates. The model shows that the factor price changes are associated with the predictor of net export changes, based primarily on the assumption of general equilibrium under perfect competition in the commodity and factor markets. The results of the study showed that the resulting effect of foreign trade on inequality depends on the sign and magnitude of the content factor of the changes in net exports. Trade has, on average, contributed to a rise in income disparities in poor and rich countries, but also to a decline in middle-income countries.

Sen (2010) provided a review of the literature on trade theory based on the classical example of comparative advantage to the latest trade theories being used by many advanced countries to direct industrial policy and trade. Together with their usual empirical verifications and logical critiques, an account is given of the neo-classical brand of reciprocal demand and resource endowment theories. In terms of Staffan Linder's "overlapping demand" theory, which offers an interpretation of the trading system in terms of aggregate demand, a valuable supplement is given. New advances in trade theory are brought to notice, with strategic trade supplying industrial policy inputs. Issues related to trade, growth and development are discussed separately, followed by an account of the neo-Marxist versions of trade and underdevelopment. However, because the topic is primarily theoretical, the lack of econometric modelling to support the conclusions raised is a limitation of this paper.

Waugh (2009), in order to reconcile bilateral trade volumes and price data within the conventional gravity model, developed a novel view of trade frictions between rich and poor countries by arguing that trade frictions between rich and poor countries must be systematically asymmetric, with poor countries experiencing higher export costs compared to rich countries. The paper presented a methodology for modelling these asymmetries and demonstrating the merits of the method in the trade literature compared to alternatives. Finally, the study argued that these trade frictions are

quantitatively significant in order to explain the broad gaps between countries in living standards and the total productivity factor.

Meschi and Vivarelli (2007) argued theoretically that the interplay between trade openness and the adoption of technology could constitute a significant mechanism, through skill-enhancing trade, leading to a potential increase in revenue differentials in liberalizing developed countries. The theoretical model included per capita GDP, a proxy for educational level and inflation rate. The inclusion of the inflation rate in the model was intended to scrutinize the macroeconomic climate that is likely to influence the distribution of revenue. In developing countries, which are often characterized by highly unstable macroeconomic conditions, this aspect is especially important. Inflation erodes real incomes and impacts those inside the lower percentiles of the distribution of income overwhelmingly, thereby growing inequality. In fact, a number of papers find that high inflation is related to greater inequality (see, for example, Lundberg & Squire, 2003 and De Melo, Gourdon & Maystre, 2006). The empirical findings indicate that overall aggregate trade flows are weakly connected to income inequality. However, the disaggregation of overall trade flows with high-income nations, both by imports and exports, exacerbates the distribution of revenue in developed countries, both through imports and exports. This finding provides preliminary support for the hypothesis that in shaping the distributive effects of trade openness, technological differentials between trading partners are significant. In addition, the analysis found that the previous finding only applies to middle-income countries after checking for the differential effect of trade in middle-income countries (MICs) versus low-income countries (LICS). Therefore, both in terms of their greater "absorptive capacity" and in terms of their superior ability to serve the distinct and high-quality markets of the developed world, the study recommended technological improvement in MICs.

Bohman and Nilsson (2007) developed a theoretical framework based on Mitra and Trindade (2005). The model begins with the assumption that two nations, A and B, are identical in all respects, with the exception of the distribution of revenue within the respective country. Country B has an

income distribution that is more equal than country A. The model assumes that both work (where wages are denoted by *w*) and capital income are earned by each person *z* (the interest rate is denoted by *r*). Labour (*L*) is spread uniformly across the population and, for convenience, there are no variations in the level of salaries. In other words, from the ownership of capital (capital is denoted by *K*), the distribution of income is produced and the share of capital owned by a person is denoted as *z*? Bohman and Nilsson (2007) found that the distribution of income is of great significance to both the exporting country and the importing country. In particular, greater inequality has been found to produce higher exports of necessities and higher imports of luxury goods. Countries with a fairer income distribution tend to export more luxuries and import more necessities.

Mitra and Trindade **(**2005) integrated demand-side considerations into the trade in a systematic but clear way. Mitra and Trindade did so by concentrating on the role of inequality in deciding trade flows and trends. With non-homothetic preferences, they found that trade is driven by specialization in demand, not production, when countries are identical in all aspects including asset inequality. Furthermore, these assumptions enable the paper to produce some interesting global spillover effects of redistributive policies. Finally, through the study of a model of monopolistic competition, they found a novel V-shaped relationship between the ratio of inter-industry to intra-industry trade and the inequality of a country.

Zhang and Ondrich (2004) developed a model based on Frankel and Romer (1999), separating their total trade share into the export share and import share and other control variables. The study identified two familiar problems in their model building. First, the main variables of interest are mutually endogenous. The second problem is that export openness and import openness are highly correlated across countries. Therefore, both measures of openness are endogenously related to each other and to income (per capita), the focus variable on which they are assumed to "operate." The paper, therefore, suggested an alternative approach to differentiate between the effects of imports and exports in the spirit of the instrumental variables that answer the endogeneity problem. A cross-sectional estimate showed a positive correlation between openness to exports and levels of

revenue. Import openness correlates negatively with countries' incomes, however, though significantly different from zero in only half our runs.

Banerjee and Newman (2004) developed a model in which the magnitude of capital market imperfections depends on trade trends and the impact of trade liberalization on the distribution of income. An appealing aspect of the model is that, just like the specific factors model, it yields clear empirical predictions concerning the short and medium-run adjustment to trade reforms. The challenge from an empirical point of view is to find variables that could accurately capture the "quality" of the capital market in the relevant countries. While the ideas put forward in the model are important, empirical evidence is still pending for the model. In order to assess the validity of the competing hypotheses put forward to explain the increase in inequality in particular countries, more empirical work is needed.

Xu (2002) developed an endogenously-traded goods model in which the effects of trade liberalization on inequality in developing countries is U-shaped; trade liberalization decreases inequality for initially high levels of protection, while trade liberalization increases inequality for subsequently lower levels of protection. The mechanism through which these effects work is a decrease in the range of non-traded goods induced by trade liberalization. Depending on the initial level of trade protection, this decrease can produce ambiguous effects on the relative salaries of unskilled workers. While the concepts put forward in this model are interesting, there is still empirical support pending for the model. In order to assess the relevance of the competing hypotheses put forward to explain the rise in inequality in particular countries, further empirical work is needed.

Fisher (2001) presented a general framework for the analysis of the evolution of personal income distribution following trade liberalization in a study of the evolution of inequality after trade liberalization. The model includes many production variables and allows for the possibility of capital gains. The short-run evolution of inequality in the Fisher model relies on the wage-to-wealth ratio, while changes in the interest rate determine changes in long-run inequality.

In the Fisher model, the land-work ratio determines whether the land-using or capital-using good is exported by a country in the long term. The effects of liberalization on inequality are determined by the type of export product. In land (labour)-abundant countries along the dynamic path, inequalities increase (decrease). In their reaction to trade liberalization, the model provided an explanation for the differences between Latin American and Asian countries. The study's econometric analysis provided mixed results for these predictions, with the right signs but not significant coefficients for the coefficient of openness and land-labour ratio interaction.

Bourguignon and Morrisson (1990), in an attempt to link foreign trade to income distribution, developed a rigorous theoretical framework that leads to a reduced form model where income distribution appears logically as a function of relative factor endowments, population ownership structure, and possible distortions in national prices due to trade protection. In their model, the emphasis is placed on external trade variables, which, despite their clear relevance for income distribution, have received little attention in the Kuznets curve literature. Their reduced form model showed that, in a sample of developing countries only, the share of foreign disparities in income inequality was much greater than in any other comparable research. In shaping cross-country differences in income distribution, trade variables play a prominent role, and according to the theoretical model, the study estimates proved to be fairly robust. Within a coherent theoretical framework, where the key explanatory variables are factor endowments, their ownership structure and distortions of international exchange, this paper analyses cross-sectional data on income inequality in developing countries. The resulting interpretation of cross-country income distribution disparities is significantly better than what is found in the current literature? It has been shown that endowments in natural resources, land concentration in agricultural exports, trade security, and secondary education are major determinants of income inequality disparities across developed countries.

Melo and Robinson (1980) developed a multi-sector Computable General Equilibrium (CGE) model to simulate the effects of trade on the distribution of income among socio-economic classes, identified by both the production factors they own and the industry in which they operate. The recipient categorization includes landless rural peasants, workers in the conventional

urban sector, and workers in the organized sector and capitalists. Experiments are performed with an application to the largest exporting economy, Colombia. The findings showed that outward-looking policies with higher primary exports are likely to be more harmful to the distribution of revenue in the medium term for such an economy than inward-looking ones.

4. Empirical Studies

Several studies have explored the relationship between trade flows and trade policies and the distribution of income. Interestingly, however, the various theoretical literature analysing trade flows and the nexus of income distribution has also drawn vastly different conclusions. This section therefore presents some relative strengths and shortcomings of current literature on the subject matter.

Basco and Mestieri (2019) developed a tractable dynamic model that combines trade in final products, intermediates and capital, to research how the unbundling of output affects the international allocation of capital and the distribution of world income. The objective of the study is to establish a new channel by which intermediate trade (and, more generally, trade in commodities heterogeneous in capital intensity) can generate the reallocation of capital to more productive countries, exacerbating world inequality in terms of both welfare and per capita income. As southern countries join the global supply chain (participate in trade in intermediates) and when a labour-saving technology (computerization) is implemented, the results show that inequality increases. Findings have also shown that countries with low productivity benefit more from the FOSD change in unbundling technology. The key strength of this paper is the inclusion of technology in the study model as a significant variable that is likely to have an impact on income inequality in the analysis of the effects of trade on inequality.

Doan (2019) investigated how trade liberalization and institutional efficiency affect real income using balanced panel data of 45 sub-Saharan African countries spanning 34 years (1980-2013), along with various advanced econometric instruments (random effects, fixed effects, system-generalized method of moments, pooled mean group) and composite trade

indicators (KOF indicators). In particular, in both static and dynamic environments, the paper described the effect of trade liberalization, social factors and political globalization on per capita real income. Short-term and long-term consequences were also considered in the paper. The study indicated that free trade in static and competitive environments has a substantial positive effect on the growth of real income per capita. However, it also found out that countries must pay in the short term to gain more significance in the long-term. Further, the study pointed out that social factors, especially information flows, can have significant but varying influences on actual earnings under different scenarios and that political globalization both challenges and gives opportunities for improving living standards. The paper also discovered that in any case, institutional efficiency is a key factor for economic growth. Previous studies have used standard econometric instruments that may contribute to research bias. In comparison, however, the present paper used advanced analytical techniques, such as fixed and random effects estimators and generalized moment methods (GMM), to examine how trade liberalization affects income in the sub-Saharan African region with both static and dynamic models. This is the main contribution of the research.

Ólafur (2017) investigated the empirical relationship between trade openness and income inequality within countries. The analysis was carried out using an unbalanced panel of 112 countries over the period 1988-2008, with group and time fixed effects. The main finding is that the effect on the inequality of increased openness is negatively linked to the level of education. The projected effect is positive for most countries, but the effect is reversed in countries where the proportion of the population with secondary education is high, and increased openness is expected to reduce inequality. Thus, more widespread education may provide protection against increased inequality due to globalization, in direct conflict with the Stolper-Samuelson theorem. This supports the view that increasing domestic inequality has been motivated by factors other than globalization in many rich countries in recent decades. The findings are highly important, resilient to different modifications in the specification of the model, and not susceptible to the exclusion of sample subsets. The estimated effect of openness is generally very small in terms of adjustments in the Gini coefficient, but significant in some cases when tested

specifically for individual income distribution quintiles. A particular strength of this paper is the rigour of the econometric cross-sectional data analysis and robustness tests offered. Study results, however, are subject to the normal caveats about cross-country regression studies.

Lam (2015), following the remarkable success of the East Asian countries in the 1970s and 1980s, the export-led growth model received particular attention, especially when compared to the large failure of import-substitution policies in many African and Latin American countries. Therefore, from the eighteenth century to the close of the twentieth century, the analysis outlined some of the trade and growth hypotheses in the history of development economics. A brief overview of relevant foreign trade theories and the potential interactions between trade and economic growth is useful in this paper. But the lack of good theoretical foundations and appropriate econometric methodology means that the study cannot be relied upon.

Santos-Paulino (2012) carried out surveys of theoretical and empirical studies on how poverty and income distribution are influenced by trade and trade liberalization. The paper showed that the theoretical and empirical literature explaining the effect on income distribution and poverty of greater openness to trade is highly susceptible to modelling and assumptions. Most studies appear to agree, in addition to factual evidence, that trade liberalization is likely to increase aggregate welfare, but benefits are limited and spread unequally. They argue that the key foundation of the current body of studies is the first-order effects of trade policy or trade openness. The effects of welfare are determined largely by price shifts, with an emphasis on the impact on the relative demand of domestic output factors and, in particular, on the demand for skilled labour in relation to unskilled labour. Poverty is a burden on the function of output, hence growth and development. The constraints stem from different sources, including: infrastructure, skills, incomplete markets, and policies. The key drawback of this paper is the lack of econometric modelling to support the conclusions presented since the discussion is predominantly theoretical.

Isabelle, Sébastien and Aude (2011) examined evidence concerning the effect of foreign trade on the distribution of income. With a theoretical model

that makes no restrictive statement on how trade specialization is related to factor endowments, the research adopted instrumental variable techniques. The effect of changes in foreign trade on the distribution of income is captured in this context by a clear description of the factor content of net changes in exports. The key empirical finding of the paper is that the factor content of the net export changes expressed in relation to the endowment factor of the country has a substantial effect on the distribution of income, but the sign and size of this impact are conditional on the level of income of the country or on the proportion of the population of the uneducated. The rigour of the econometric analysis adopted is a basic strength of this paper. Robust statistical tests of inference that show the validity of the models used are presented. The authors have, however, recommended that the findings of the study should be viewed with caution. First, only average results are reflected, and the contribution of the factor content of net export changes in countries belonging to the same category can be the opposite symbol. Secondly, the content factor of the net changes in exports is not an indication of liberalization, or of openness to trade. This is the main drawback of this study.

Bohman and Nilsson (2007) examined income inequality as a determinant of trade flows using advanced analytical tools, such as the fixed effects estimator. In order to develop a gravity model, the study adopted the Mitra and Trindade (2005) model, which uses income distribution indicators as explanatory variables for both exporting and importing countries. The study findings showed that non-homothetic preferences had a large effect on both exports and imports. In particular, the contribution of this paper is to include the position of distribution of income not only in the importing country but also in the exporting country. One of the problems plaguing empirical work in this strand of literature, however, is the absence in the study of the impacts of trade on the inequality of potentially-relevant variables such as technology and foreign direct investment (FDI), which are likely to have an effect on income inequality. Therefore, the absence in this paper of these variables constitutes a significant shortcoming.

Meschi and Vivarelli (2007) looked at the impact of trade on within-country income inequality in 70 developing countries. Their findings suggest that total aggregate trade flows are weakly related to income inequality.

However, total trade flows with high-income countries worsen income distribution in developed countries, both through imports and exports. The paper recommends technological upgrading in middle-income countries in terms of their higher "absorptive capacity" and superior ability in serving the differentiated and high-quality markets of the developed world. This paper contributes to the literature by presenting new empirical results based on a unique dataset including 70 developing countries over the 1980-1999 periods In addition, this paper disentangles import and export flows according to their origin/destination areas.

Anderson (2005) found that by influencing asset, spatial and gender disparities, and also the amount of income distribution, increased openness affects income inequalities within developing countries. He further points out that most time-series studies show that greater openness increased demand for skilled labour, but most cross-country studies find that greater trade openness has had no little impact on overall income inequality. He explains that this difference may be due to the fact that the developing world is not reflected by countries chosen for time-series studies. He also claims that the effect of openness on income inequality has been offset by its impact via other channels through the relative demand for skilled labour. The main contribution of the study is the discussion of the different mechanisms by which greater openness can potentially impact inequality. The research, however, focused on examining the effects of increased openness on inequality within countries and disregarding any influence on inequality between countries. The research also focused on the impact of increased openness on income inequality, averaged over time, among individuals. The degree to which increased openness has impacted other disparities, such as income levels within countries or wider well-being indicators within or between countries, has been overlooked. This is a substantial shortcoming of the paper.

Marjit, Beladi and Chakrabarti (2004) provided a theoretical analysis of the possible impact of trade on income inequality. The study indicated a sharp decrease in the relative income of unqualified labour following an increase in the terms of trade. The paper highlighted that a vast majority of research has

been performed using data from the North on the effect of trade on income inequality, which can be seen as a definite strength of this paper. However, as the topic is primarily theoretical, the lack of econometric modelling to support the conclusions raised is a limitation.

Zhang and Ondrich (2004) examined how cross-country disparities in export openness and import openness separately affect the level of real per capita income. The study used instrumental variable estimation for the extraction of exogenous components of total trade and net exports, suggesting differential effects on exports and imports. The authors used the geography of countries as a guide for trade openness and, building on demography and cross-border transfers, developed a new tool for net export openness. New figures indicate that exports alone, not imports, correlate with income. Countries with high export intensity (but not high import penetration) have high per capita incomes, ceteris paribus. The design of a novel instrument for net export openness is the key contribution of this research. The results are, however, subject to the normal caveats surrounding cross-country regression studies. This is a significant weakness of the research.

Noguer and Siscart (2003) analysed the trade-income relationship and found that, even after the implementation of Rodriguez and Rodrik's geographic controls, the estimate remains optimistic and relevant. To get the estimates with greater accuracy, they used a much richer data set without an imputation point. Their result is surprisingly stable for a wide variety of regional and institutional controls, over time, and for the use of instruments that are slightly different. They also show that, while increasing productivity, trade mainly affects income by increased accumulation of capital. It can be regarded as a definite strength that this analysis used a much richer data set without an imputation process to get the estimates with greater accuracy. Again, the analysis is constrained by the introduction of regional indicators as control variables.

Milanovic (2002) examined the effect of openness (trade/GDP ratio) and direct foreign investment on relative income shares across the entire distribution of income. The research adopted a generalized moment estimator approach whose efficiency characteristics are higher than those of conventional IV/2SLS estimators. The aim of this method of estimation is to resolve endogeneity by instrumenting their lagged values on the probably

endogenous variables. The paper found clear evidence that it is the wealthy that benefit from openness at low average income levels. If the level of income increases, that is, at international prices, about the income level of $5-7,000 per capita, the situation changes and it is the relative income of the poor and the middle class that increases compared to the wealthy. Before making it better, openness appears to make income distribution worse or different from the impact of openness on income distribution depending on the average income level of the nation. This paper's strength is the rigour of the econometric methods used. The key drawback of this study, however, is the normal caveats about cross-country regression studies.

Irwin and Terviö (2002) examined the effect of trade on income using data for various periods of time: the era before the First World War (1913), the interwar period (1928), the Great Depression (1938), the early post-war period (1954) and for several years in the post-war period (1964, 1975, 1985, 1990). By using both OLS and IV methods, they tested the robustness of outcomes. Their efforts yielded identical results and verified Frankel and Romer's (1999) observations over different periods of time. They found that the IV estimate for most of the time periods was higher than the OLS estimate and also dismissed the hypothesis that for three samples that included two of the more recent samples, the OLS and IV estimates are the same. The intellectual rigour of the econometric time series analysis employed is a particular strength of this paper. However, the primary drawback of this study is that the effects of trade on the level of income have been inconsistent.

Corlu (2001) tested the relation between income inequality and trade flows using the Bohman and Nilsson (2007), and the Dalgin, Mitra and Trindade (2004) models. The paper developed a gravity model for 50 countries that included as an explanatory variable the distribution of disposable income, income distribution, population, average individual income level and GINI variable. The results confirmed that the export of necessities increases and the export of luxuries decreases as income disparity increases in the exporting nation. The distribution of income also disclosed the anticipated impact on the importing country's trade flows. The import of necessities decreases when income disparity rises in the importing country

and the import of luxuries increases. The paper's contribution is that it provided interesting findings on the quality preferences of the respective countries by disaggregating the countries according to their income levels. In the theoretical context, widely-used assumptions of homothetic and similar preferences are overlooked in order to be able to point out the value of income distribution as a determinant of trade flows. This is a substantial shortcoming of the review.

Calderon and Chong (2001) analysed the external sector and income inequality in interdependent economies using a dynamic panel data method, and showed that the strength of capital controls, the exchange rate, the form of exports and the amount of trade influence the distribution of income over the long term. For the period 1960-1995, they divided the data into five-year averages. In general, the outcome showed that trade decreases income inequality, but when interactive dummies were used to test whether trade openness, depending on growth, has an opposing impact on income inequality, they found that trade openness had been positive and barely significant for industrial countries and had been negative and statistically significant for developing countries. The strength of this paper is the dynamic econometric model employed and results such as the Heckscher-Ohlin hypothesis are somewhat consistent with current theoretical literature. The study results are, however, subject to the normal caveats about cross-country regression studies.

Chakrabarti (2000) examined the effect of international trade on the intra-national distribution of income. In the instrumental variable estimation of cross-country regressions, the empirical validity of any such relation (between the trade-GDP ratio and the Gini income inequality coefficient) was checked. From a survey of 73 countries in 1985, there were three main results. First, greater trade involvement decreased income inequality dramatically. Second, a clear negative correlation between trade and inequality did not emerge because, for reasons other than trade, countries which had a more unequal distribution of income participated in more trade. Third, growth offered a path through which trade lowered inequality by raising both initial income and subsequent growth. By presenting new empirical findings based on a specific dataset from a sample of 73 countries, this paper added to the literature and the results suggest a robust and

statistically significant inverse association between trade and income inequality. The key drawback of this study, however, is that when regional indicators are introduced as control variables in the income equation, the trade coefficient might not be statistically important, as argued by Rodriguez and Rodrik (2001), who researched the effect of trade policies on economic growth.

Frankel and Romer (1999) analysed the effect of trade on income using data for 150 nations. They used instrumental variable (IV) techniques to control for the endogeneity of trade and used the geographical characteristics of the region, such as the distance of countries from their trading partners, as instruments for trade. The statistically significant effect of trade on income across countries is the principal empirical contribution of the study. The key drawback of this study, however, is that when regional variables are added as controls in the income equation, trade coefficients might not be statistically important, as argued by Rodriguez and Rodrik (2001), who researched the effect of trade policies on economic growth. Rodriguez and Rodrik's (2001) findings challenged the validity of Frankel and Romer's results (1999).

Spilimbergo, Londono and Szekely (1999) investigated the empirical connections between factor endowments, the distribution of trade and personal income. Using panel data, they showed that the income distribution of land and capital-intensive countries is less equal, while the income distribution of skill-intensive countries is more equal. They also found that the impact of trade openness on income inequality depended on the endowment of the variable. In addition, beyond the incidence and outcome-based indicators, the study developed a new trade openness index. The study argued in the development of the new openness index that trade openness is not only a function of factor endowments but also of the country's geographical distance from other potential trading partners, as well as the country's economic size. This is a significant contribution. Again, as Rodriguez and Rodrik (2001) argued, the geographic gap added when constructing the new trade openness variable might not be statistically important.

Edwards (1997) investigated the relationship between trade policy and income distribution by regressing the Gini coefficient over six different indices of trade openness. The study indicated that no evidence exists to link openness or trade liberalization to inequality increases. The key contribution of this analysis is the argument on the estimation problems of trade indicators. The study showed, by using more than one measure of trade liberalization, that while some measures of increased trade boost the distribution of income, others have the opposite effect. The study, therefore, concluded that no direct correlation exists between increased trade and income inequality. However, the final regression model of the ordinary least squares was not statistically significant and the results are subject to the normal caveats about cross-country regression studies. This is a significant weakness of the study.

Bourguignon and Morrisson (1990) analysed income inequality in developing countries in a coherent theoretical context, where the main explanatory variables are factor endowments, their ownership structure, and distortions of international exchange. The resulting interpretation of cross-country income distribution disparities is significantly better than what is found in the current literature. The results show that endowments in natural resources, land concentration in agricultural exports, trade security and secondary education are major determinants of income inequality disparities across developed countries. The relative strength of this paper is the focus placed on external trade variables, which have received little attention in the Kuznets curve literature despite their apparent importance for income distribution and reasonably robust estimates. A drawback of the study, however, is that the inclusion of a few atypical countries in the data sample could be due to some apparently important findings.

Conclusion

In order to give researchers a preview of past investigations, the study surveyed the theoretical and empirical findings that link trade flows and trade policies to income distribution and proposed some strategic suggestions for future studies. The study focused on articles from economic journals that model the effect of trade and trade policy on the distribution of income. Many of the studies linking the distribution of income to trade flows and trade policies are broad and mathematically complex. The present paper, however,

gave the relative strengths and weaknesses of the existing literature on the subject. Specifically, studies linking trade flows to income distribution were summarized in a succinct manner by explaining their conclusions, methodologies, and results.

Despite the mixed, theoretical and empirical evidence of the impact of trade flows on income distribution, a positive and long-term association between trade flows and income inequality/distribution was predicted by some of the theoretical models examined. Other models found that trade flows have little effect on the poor's income, they instead exacerbate the distribution of income. Similarly, the empirical literature presented evidence linking openness or trade flows to increases and decreases in the distribution of income and inequality; as most empirical studies concluded, trade flows/openness aim to boost the distribution of income across countries. But the correctness of such findings and their conformity with historical facts is strongly questioned. Since the empirics are mixed and inconclusive, it is difficult to arrive at objective and value-free conclusions.

However, evidence from the study shows that trade flows and trade policies could have a major effect on the distribution of income and inequality across countries. There are, however, winners and losers from all trade reforms such as the AfCFTA since, depending on the use of available labour and economic growth results, there could be an increase or decrease in income distribution/inequality. Economic growth, for instance, offers a channel through which free trade decreases inequality by increasing both initial income and subsequent growth. Trade flows would also depend on the level of human capital endowments, as relatively well-educated countries appear to have higher trade export shares and fewer income disparities than countries with poor primary export shares.

The key policy conclusion is that trade policies, such as the Treaty on the African Continental Free Trade Area (AfCFTA), need to be supplemented by effective complementary domestic policies aimed at expanding basic education in order to minimize inequality and to diversify the economy away from primary exports with high price volatility. Finally, when relating trade

flows to income distribution, the consistency and sustainability of trade policies such as the AfCFTA should be considered.

Suggestion for Further Studies

The literature on trade flows and income distribution, particularly in less developed countries, is broad and still under-researched. This study is a survey of theoretical and empirical results on the role of trade flows in the distribution of income. With empirical analysis, future researchers could address the limitations of the present study by considering the dynamics and indirect associations of trade flows and income distribution. This strategy will help clarify the industrial side of trade flows.

References

Anderson, E. (2005). Openness and inequality in developing countries: A review of theory and recent evidence. *World Development*, *33*(7), 1045-1063.

Barro, R.J. (2000). Inequality and growth in a panel of countries. *Journal of Economic Growth*, *5*, 5-32.

Basco, S., & Mestieri, M. (2019). The world income distribution: The effects of international unbundling of production. *Journal of Economic Growth*, https://doi.org/10.1007/s10887-019-09164-4.

Benerjee, A., & Newman, A. (2004). Inequality, growth, and trade policy, MIT mimeo. Cambridge, MA: MIT.

Bohman, H., & Nilsson, D. (2007). Income inequality as a determinant of trade flow. *International Journal of Applied Economics*, *4*(1), 40-59.

Bourguignon, F., & Morrisson, C. (1990). Income distribution, development and foreign trade: A cross-sectional analysis. *European Economic Review*, *34*(6), 1113-1132.

Brezis, E. (2003). Mercantilism. In J. Mokyr et al. *The Oxford Encyclopedia of Economic History:* 5-Volume Set, Oxford University Press.

Calderon, C., & Chong, A, (2001). External sector and income inequality in interdependent economies using a dynamic panel approach. *Economics Letters*, *71*(2), 225-231.

Chakrabarti, A. (2000). Does trade cause inequality? *Journal of Economic Development*, *25*(2), 1-21.

Choi, C. (2002). Linder hypothesis revisited. *Applied Economics Letters*, *9*, 601-605.

Corlu, A. (2001). Income Inequality and Trade Flows: A country study for 2001. Södertörns Högskola, Department of Economics, Master's Thesis.

Dalgin, D., Mitra, D., & Trindade, V. (2004). Inequality, Nonhomothetic Preferences, and Trade: A Gravity Approach. *National Bureau of Economic Research Working Paper 1050*, Massachusetts Avenue, Cambridge.

De Melo, J., Gourdon, J., & Maystre, N. (2006). Openness, inequality and poverty: Endowments matter. *CEPR Discussion Papers* N. 5738, Centre for Economic Policy Research, London.

Dicken, P. (1998). *Global Shift: Transforming the World Economy* (3rd ed.). Guilford Press, New York.

Doan, H.Q. (2019). Trade, institutional quality and income: Empirical evidence for sub-Saharan Africa. *Economies, 7*, 48; doi:10.3390/economies7020048.

Edwards, S. (1997). Trade policy, growth, and income distribution. *American Economic Review*, *87*(2), 205-210.

Ezeala-Harrison, F. (1999). *Theory and Policy of International Competitiveness.* Westport, Connecticut: Praeger.

Fischer, R.D. (2001). The evolution of inequality after trade liberalization. *Journal of Development Econo*mics, *66*(2), 555-579.

Frankel, J., & Romer, D. (1999). Does trade cause growth? *American Economic Review*, *89*(3), 379-399.

Goldberg, P.K., & Pavcnik, N. (2007a). Distributional effects of globalization in developing countries. *J. Econ. Lit.*, *45*, 39–82.

Goldberg, P.K., & Pavcnik, N. (2007b). The effects of the Colombian trade liberalization on urban poverty. *NBER Working Paper No. 11081*.

Harrison, A., & Hanson, G.H. (1999). Trade liberalization and wage inequality in Mexico. *Ind. Labor Relation Rev*., *52*(2), 271–88.

Helpman, E., & Krugman, P.R. (1985). *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy*. Cambridge: MIT Press.

Irwin, D.A., & Terviö, M. (2002). Does trade raise income? Evidence from the twentieth century. *Journal of International Economics, 58*(1), 1-18.

Isabelle, B., Sébastien, J., & Aude, S. (2011). International trade and income distribution: Reconsidering the evidence. *CEPII, Working Paper No. 2005-17*.

Krugman, P.R. (1979). Increasing returns, monopolistic competition, and international trade. *Journal of International Economics*, *9*, 469-79.

Krugman, P.R. (1991). *Geography and Trade.* Cambridge, Mass.: MIT Press.

Krugman, P., & Venables, A. (1993). Integration, specialisation, and adjustment. *NBER Working Paper* No.4559, National Bureau of Economic Research, Cambridge, Mass.

Lam, T. (2015). A review of modern international trade theories. *American Journal of Economics, Finance and Management*, *1*(6), 604-614.

Lundberg, M., & Squire, L. (1999). The simultaneous evolution of growth and inequality. *Mimeo* World Bank.

Lundberg, M., & Squire, L. (2003). The simultaneous evolution of growth and inequality. *Economic Journal*, *113*, 487.

Marjit, S., Beladi, H., & Chakrabarti, A. (2004). Trade and wage inequality in developing countries. *Economic Inquiry*, *42*(2), 295-303.

Markusen, R.J., Melvin, R.J., Kaempfer, H.W., & Maskus, E.K. (1995). *International Trade Theory and Evidence*. International edition, McGraw-Hill, Inc.

McCalman, P. (2017). International trade, income distribution and welfare. *Journal of International Economics*, 1-39, doi:10.1016/j.jinteco.2017.10.002.

Melo, J., & Robinson, S. (1980). The impact of trade policies on income distribution in a planning model for Colombia. *Journal of Policy Modeling*, *2*(1), 81-100.

Meschi, E., & Vivarelli, M. (2007). Trade openness and income inequality in developing countries. *CSGR Working Paper Series 232/07*.

Milanovic, B. (2002). Can we discern the effect of globalization on income distribution? Evidence from household budget surveys. *World Bank Policy Research Working Paper* 2876, April.

Mitra, D., & Trindade, V. **(**2005). Inequality and trade. *Canadian Journal of Economics*, *38*(4), 1253-1271.

Noguer, M., & Siscart, M. (2003). Trade raises income: A precise and robust result. *Journal of International Economics*, *65*(2), 447-460.

Ólafur, K.Á. (2017). Trade Openness and Inequality. An Empirical Analysis. Thesis towards a BS degree in Economics, Faculty of Economics, School of Social Sciences, University of Iceland.

Poon, J. (1997). The cosmopolitanization of trade regions: Global trends and implications 1965-1990. *Economic Geography*, *73*, 390-404.

Ricardo, D. (1817). *The Principles of Political Economy and Taxation*. London: John Murray.

Rodriguez, F., & Rodrik, D. (2001). Trade policy and economic growth: A skeptic's guide to cross-national evidence. In: Bernanke, B.S., & Rogoff, K. (Eds.), *NBER Macroeconomics Annual 2000*. Cambridge: MIT Press, 261-325.

Saleh, S., Lu, Q., Sokvibol, K., & Nazir, M.A. (2019). The gravity model of trade: A theoretical perspective. *Review of Innovation and Competitiveness*, *5*(1), 21.42.

Santos-Paulino, A.U. (2012). Trade, income distribution and poverty in developing countries: A survey. UNCTAD Discussion Papers 207, United Nations Conference on Trade and Development.

Savvides, A. (1998). Trade policy and income inequality: New evidence. *Economics Letters, 61*(3), 365-372.

Sen, S. (2010). International trade theory and policy: A review of the literature. *Levy Economics Institute Working Paper* No. 635.

Spilimbergo, A., Londono, J.L., & Székely, M. (1999). Income distribution, factor endowments, and trade openness. *Journal of Development Economics, 59*(1), 77-101.

Topalova, P. (2007). Trade liberalization, poverty and inequality: Evidence from Indian districts. *NBER Working Paper Series* 11614.

Waugh, M.E. (2009). International trade and income differences. *Research Department Staff Report 435*. Federal Reserve Bank of Minneapolis and New York University.

Xu, B. (2002). Trade liberalization, wage inequality, and endogenously determined non-traded goods. *Journal of International Economics, 60*, 417-431.

Zhang, S., & Ondrich, J. (2004). The link between trade and income: export effect, import effect, or both? Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.622.6874.