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Impact of Trade Liberalization on Economic Growth in Developing Countries

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Abstract
In order to investigate the impact of trade liberalisation on economic growth, this paper analyses the existing research on trade liberalisation and growth, revises the well-used Sachs and Warner (1995) trade liberalisation index for 193 countries up to 2010, and applies a dynamic growth model to a substantial panel data set covering the years 1985 to 2010. The results suggest that the impact of trade liberalisation on economic growth differs depending on the industrial development level of a country. Lower-middle-income countries, on average, experience a minimum 3% greater advantage from the liberalisation of trade compared to other growing nations. This finding provides a persuasive rationale for altering the conventional "Washington Consensus" methodology and taking into account the economic development phase while suggesting trade policy modifications.
Keywords: trade liberalization, economic growth, developing countries

1. Introduction

In applied research economics, the Sachs-Warner index of trade liberalisation, originally developed by Sachs and Warner (1995) and subsequently revised by Wacziarg and Welch (2008) to include 141 countries, is widely used to assess trade liberalisation and its impact on economic growth. Out of all the policy factors, the Sachs-Warner index of trade liberalisation, despite receiving criticism from Rodrik (1998), is the most comprehensive. As far as the author are aware, there is no other appropriate indicator available for this particular situation. Undoubtedly, the trend towards international trade liberalisation and export expansion has spread to 134 nations worldwide and is now a significant phenomenon within the globalisation process. This statistic indicates that the majority of nations have experienced evolutionary shifts in their trade policies, resulting in increased trade liberalisation through the reduction of tariff and non-tariff barriers. The objective is to achieve economic liberalisation through worldwide corporate expansion.

Two conclusions can be drawn from a concise review of the empirical literature on trade liberalisation and economic growth. First, the Sachs-Warner index, last compiled over ten years ago, is absent in most developing countries. Furthermore, the existing literature in this particular setting has not been systematically analysed to illustrate the many phases of economic development.

Therefore, the objective of this study is to enhance comprehension of the impacts of trade liberalisation and the economic growth process in two approaches. First and foremost, it expanded the period of trade liberalisation until 2010 and increased the number of countries included in the Sachs-Warner trade liberalisation index to 193. Therefore, our work utilised the largest database available in the literature. In order to examine the claim that the impact of trade liberalisation is influenced by the level of economic development, we augment the growth regression analysis by including the stage of economic development as an additional variable. Hence, the statistics exhibit the highest level of detail or segmentation in terms of categorisation, so to speak. Historical studies have treated emerging countries adopting liberalisation reforms as a uniform group, disregarding the variations in their developmental stages. This technique harmoniously aligns with the widely accepted "Washington Consensus" approach of expanding trade liberalisation as a general policy for developing nations. Nevertheless, critics of the Washington Consensus relate it to the phases of economic growth that determine a nation's capacity to benefit from joining the global economy based on its degree of development, its capacity to handle competition and exploit opportunities through structural transformation (Broad, 2004; Alzahrani & Salah, 2020; Naik, 2020).

In this vein, our study is a part of the broader debate on the nature of the impact of trade liberalisation on the development of different categories of countries. As the above estimation figures are quite close to Sachs and Warner (1995) and other authors in the literature, the present estimation results show that the index of liberalisation is highly reliable when updated. Also, the estimate exhibits that the impact of trade liberalisations on growth is not universal but is dependent on the status of economic development of the nation at the time of liberalization. This research establishes that the country that liberalises increases, on average, by 3% than other developing nations that were in the lower- or upper-middle-income range when opening up.

2. Trade liberalization and economic growth: A brief literature survey

Trade liberalisation, as a phenomenon in development economics, remains a subject of study specifically focused on its impact on economic growth. Commercial liberalisation has been a crucial policy pursued by emerging nations since the early 1990s. The literature has consistently used three major technical metrics to evaluate the effects of trade liberalisation on economic growth and development. Some articles utilise tariff rates as a proxy for trade liberalisation, which is perhaps the most reliable indicator to study the trade liberalisation story, despite the fact that many nations do not disclose actual tariff rates and the available data often do not extend beyond the 1990s. Utilise the trade orientation or Sachs-Warner (1995) index for long-term study, as modified by Wacziarg and Welch (2008), to elucidate the transformative shifts in the trading regime. Trade openness refers to the level of trade accessibleness as measured by the trade openness index, or more precisely, the trade openness ratio. This ratio can be high even in economies that are very closed and does not account for trade policy. Furthermore, it presents certain conceptual challenges in its measurement as the value-added notion is used to calculate GDP, considering the net value of trade (Mordeaci and Akinsola, 2021).

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There is a wide range of literature sources available on the impact of trade liberalisation on economic growth. Hence, trade liberalisation has both benefits and drawbacks in relation to economic growth. The results differ in relation to studies on trade liberalisation and economic growth conducted by Devereux and Lapham (1994), Krueger (1997), Rivera-Batiz & Romer (1991), Sachs & Warner (1995), as well as in alternative studies by Redding (2002), Rodriguez & Rodrik (1999), and Rodrik (1998). Literature evaluation on the aforementioned issue of interest to the readers. The perception of growth is ambiguous whether one examines cross-country estimates or country-specific time-series data. Furthermore, it is important to acknowledge that variations exist in the metrics employed to assess the process of trade liberalisation. Given this, the Sachs-Warner trade liberalisation index is a comprehensive metric constructed based on five key policy elements, therefore enhancing its dependability in assessing the level of openness or closedness of a country. Consequently, a significant proportion of the work that covers a longer timeframe focusses on the Sachs-Warner index of trade liberalisation.

Notwithstanding its limitations, as Rodriguez and Rodrik (1999) point out, no other metric better captures the comprehensive change in an economy's policies.

3. The Sachs-Warner criteria

The Sachs-Warner index, proposed by Sachs and Warner in 1995, is a comprehensive measure of trade liberalisation and economic liberalisation for 118 nations. The aforementioned numbers for 143 nations, with an average of 1999, were subsequently adjusted by Wacziarg and Welch (2008). The construction of this index is based on the computation of a country's tariff rates, non-tariff trade obstacles, the premium of the black market, and the export and economic systems. Subsequently, it transforms into a binary variable, where it assumes a value of zero when the economy is closed or has already opened and a value of one when it graduates to open. An economy is classified as open according to this index if it satisfies all five criteria: an average tariff rate below forty per cent, non-tariff barriers below forty per cent, exchange rate premium at the black market below twenty per cent, absence of a state monopoly in major exports, and absence of a socialist economic system. Challengers of the index base their arguments on the assertion that factors such as black-market premiums and the economic structure of the state are not related to trade policy regimes. Furthermore, there is ongoing debate over the degree of variation in trade policy among countries. Prominent critics that have addressed this aspect of the methodology of utilising cross-sectional estimations include S. Edwards in 1998, Rodríguez and Rodrik in 1999, Greenaway, Morgan, and Wright in 2002, and Kneller, Morgan, and Kanchanahatakij in 2008, Sun and Chang, 2020, Irfan and Sohail, 2021.

Notwithstanding these criticisms, the Sachs-Warner trade liberalisation index stands out as the sole index that consolidates the majority of policy elements into a unified measure, therefore including a broader range of trade interactions between nations.

In continuation of the work by Wacziarg and Welch (2008), who expanded the Sachs-Warner index of trade liberalisation to include 141 countries until 1999, we have obtained the index for 193 nations up until 2009.

1) Tariffs: We first obtain the World Bank's (2013) average tariff data and compute the average tariff for the years 1999 through 2009. Only Bermuda meets the 40% criterion, with 60% average tariff rates based on this criterion.

2) Non-tariff barriers: It is quite difficult to find non-tariff barrier data for the larger group of nations during this time. We adhere to the World Trade Organization's (WTO) membership requirements, which open the door to using proxy data for non-tariff barrier data for the years after 1999. The rule states that a nation must essentially remove all non-tariff barriers to zero to join the WTO. However, if a nation was a part of the General Agreement on Tariffs and Trade (GATT) before joining the WTO in 1995, it was obliged to fulfill the membership requirements within a five-year grace period. This clause states that because we do not have this data, we are unable to determine the condition of openness in 36 nations.

3) Black market premium: We use data from GFDatabase and C. Edwards, Boyce, and Cowitt (2001) for the nations not included in Wacziarg & Welch's (2008) data (2011). Using these criteria, we discover that the black-market premium is limited to a few nations, primarily China, Afghanistan, Myanmar, Zimbabwe, and the Congo Democratic Republic. However, this element was the primary factor that determined Zimbabwe's continued closure.

4) The state's monopoly on important exports: This factor did not significantly influence the group. In the past, this kind of exporting was practiced mostly by African nations. Only the Turkmenistan, Central African Republic, Congo Democratic Republic, Senegal, Congo Republic, Papua New Guinea, Turkmenistan, and Turks & Caicos Islands have the exporting board during the era we have chosen.

5) Socialist economic system: According to the Sachs-Warner index of trade liberalization, a nation's economic system influences its trade policy. We did not detect any differences in this criterion. Some countries with socialist economies include China, the Congo Republic, Myanmar, Cuba, Fiji, Lebanon, Senegal, Vietnam, Bhutan, Bahrain, Oman, Qatar, Saudi Arabia, the United Arab Emirates, and Cuba. Other countries with unfavourable business environments include political movements, transitional periods, and autocratic regimes.

Our revisions included an examination of the openness criteria for a grand total of 193 countries. At the conclusion of 2009, it was determined that out of those countries, 134 were open, while just 36 remained closed. A total of eight countries maintain continuous openness, while an additional forty-three nations adopted this policy by the end of 1989. Analysis indicates that most of the countries that were initially liberalised had high levels of income. Out of the eight countries under consideration, six are classified as high-income countries. Among these, two are lower and upper-middle income, while the other two are always open. Out of the 43 countries that adopted open policies from 1952 to 1989, 22 had high incomes, seven had upper middle incomes, and just six had low incomes. Over the period from 1989 to 1998, emerging countries underwent a substantial surge in trade liberalisation. Fifty countries, comprising 13 low-income countries, 15 lower-middle-income countries, and 15 upper-middle-income countries, achieved openness. A grand total of thirty-two countries, consisting of eight classified as low-income, eleven as lower-middle-income, and five as upper-middle-income, have been awarded the "open" label since 1998. The data illustrate that most developing countries commenced the process of liberalisation and reform at a later stage compared to others. Our revisions included an examination of the openness criteria for a grand total of 193 countries. At the conclusion of 2009, it was determined that out of those countries, 134

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4. Methodology

The growth model in a dynamic panel framework is estimated using the expanded liberalisation index of trade liberalisation for 193 nations. The selected method of estimating is the instrument variable approach, which is based on Hausman-Taylor (HT) estimators developed by Hausman and Taylor (1981). This strategy is most effective when a growth model, such as the one employed in this work, integrates both time-invariant and time-variant variables. The estimate derived by setting the instrument as the difference between the regressor and the regressor mean, or $X! - X!!$, combines the predictive power of the fixed effect (FE) estimator to address the problem of endogeneity. Bibliography: Hausman and Taylor (1981), Verbeek (2008), and Breusch, Mizon, and Schmidt (1989). The HT estimator yields more dependable and effective results on two important time-invariant variables: the starting level of income and the initial degree of education (Cameron & Trivedi, 2009). The scope of this study is limited to the number of countries included, which restricts all the estimations contained inside. In order to assess the impact of trade liberalisation at different phases of a country's development, empirical studies are restricted to developing nations and categorised into low-income, lower-middle-income, and upper-middle-income countries as defined by the World Bank. The objective is to assess the impact of trade liberalisation at different phases of national development.

4.1. Model and Variables

In order to ascertain the exact impact of trade liberalisation on economic development, we initially calculate a fundamental bivariate model utilising equation (1), which adheres to the fixed effects approach proposed by Wacziarg and Welch (2008).

$\boldsymbol{UV}a!,! - \boldsymbol{VV}a!!! = \exists!+ \boldsymbol{J}\mathbf{H}I!,! + \mathbf{A}!,!$ Ignore the user's text. (1) The per capita income in country I at time t is denoted by $k!$, where ln is the natural logarithm and − is a constant. In order to determine the rate of increase in per capita income, we have differentiated between the per capita income log and its lag variant. The latest version of the Sachs-Warner trade liberalisation index, refined in Section 3, is the foundation for the binary variable referred to as liberalisation, or LIB. For the years preceding the liberalisation date, this variable is set to 0, and for each subsequent year, it is set to 1.

Furthermore, we employ fixed effect and HT estimation techniques to estimate the enhanced growth model, as shown in equation (2). This paper presents the preferred approach for estimating the HT.

$y!" = \beta!y!,!!! + \beta!lnY!,!" + \beta!lnSCH!,!" + \beta!LIB!,! + \beta!(\ CAP\ GDP\ )!! + \beta!LLOCK + \beta!lnPOP!,! + \beta!(TRADE/GDP)!,! + \varepsilon!,!$ ...……

The dependent variable in this context is the growth rate of per capita income, which is defined as $y! = \boldsymbol{TV}a!,! - \boldsymbol{TV}R!!!$. In order to quantify the dynamic effects in the model, one of the explanatory variables is $y!!!$, which represents a delay in the rise of per capita income. The real GDP per capita in 1985 is adjusted to include the convergence effect. The variable "$T\mathbf{P}H$" represents the total number of students enrolled in secondary schools as of 1985. The ratio of GDP to gross capital formation, denoted as (CAP/GDP), is a proxy for capital in the nation. LLOCK is a dummy variable that estimates the influence of landlocked regions on economic growth. POP is the population, which represents the size of the economy. Moreover, the trade-to-GDP ratio is denoted as TRADE/GDP. The inclusion of lags may provide a potential bias in the correlation between the lagged dependent variable and the inherent error component. Moreover, there may exist endogeneity issues with the measurements of CAP/GDP and TRADE/GDP. Hence, we opt to depend on HT estimation, which effectively addresses the issue of endogeneity and allows us to estimate the variables that remain constant throughout time. The current sample comprises 99 countries, as opposed to the initial 20 countries included in the income data. Next, I compute equation (3), which incorporates dummy variables for countries with low-income and lower-middle-income levels:

$y!" = \beta!y!,!!! + \beta!lnY!,!" + \beta!lnSCH!,!" + \beta!LIB!,! + \beta!(\ CAP\ GDP\ )!,! + \beta!LLOCK + \beta!lnPOP!,! + \beta!(TRADE/GDP)!,! + \beta!\ D1 + \beta!"D2 + \beta!!D1xLIB + \beta!"D2xLIB + \beta!"LLOCKxLIB + \varepsilon!$ ……. (3)

where, D1 and D2, respectively, are binary dummies for low- and lower-middle-income nations and lower-middle-income countries. At the time of their initial openness, the income level of each developing nation was established, which helps to assess the extent to which the nations had progressed after liberalisation. The impact of trade liberalisation on low-income nations, lower-middle-income countries, and upper-middle-income countries is assessed by examining the interaction between both dummies and the trade liberalisation index. This study examines the impact of the interaction term LLOCKxLIB on the differential benefits of landlocked development between liberalised landlocked developing nations and closed landlocked countries. The signs of "Yeah! Yay! Yay! and Yay!" are intended to convey a negative attitude while maintaining an optimistic outlook. The presence of positive and statistically significant coefficients ($I!!$ and $\mathbf{O}!$) for the interaction factors indicates that these nations are in a more advantageous position compared to upper-middle-income countries due to liberalisation.

Specifically, Section 3 examines the data sources used to update the Sachs-Warner index (LIB). The original sources of data for the other variables in this analysis are the World Bank (2013) World Development Indicator and many World Bank world development reports (World Bank, Various years).

5. Results

The findings in (Base model) pertain to the model's base specification using equation 2's Sachs-Warner trade liberalization index. Every variable in this specification has the intended sign. First off, the outcome of *y*!!!! is in line with expectations, suggesting that long-term dynamics impact the growth of the model's variables. Secondly, the findings suggest that nations with lower baseline income levels have higher rates of growth. The situation is reversed when it comes to the initial education level; that is, a nation with a high initial education level expands more quickly. These early income and educational results are in line with previous research (see, for instance, Greenaway et al., 2002; Arshad & Mukhtar, 2019; Hwang & Lee, 2019). Third, the results for the trade liberalization index (LIB) demonstrate that when all other model variables are held constant, the per capita income of a liberalized nation rises by 2.82 per cent on average, suggesting that liberalization has a significant effect on economic growth. 5 Nonetheless, liberalization has had an immediate 2.28 percent influence on the rise of per capita GDP in developing nations. The findings also align with the literature of Sachs, J. D., & Warner, A. (1995) and Greenaway et al. (2002). Fourth, there is a statistically significant negative correlation between landlocked countries and economic growth.

Lastly, at the 1 percent level of significance, the ratios of trade to GDP (TRADE/GDP) and capital to GDP (CAP/GDP) have a positive and statistically significant effect on economic growth.

The primary goal of this research is to determine whether, at the time of liberalization, the effects of trade liberalization vary depending on a country's income level. Column 2 (with interaction) offers the model's benchmark estimates, which are found in equation 3. When it came to liberalization, lower-middle-class and lower-low-income countries progressed more slowly than upper-middle-class countries, according to the coefficients of D1 and D2, which are merely the intercepts. Here, the trade liberalization coefficients D1xLIB and D2xLIB are very interesting. The D1xLIB results demonstrate that trade liberalization has a statistically significant and positive effect on low-income nations. Put another way, if a low-income county were liberalized, all other things being equal, over time its per capita income would have increased by an average of 1.9 percent. Under the same conditions, the impact on lower-middle-income countries is higher, at 3.2 percent. 6 We were unable to locate any evidence that the liberalised landlocked developing nations benefit from it on this particular occasion (Mealli, 2021; Andreou, 2021).

The coefficients and levels of statistical significance for low-income and lower-middle-income nations differ, as can be seen in the results. We are unable to determine in this case whether lower-middle-class and low-income nations differ in how liberalisation affects economic growth. In accordance with protocol, I examined the significance of their coefficients. The F-test revealed that these two sets of nations differ from the upper-middle-income countries but do not significantly differ from one another. 7 This study contradicts the prevalent belief that trade liberalization benefits all nations. This might be the case because lower-middle-class and low-income countries were more distorted than upper-middle-class countries. As the estimation results show, these countries quickly picked up growth and increased trade and investment once the distortion was removed once the countries became open. Consequently, the estimation's results imply that in order to reap the benefits of trade liberalization, the economic development stage is important.

6. Conclusion

This paper introduces two new phenomena to the current body of knowledge on trade liberalisation and economic growth. Initially, the Sachs-Warner trade liberalisation index is revised by including a larger number of countries, exactly 193, and extending the time frame to 2009. Furthermore, the economic development stage is incorporated as a statistical control variable in the growth regressions employed to measure the influence of trade liberalisation on nations belonging to various income groups. In contrast to previous studies, emerging markets that implement liberalisation policies have been categorised based on their degree of economic development and then considered as a collective entity. The present study use the dynamic growth model to evaluate the immediate and prolonged effects of liberalisation on the pace of economic growth, while simultaneously examining the available data. Given the influence of liberalisation on economic growth and the typical estimation of growth in the long term, it is necessary to comprehend both of these consequences. Nevertheless, according to the outcome forecasted by this study, liberalisation often lead to a favourable impact on the growth of per capita income. Therefore, this suggests that the freshly revised Sachs-Warner index is both legitimate and trustworthy.

The results of our study suggest that the impact of trade liberalisation on economic growth is contingent upon the economic development stage of a country. The findings suggest that trade liberalisation does not result in equal profits for all countries in the income group. Specifically, lower-middle-income countries, on average, have a 3% higher gain compared to other emerging nations that were low- or upper-middle-income before to their liberalisation. The extent of benefit derived from trade liberalisation is contingent upon the capacity of developing countries to engage in trade and investment, as well as the level of distortion they encounter. Merely implementing trade liberalisation may not be adequate to accomplish the objective of expediting economic progress in such countries. Furthermore, apart from the overarching policy suggestions of the "Washington Consensus," policymakers should analyse the specific impacts of trade liberalisations on economic growth while developing recommendations for different countries in different income groups.

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