

The causal relationship among trade openness, financial development, and economic growth: Recent evidence from newly industrialized countries (NICs)

Ticaret açıklığı, finansal gelişme ve ekonomik büyüme arasındaki nedensellik ilişkisi: Yeni sanayileşen ülkeler

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Abstract

A country's financial development and trade openness are important indicators that affect integration into the economic system at the international level. Especially in newly industrializing countries, these variables can be beneficial in ensuring economic growth. Financial development supports economic development through the mobilization and effective use of capital. Trade openness is one of the unifying forces of productivity and economic growth. The effectiveness of trade openness is highly dependent on structural reforms. Newly industrialized countries are motivated to attract large amounts of capital and investment from the global economy. These countries tend to encourage exports while ensuring their industrialization. This research investigates the relationships between financial development, trade openness, and economic growth for ten newly industrializing countries. Research data contained the period from 1990 to 2020. The Dumitrescu-Hurlin panel causality test was used in the analysis. Considering the results, there is a uni-directional causality relationship between trade openness to economic growth and financial development to trade openness. Moreover, a bidirectional relationship between economic growth and financial development has been observed.

Keywords: Economic Growth, Trade Openness, Financial Development

Jel Codes: N20, O40

Öz

Bir ülkenin finansal gelişmişliği ve ticari açıklığı, uluslararası düzeyde ekonomik sisteme entegrasyonu etkileyen önemli göstergelerdir. Özellikle yeni sanayileşen ülkeler açısından bu göstergeler ekonomik büyümenin sağlanmasında fayda sağlar. Finansal gelişme, sermayenin mobilize edilmesi ve etkin kullanımı yoluyla ekonomik kalkınmayı destekler. Ticari açıklık, verimlilik ve ekonomik büyümenin birleştirici güçlerinden biridir. Ticari açıklığın etkinliği büyük ölçüde yapısal reformlara bağlıdır. Yeni sanayileşmiş ülkeler, küresel ekonomiden büyük miktarlarda sermaye ve yatırım çekmek için çalışan ülkelerdir. Bu ülkeler sanayileşmelerini sağlarken ihracatı teşvik etme eğilimindedirler. Bu çalışma, yeni sanayileşen on ülke için 1990'dan 2020'ye kadar olan verileri kullanarak ticaret açıklığı, finansal gelişme ve ekonomik büyüme arasındaki ilişkileri incelemeyi amaçlamaktadır. Analizlerde Dumitrescu-Hurlin panel nedensellik testi uygulanmıştır. Sonuçlar, finansal gelişmeden ticaret açıklığına ve ticaret açıklığından ekonomik büyümeye doğru tek yönlü bir nedensellik ilişkisi bulunduğunu göstermektedir. Çift yönlü ilişki finansal gelişme ve ekonomik büyüme arasında bulunmaktadır.

Anahtar Kelimeler: Ekonomik Büyüme, Ticaret Açıklığı, Finansal Gelişme

JEL Kodları: N20, O40

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Introduction

Newly Industrialized Countries (NICs) are a group of countries that have practised accelerating economic growth in the last years. These countries then have moved from primarily agricultural to manufacturing and service-based economies. The NICs are often seen as an intermediate stage between developing and developed countries. Waugh (2000) pioneered the classification of newly industrialized nations. India, China, Brazil, Malaysia, Indonesia, Philippines, Mexico, Thailand, South Africa, and Turkey are commonly considered newly industrialized countries.

With the increasing ease of international capital mobility, the mobility of savings between countries has also increased. Fund owners who want high returns can quickly transfer funds to different countries. This economic mobility negatively affected the capital markets and financial indicators of the developing countries where capital movements occurred. These developments in capital movements have also led to some debates. It has also brought up discussions on the introduction of certain restrictions on capital flows.

McKinnon (1973) and Shaw (1973) formed the theoretical basis of financial liberalization with McKinnon-Shaw's hypothesis. According to the hypothesis, it is stated that the rise in the variety of financial instruments has positive effects on the economic growth of developing countries where financial liberalization is achieved.

Developments in the indicators related to trade openness and financial development level may affect the countries' economies differently. These indicators also show how well the countries' economies can adapt to the global financial and trade systems.

Demirgüç-Kunt and Levine (2008) stated that the most crucial task of financial systems is to eliminate transaction and information costs that reduce the efficiency of economic activities. They state that there are five basic functions for decreasing costs. The first is to generate information about possible investments and allocate capital. The second is to apply corporate governance principles and monitor investments after obtaining financing. The third is to facilitate risk trading, diversification, and management. The fourth is to mobilize and accumulate savings. The last is to facilitate trade in goods and services.

After a financial crisis caused by a government debt crisis or an economic recession, economic growth has become one of the important areas of empirical study in the scientific community. Similarly, the relationship between financial development, trade openness, and economic growth once again attracted attention in applied economics to apprehend in detail the complicated relationships that form the basic nature of national economies. Many studies have shown that openness and financial development are increasingly crucial sources of economic growth (Mtar and Belazreg, 2021). The countries' financial markets and qualifications are critical to their growth potential. Financial development is essential for economic growth. Thus, well-designed financial systems tend to enable countries to develop faster in the long term (Menyah, Nazlioglu and Wolde-Rufael, 2014).

Trade openness could influence economic growth through different channels, especially in developing countries. Openness supports economic growth by transferring technology from high-tech countries to developing countries. Trade openness accelerates economic growth by allowing innovations of developed countries to be imitated by developing countries. Trade openness raises economic growth, especially with a more effective allocation of resources.

Over the past few years, trade openness has been generally recognized as a unifying agent for economic growth and productivity. Among the reasons for this acceptance is that trade openness encourages innovation, provides technology and knowledge dissemination, and increases efficiency in the allocation of resources, thereby accelerating growth in economies. In addition, trade openness brings new employment opportunities while increasing exports and imports in economies (Raghutla, 2020: 1).

It is a generally accepted argument that the effect of trade openness on economic growth is closely tied to various structural reforms. The opinion that openness will have a favourable effect on growth with the help of complementary structural reforms is also argued by Chang, Kaltani, and Loayza (2009). There is evidence to put forward that financial development and trade openness are connected with economic growth positively. For example, studies have shown that countries following liberal trade policies are inclined to have higher levels of economic growth, and countries with more developed financial systems are inclined to have more investment and higher economic growth rates. Additionally, trade openness and financial development can reinforce each other, as greater trade can increase the demand for financial services, while a well-designed financial system can promote international trade.

This study aims to understand how trade openness, financial development, and economic growth interact and how these relationships impact economic growth in newly industrialized countries. This study hypothesises a positive relationship between trade openness and financial development, and both factors mutually reinforce economic growth. It posits that increased trade openness enhances financial development, promoting economic growth. This knowledge can guide in shaping economic policies and structural reforms and promoting economic growth in these countries.

This study investigates the causal relationship between domestic credit, trade openness, and economic growth in the Newly Industrialized Countries (NICs) context. The Dumitrescu-Hurlin panel causality test is employed on a panel dataset covering 1990 to 2020 for ten newly industrializing countries. The results reveal interesting dynamics within the NICs economies. The findings indicate a significant and homogeneous causality between domestic credit to the private sector (DCTPS) and trade openness (TO). This suggests that increased domestic credit drives trade openness in the NICs. This finding highlights the importance of a well-developed financial sector in promoting international trade activities in these countries.

The rest of the paper includes four sections: literature review, data and preliminary analysis, methodology and empirical results, and conclusion.

Literature review

The causal relationship between trade openness, financial development, and economic growth is a topic of ongoing research and debate among economists. However, evidence suggests that all three variables are closely interconnected and can influence each other differently. Trade openness refers to the extent to which a country engages in international trade, and it is often measured by the ratio of a country's total trade to its GDP. Greater trade openness can increase economic growth by providing access to larger markets, promoting specialization and efficiency, and encouraging innovation through exposure to new technologies and ideas. Additionally, financial development refers to developing a country's financial system, including its banking sector, stock markets, and other financial institutions. A well-developed financial system can facilitate economic growth by providing access to capital for businesses and individuals, promoting investment and entrepreneurship, and enabling risk management.

For years, the link between economic growth and financial development has been one of the subjects debated in the economics literature. Schumpeter (1911), one of the pioneer economists to reveal the financial system's support to economic growth, showed that financial institutions accelerate technological innovation and contribute positively to the economy by collecting savings and using them in productive areas. Many studies indicate that the level of financial development has a favourable impact on economic growth. For many years, empirical studies in the economic growth literature have shown that trade openness and financial development affect growth differently. (Beck, 2002).

The economics literature frequently researches the relationship between trade openness, financial development, and economic growth. These relationships can be measured using different approaches and different methods. It is observed that the results vary depending on the method and data used.

Many panel data studies have been conducted in recent years that reveal evidence of positive linkages between economic growth and financial development. One of the main reasons why these studies seem more original and reliable is that they eliminate the possible obstacles of cross-section and time series studies.

Upon examining the literature, it was seen that the existing works in the field spotlighted the financial development and economic growth relationship. Levine, Loayza and Beck. (2000) stated that the significant positive relationship between economic growth and financial development could be partially explained by using panel techniques to evaluate the effect of exogenous components, such as financial development, on economic growth. Anwar and Sun (2011) concluded in their analysis which uses the GMM method, that the financial development level in Malaysia significantly affects domestic capital stock, which has an important reflection on economic growth. Zhang, Wang and Wang (2012) investigated the relationship between economic growth and financial development in China during 2001-2006 using the GMM method. The findings provided a positive relationship between them. Osei and Kim (2023) investigated 75 countries from 1990 to 2019 for the link between financial development and the growth impact of FDI using a regression-based club convergence test and linear and non-linear specifications. The study has interpreted that structural characteristics of countries trade openness and financial development levels affect the relationship between economic growth and FDI.

New protectionist practices are also important in this manner. Liman and Sönmez (2022) investigated new protectionist practices in the global economy using an empirical model created through SVAR

analysis from 1990-2020. The findings suggest that while new protectionist tools and policies permanently affect world trade in the short term, these effects disappear in the long term.

Appiah, Gyamfi, Adebayo and Bekun (2023) investigate the impact of financial development, economic growth, and foreign direct investment on enhancing industrial growth for selected Sub-Saharan African countries from 1990-2017. The study finds that financial and economic growth enhances industrial development, while foreign direct investment has an adverse effect. Chhabra, Giri and Kuma (2023) explored the role of institutional quality and trade openness in shaping economic growth in Brazil, Russia, India, China, and South Africa (BRICS). The study finds that while trade and institutions are short-run complements of economic growth, the lack of good governance limits the positive impact of trade openness in the long run. Kumari, Shabbir, Saleem, Khan, Abbasi, and Lopez (2023) examined the relationship between foreign direct investment (FDI) inflows, trade openness, and economic growth in India using annual time series data from 1985-2018. The study found no long-term relationship among all three variables, but FDI causes economic growth, and economic growth causes FDI, confirming bi-directional causality. Mustafa (2023) examined the relationship between financial development, economic growth, foreign direct investment, and trade openness in four South Asian countries from 1990 to 2019 using the Granger Causality test in the Vector Error Correction Model (VECM) framework. The results suggest that all four countries should adopt policies to promote further trade liberalization, financial sector development, and fast-track reforms to improve the investment climate and attract investments to attain high economic growth in the long run.

Dinga, Fonchamnyo, Ongo and Bekun's (2023) results showed that market size and trade openness had a positive and statistically significant effect on domestic investment for all income groups, while financial development had a positive and statistically significant effect only for LMIC and HIC economies. The Dumitrescu and Hurlin test was used in the paper to test for the causality direction of the highlighted variables. The causality results revealed a bidirectional relationship between domestic investment and the exogenous variables.

Some studies focus only on the relationship between openness and economic growth. Din, Ghani and Siddique (2003) examined the openness and economic growth regarding their relations towards each other in the Pakistani economy between 1960 and 2001. This study showed that there isn't any causality between trade openness and economic growth in the short run, but a relationship emerged over the long term. Chang, Kaltani, and Loayza (2009), in their study researching the effect of trade openness on growth, defended the idea that complementary structural reforms have a positive effect on growth. While the trade openness effect on growth is a widely accepted argument, increasing this effect is closely tied to various structural reforms. Kim, Lin, and Suen (2010) analysed by using panel data how trade openness would affect the financial development set of 88 countries for 1960-2005. In low-income countries, long-term positive results regarding trade openness were obtained, but the same results were not valid for the long term. Bourdon, Mael, and Vijil (2013) stated in their dynamic panel analysis for 157 countries in the 1995-2009 period that as exports diversify, trade openness affects economic growth negatively. Raghutla (2020), in his panel causality study for five emerging market economies between 1993 and 2016, stated that trade openness positively impacts economic growth.

In addition, the literature covers empirical research investigating the relationship between different macroeconomic variables simultaneously. Rani and Kumar (2018) examined BRICS countries by applying panel data for 1993-2015 for the links between trade openness, financial development, and economic growth. Their results revealed trade openness influences economic growth positively, while FDI negatively affects BRICS countries. Mtar and Belazreg (2021), using the panel-VAR approach for 11 European countries, researched the links between trade openness, innovation, financial development, and economic growth from 2001 to 2016. Their results suggest that economic growth and development strategies may vary by country, and the country's circumstances must be considered.

Data and preliminary analysis

In this research, it is tried to clarify the causal relationship between trade openness, financial development, and economic growth for ten newly industrializing countries-NICs which are, India, China, Brazil, Malaysia, Mexico, Philippines, Indonesia, Thailand, South Africa, and Turkey, from 1990 to 2020. The study used annual GDP data of domestic credit to private sector ratio to represent the financial development. Rajan and Zingales (1998), Levine (1997), Parente and Prescott (1994), Beck and Levine (2004), and Demirgüç-Kunt and Levine (2001) concern the Domestic Credit to Private Sector (%) as a proxy for financial development to study its implications on economic growth and financial outcomes Furthermore, we use trade openness as total trade ratio to GDP and GDP growth. We collected annual data from the Worldbank statistical database, known for its data quality, to enhance

the empirical analysis. To estimate our data empirically, we used the EViews 11 statistical software. Tables 1 and 2, respectively, show definitions and descriptive statistics of variables. Data is gathered from World Development Indicators (WDI).

Table 1: Variables

Variable name	Representation	Data Sources
GDP Growth (%)	GDPG	WDI
Domestic Credit to Private Sector (%)	DCTPS	WDI
Trade Openness GDP ratio (%)	TO	WDI

Table 2: Correlation Analysis and Descriptive Statistics

	NICs		
	GDPG	DCTPS	TO
Mean	3.613750	80.21309	66.04482
Median	4.539326	62.65490	54.63203
Maximum	11.20011	182.8681	162.5590
Minimum	-9.518295	22.65381	22.10598
Std. Dev.	4.023624	44.53804	35.54852
Skewness	-1.029105	0.423724	1.193816
Kurtosis	3.979205	1.679296	3.276684
Jarque-Bera	25.97535	12.31213	28.88671
Probability	0.000002	0.002121	0.000001
Sum	433.6501	9625.570	7925.378
Sum Sq. Dev.	1926.557	236052.8	150380.0
Observations	120	120	120

Table 2 highlights the results of the descriptive statistics. It shows that financial development and trade openness holds a positive period average value. Following the standard deviation, DCTPS and TO had high volatility, while GDP registered small. It can be seen that GDP was skewed to the left, although DCTPS and TO were to the right. Regarding their kurtosis values, we can say that GDPG and TO had leptokurtic distributions, which exceeded the threshold of 3.

DCTPS had a platykurtic distribution. Because the Jarque–Bera test was significant at the 1% level, the null hypothesis of normal distribution was rejected. In other words, our variables were non-normally distributed.

Methodology and empirical results

Before analysing our data, we checked the Cross-sectional Dependence between the countries by using Pesaran's (2004) Cross-sectional Dependence test, the Lagrange Multiplier test, which belongs to Breusch-Pagan (1980), and Pesaran, Ullah and Yamagata's (2008) the Bias-Adjusted Cross-sectional Dependence Lagrange Multiplier test in analysis. By test results, there is cross-sectional dependence between countries. At this moment, we applied Pesaran (2007)'s 2nd generation panel unit root test of the cross-sectionally augmented IPS (CIPS) to see the stationary of variables. When cross-sectional dependence is a concern, selecting the Dumitrescu-Hurlin test becomes critical for assessing causal relationships in panel data. To analyze the causality between economic growth, financial development, and trade openness, Dumitrescu and Hurlin's (2012) panel causality test employed data. Thus lastly, we run the panel causality test of Dumitrescu and Hurlin (2012) using the EViews 11 statistical software.

Dumitrescu and Hurlin (2012) investigate the linear heterogeneous model as follows:

$$y_{it} = \alpha_i + \sum_{k=1}^k \gamma_i^k y_{it-k} + \sum_{k=1}^k \beta_i^k x_{it-k} + \epsilon_{it}, \quad i=1, 2, \dots, N; \quad t=1, 2, \dots, T$$

α_i , $\gamma_i^{(k)}$, and $\beta_i^{(k)}$ refer to the constant term, lag parameter, and coefficient slope, respectively. The alternative and null hypotheses are as follows:

$$H_0 : \beta_i = 0, \quad H_1 : \begin{cases} \beta_i = 0 & \forall_i = 1, 2, \dots, N \\ \beta_i \neq 0 & \forall_i = N_1 + 1, N_1 + 2, \dots, N \end{cases}$$

The null hypothesis denotes the existence of homogeneous Granger causality of all cross-section units. The Dumitrescu-Hurlin causality test results are given in Table 5.

To understand the existence of cross-sectional dependence between countries Lagrange Multiplier, Bias-Adjusted Cross-sectional Dependence Lagrange Multiplier, and Cross-sectional Dependence tests were used. Table 3 gives the results.

Table 3: Results of the Cross-Sectional Dependence Tests

Test/ Variables	GDPG	DCTPS	TO
CD _{BP}	281.80 (0.0000)	275.64 (0.0000)	206.57 (0.0000)
CD _{LM}	24.96 (0.0000)	24.31 (0.0000)	17.03 (0.0000)
LM _{adj}	24.50 (0.0000)	23.85 (0.0000)	16.57 (0.0000)
CD	16.12 (0.0000)	12.90 (0.0000)	5.92 (0.0000)

Pesaran (2004) 's cross-sectional dependence test (CD) results are in Table 3. Concerning the tests, the null hypothesis of cross-sectional independence was rejected for all variables. That indicates the presence of significant and causal relationships among GDPG, DCTPS, and TO. The findings suggest that changes in GDPG, DCTPS, and TO significantly impact each other, highlighting these variables' interdependence and mutual influence. Therefore, for any of these variables, if there is a shock in these countries, it will spread to other countries. Therefore, we used Pesaran, Smith, & Yamagata's (2013) 2nd generation panel unit root test of CIPS. Table 4 indicates the results.

Table 4: CIPS test result

Test/ Variables	Pesaran (CIPS)	
	without trend	with trend
GDPG	-1.14	-1.10
D.GDPG	-3.10*	-3.58*
DCTPS	-2.13	-2.74
D. DCTPS	-4.62*	-4.81*
TO	-2.15	-2.19
D.TO	-2.24*	-2.56*

Notes: *shows the null hypothesis rejection at a 1% significance level.

Results indicate that all variables are stationary at first differences, which means I (1). Therefore, we run the Dumitrescu and Hurlin panel causality test, as shown in Table 5.

Table 5: Results of Dumitrescu and Hurlin Causality Tests

Null Hypothesis / Groups	NICS	
	Zbar-Stat	Probability
DCTPS doesn't homogeneously cause TO	3.64	0.000*
TO doesn't homogeneously cause DCTPS	0.12	0.900
GDPG doesn't homogeneously cause TO	1.02	0.306
TO doesn't homogeneously cause GDPG	4.75	0.000*
GDPG doesn't homogeneously cause DCTPS	2.59	0.000*
DCTPS doesn't homogeneously cause GDPG	3.43	0.000*

Note: *p < 0.01, **p < 0.05, ***p < 0.1.

The results are consistent with prior research in the field, adding to the existing literature on the causal relationship between domestic credit, trade openness, and economic growth. Following the results in Table 5, there seems to be a uni-directional causality relationship from financial development to trade openness and from trade openness to economic growth. Also, there is a bi-directional relationship between economic growth and financial development. They indicate a significant and homogeneous causality between domestic credit to the private sector (DCTPS) and trade openness (TO), suggesting that increased domestic credit drives trade openness in the NICs. This finding aligns with the studies conducted by Rajan and Zingales (1998) and Beck and Levine (2004), which emphasize the role of financial development in promoting international trade activities and economic growth. It also highlights the importance of a well-developed financial sector in promoting international trade activities in these countries.

However, the results indicate that changes in trade openness do not consistently or significantly affect domestic credit to the private sector in the NICS. The lack of a significant causality between trade openness and DCTPS is in line with the findings of Demirgüç-Kunt and Levine (2001) and Levine (1997), who suggest that while trade openness positively affects economic growth, its impact on financial development may vary across countries and contexts. This suggests that while trade openness plays a crucial role in economic development, it may not directly impact credit availability or access for the private sector.

Furthermore, the study finds a significant and homogeneous causality between trade openness and gross domestic product growth (GDPG) in the NICS, which supports the findings of Edwards (1998) and Wacziarg (2001). This implies that trade openness consistently contributes to economic growth in these countries, highlighting the importance of international trade as a driving force for economic development.

Additionally, the results demonstrate a significant and mutually influential relationship between GDPG and DCTPS, consistent with the studies conducted by Parente and Prescott (1994) and Demetriades and Hussein (1996). Changes in domestic credit consistently affect economic growth and vice versa, indicating a two-way relationship between financial development and economic performance in the NICS.

Conclusion

Financial development is vital for the efficient use of savings to ensure economic growth and development. In many studies, domestic resources' contribution, which is most easily accessible in financing development, to the economic growth process has been investigated, especially for developing countries. Trade openness is also an important indicator that affects developing countries. Trade openness is a concept utilized to measure the trade liberalization level of a country. The level increases while barriers limiting trade between countries disappear. Commercial liberalization has been one of the controversial issues from the past to the present. There are many different views on how trade liberalization will affect the growth of the country's economy. According to economists who adopt classical economic thought, all foreign trade countries benefit from this trade. According to economists who are against this idea, trade liberalization is in favour of developed countries and against developing and underdeveloped countries. However, the relationship between these three variables is complex and could be influenced by factors such as institutions, external shocks, and government policies. The causal relationship among these variables is still an area of active research and debate among economists.

This research investigated the causal relationship between trade openness, financial development, and economic growth for ten newly industrializing countries for the 1990-2020 period. This framework first explored the cross-sectional dependence between countries of each variable. Cross-sectional dependence was found concerning all variables in the panel. It gives us the information that these countries can face the same shock if there is a shock in any of them. The CIPS unit root test was run; for the panel's cross-sectional dependence. At their first differences, they were all stationary. Finally, the Dumitrescu-Hurlin panel causality test was employed. The results indicate a uni-directional causality relationship from financial development to trade openness and from trade openness to economic growth. There is a bi-directional relationship between financial development and economic growth. The findings of this study provide valuable insights into the causal dynamics between domestic credit, trade openness, and economic growth in the context of the NICS. They emphasize the importance of a well-developed financial sector in promoting trade openness and economic growth. Policymakers in the NICS should focus on fostering financial sector development to enhance credit availability and access, which can drive trade activities and overall economic performance. These findings contribute to the existing literature on financial development and economic growth in emerging economies. Further

research could explore the specific mechanisms through which these relationships operate and examine potential variations across different subsets of NICS economies.

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