

Escandón Barbosa, Diana; Salas-Páramo, Jairo; Moreno-Charry, Ana Virginia

## Article

Drivers' analysis of trajectories (commercial, logistical, and financial) of China's export performance: A comparative analysis between Eastern and South-Eastern Asian countries

Research in Globalization

## Provided in Cooperation with:

Elsevier

*Suggested Citation:* Escandón Barbosa, Diana; Salas-Páramo, Jairo; Moreno-Charry, Ana Virginia (2023) : Drivers' analysis of trajectories (commercial, logistical, and financial) of China's export performance: A comparative analysis between Eastern and South-Eastern Asian countries, Research in Globalization, ISSN 2590-051X, Elsevier, Amsterdam, Vol. 6, pp. 1-8, <https://doi.org/10.1016/j.resglo.2023.100129>

This Version is available at:

<https://hdl.handle.net/10419/331057>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

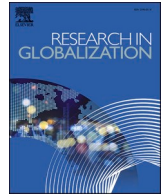
*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by-nc-nd/4.0/>



# Drivers' analysis of trajectories (commercial, logistical, and financial) of China's export performance: A comparative analysis between eastern and south-eastern Asian countries

Diana Escandón Barbosa <sup>a</sup>, Jairo Salas-Páramo <sup>a</sup>, Ana Virginia Moreno-Charry <sup>b,\*</sup>

<sup>a</sup> Pontificia Universidad, Javeriana Seccional Cali, Calle 18 #118-250, Santiago de Cali, Colombia

<sup>b</sup> Universidad de la Costa, CUC Cl. 58 #55 - 66, Nte. Centro Histórico, Barranquilla, Atlántico, Colombia

## ARTICLE INFO

### Keywords:

Internationalization  
Export performance  
The behavioral theory of the firm  
Trajectory analysis

## ABSTRACT

**Purpose:** The present research aims to study the driver's analysis trajectories (commercial, logistical, and financial) of China's export Performance, comparing eastern countries (Japan) and south-eastern countries (Singapore, Hong Kong, South Korea, Philippines) between 1975 and 2022. For the research purpose, a growth trajectories model was used. This technique considers commercial, logistical, and financial drivers and their impact on export performance. The world bank database is used for this analysis. It contains information on the specified Asian countries and years. The growing trajectory analysis model is a data analysis technique that allows for identifying variations in the drivers in the time that have characterized the export dynamics of Asian Countries. The results show what drivers have been the ones that have had the most significant influence on countries' export performance.

## Introduction

Since China's economic reform of 1978, reported growth has been 10% on average. Among the most significant achievements have been that a large part of the population has come out of poverty, increased access to health, and expansion of coverage in education as the main achievements in recent years. As a result, China is currently considered an upper-middle-income country. However, it must continue with the need to do more with the poor population in both rural and urban areas (World Bank, 2022a).

According to the World Bank (2022b), China's current economy is characterized by implementing aggressive economic rules that have allowed it to face economic crises and conditions, such as those generated by the coronavirus pandemic (2019). Although the above growth prospects it has reached 4.3% of GDP, which is still below the best projections. On the other hand, China's economy is also vulnerable to global dynamics, more specifically to the common restrictions due to the appearance of the Covid variants. However, the announcements of the most recently adopted policies and the stimuli generated improve its economic projections possible in the future.

One of the main characteristics of China as a country is that its manufacturing is intensive in resources. Consequently, it has many

export products, a comparative advantage such as cheap labor, and the need to opt for products with higher added value and expand the consumer market. Despite the preceding, the country has recently seen the need to deal with different circumstances that range from a decrease in the labor force, low profitability of investments, and a sustained trend towards low productivity. All the above directly marks the new drivers that the economy must adapt to face its entire economic, social, and political situation and especially its position on the world stage (Brooks and Go, 2011).

On the other side, the policies generated in Asian countries can find higher public spending, tax refunds, rate reductions, and specific policies for certain sectors, including real estate. Despite the above, the environment explicitly characterized by economic uncertainty that affects private investments and consumption weighs on a highly commercial economy, OECD (1999). According to the World Bank (2022a), despite these economic strategies, there is still concern that they continue to be based on debt financing and real estate investments, given that the current model is unsustainable and challenging to finance for businesses local governments.

An important aspect to highlight is that China, as a leading country in Asia, has proposed strategies to improve connectivity between Asia and Europe (Rojanalekul et al., 2022). An example of the above is the Belt

\* Corresponding author.

E-mail addresses: [dmescandon@javerianacali.edu.co](mailto:dmescandon@javerianacali.edu.co) (D. Escandón Barbosa), [amoreno14@cuc.edu.co](mailto:amoreno14@cuc.edu.co) (A.V. Moreno-Charry).

<https://doi.org/10.1016/j.resglo.2023.100129>

Received 16 November 2022; Received in revised form 12 April 2023; Accepted 22 April 2023

Available online 26 April 2023

2590-051X/© 2023 Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Road Initiative (BRI). The president of China launched this program, Xi Jin Ping, whose initiative involved about 65 countries that made up 40% of the world's gross domestic product, within these mainly south-eastern Asia (Mitrovic, 2017). This initiative comprises many logistics projects and external investments allowing countries to develop infrastructure around large cities to improve stability and connectivity between the region's countries (Zhai, 2018).

As a result, Asian countries represent an export-oriented development model that emphasizes various commercial, financial, and logistical indicators across time. Scholars in the field have defined some necessary fields of development in which different contexts of China and other Asian countries have been studied, among which are international trade (Abdullahi et al., 2023; Chen et al., 2023), alternative energy sources (Liu et al., 2023), clean air policy (Chen et al., 2023; Peng et al., 2023; Wu et al., 2023).

Studies in the field suggest two significant gaps to overcome the development of the paper's purpose. The first gap concerns the need to conduct studies that analyze the effectiveness of international trade strategies and their evolution over time. In this condition, the need is to evaluate performance, especially in comparison with other countries in the region (Ximei et al., 2022; Mehmood et al., 2022). The second call of the scholars in the field is the need to use comparative studies with specific information but adopt econometric techniques that allow greater rigor in processing information (Mehmood et al., 2022).

Finally, this paper is organized into four sections: an introduction, a theoretical framework, results, and conclusions. In the first part, an introduction is made referring to China and its level of development at different economic, social, financial, and sustainability levels. In the second part, allusion is made to the behavioral theory of the firm that allows studying the dynamics that characterize companies within Asian countries. Finally, the methodology is presented in the third part, detailing the data used and the technique that allowed information processing. Consequently, the results and conclusions are developed as the main implications of the study.

## Theoretical framework

### *The behavioral theory of the firm*

The behavioral theory of the firm determines that the motivation of the firm's managers is related to the risk that is assumed, promoting a specific performance of the firm related to a level of aspiration. In this way, firms can evaluate their current performance by considering both past performance and those that can be considered competition (Taraki et al., 2018). An essential aspect of this perspective is that managers will receive their feedback according to the expected performance. Therefore, when this performance is above the industry average, they will receive positive comments about their work; otherwise, if it is not, these comments will be negative (Chen, 2008).

In this way, the behavioral theory of the firm focuses on the definition of objectives that, when achieved, allow greater satisfaction concerning the performance achieved (Cyert and March 1963). An important aspect to highlight is that to the extent that firms are not directly associated with aspiration, they will be more open to risk and willing to assume changes in their performance. Scholars such as Chen and Miller (2007) suggest that firms that perform below expectations tend to develop a greater willingness to take risks and increase their spending on Research and Development (R&D). On the contrary, firms that perform better than expected tend to decrease their spending. This behavior contradicts what is expected in a stable financial environment for research and development.

Some studies have shown that companies limit their investments in research and development, considering the feedback on their performance (Lv et al., 2019). In the behavioral theory of the firm, when the performance is low according to the desired level, firms will look for the factors that have affected the negative results. Firms will begin to

formulate solutions that allow them to exceed their aspirations and improve the inputs in research and development (Guo et al. (2022)). On the other hand, if the performance is above expectations, the firms will try to keep up by reducing inputs to reduce the risks associated with their operation.

According to Le and Lee (2021), they argue that focusing on the levels of historical and social aspiration, decision-makers must consider multiple factors when making decisions about the performance obtained. For example, to reduce the risks and levels of uncertainty, the firms consider the conditions in which the reference firms carry out their activities. On the other hand, the literature suggests that academic and social aspirations are two types of aspirations that consider the performance between local firms and those considered peers.

Both historical and social levels of aspiration have been considered in various investigations, but their results have varied widely. Authors such as Hu et al. (2017) and Smulowitz et al. (2020) state that there are no indications of a specific affectation of the approaches since they show varied results. In conclusion, the results obtained so far still need to be more conclusive, and the efforts to understand and establish a concrete explanation continue in the study processes.

### The behavioral theory of the firm at the country level

In the behavioral theory of the firm, it is possible to find related perspectives that support how the firm's performance is influenced by external factors, especially at the country level. One widely known theory is the contingency theory, which establishes the relationship between the environment as an independent variable and the different strategies the organization implements to respond to the markets (dependent variables) (Liu, 2020). Additionally, the behavioral perspective of the firm's performance appears. This perspective highlights that the behavior the firm develops will depend directly on the set of contingencies present in the environment. This previous condition is how a firm's performance will depend directly on its multiple strategic dimensions (Tien and Chen, 2015).

Additionally, this perspective posits that routines and factors at both the industry and country levels can interact with the firm's situation and affect its performance (Kaur and Singh, 2020). Finally, scholars such as Tjandra et al. (2022) suggest that the firm's performance will depend directly on the top management team. This situation is because they oversee establishing the path for taking advantage of the moments of the firm with characteristics and conditions at the industry and country levels without neglecting cultural aspects (Welsh et al., 2021).

According to research in the field, it is possible to propose the following ideas about how the behavior of firms will depend on the context determined by country conditions. The first relates to the fact that beliefs determine the degrees of importance of economic activities, such as economic sectors that have been the axis of economic development of a country. Secondly, the policies will usually focus on the prioritized economic sector, more on creating consensus among the actors that compose it than changing the institutions that support it (Vershinina et al., 2020). Finally, the dynamics of the country will depend on the legitimacy of the normative and cultural aspects. The previous condition is determined by the degree of cultural appropriation of a country that determines the sanctions and incentives in implementing policies that affect the dynamics of the sectors and, therefore, that of the firms (Tjandra et al., 2022).

### Commercial, financial, and logistical drivers

According to Taheri et al. (2020), commercial drivers are essential for improving the export performance of an organization. It refers that micro-level properties of individuals (i.e., characteristics of human agents in supply chains) and macro-level properties of organizations (i.e., characteristics of firms and/or supply chains) not only concurrently and interactively shape managerial decisions and actions in supply

chains, but also mutually influence each other over time, [Tangpong et al. \(2013\)](#). This degree of importance is also established as a two-way relationship, given that to the extent that an organization becomes commercially stronger, its options to serve new markets increase. However, the development of these new markets will bring with it greater responsibility and the need for a faster response capacity to meet the needs of its consumers ([Akhvlediani and Śledziewska, 2017](#)).

According to the general agreement on trade services (GATS), international trade in services is classified in four ways: cross-border supply, consumption abroad, commercial presence, and presence of natural persons. These four modalities are subject to the liberalization and elimination of each country's commercial restrictions that facilitate the penetration of domestic markets ([Were and Odongo, 2019](#)). However, despite the above, such regulations are created to face market failures and information asymmetry. In this way, organizations such as the World Trade Organization (WTO) have aimed to achieve greater trade liberalization through tariff negotiations between countries.

Developed countries have the most significant commercial exports and imports worldwide, especially Europe, which has the largest share due to the latent policy of European markets that promotes regional integration. In the case of developed countries, they have improved their trade conditions. However, trade continues to be concentrated in a few countries, especially those belonging to the Asian economies. In the latter case, its success is attributed to the economic and structural transformation that countries such as Korea, China, Japan, and Malaysia have undergone, which have potentiated the diversification of their goods and services.

Scholars such as [Were and Odongo \(2019\)](#) suggest that the structural deficiencies in the commercial aspects of the countries are mainly due to two factors. One of these is the minimum investment in new technologies, which makes the country reduce the possibility of generating added value to its products. The second factor is related to the low-skilled labor force, which is one of the main limitations at the country level. Finally, an important aspect to highlight is that these regions showed difficulties in managing externalities such as global financial crises, terrorist attacks, and health crises such as the Covid-19 pandemic, severely impacting the tourism sector in these regions.

On the other hand, with the development of the capacity to understand the market, and the need to operate more profitably, the management of the companies must assume a financial risk that will support the company's new export strategies ([Chen, Poncet, and Xiong, 2020](#)). In this way, the countries must attend, through business development programs, sectoral commitments, and investments in infrastructure, to create the conditions so that companies can take advantage of the infrastructure to allow them to operate in favorable conditions, meeting the needs of the market.

An essential element to consider, especially with the integration of markets between countries, is that its main objective is to improve the conditions of manufacturing and financial cooperation in the country ([Rojanaleekul et al., 2022](#)). One of the ways to improve the country's competitive conditions is by creating organizations that finance investment projects related to infrastructure. They can also generate other financing strategies through bilateral agreements between countries with specific economic sectors ([Jaksć, 2022; Zhai, 2018](#)).

According to [Jaksć \(2022\)](#), in need to strengthen the financial operations of the countries, and in the face of increasing globalization, the financial integration of economies, spillovers are decisive in improving export dynamics. Additionally, results in the field have shown a direct relationship between export and import dynamics through trade liberalization accompanied by significant economic activity growth.

However, more than commercial and financial drivers are needed to improve export performance. It must also be accompanied by the management capacity of the management level to take advantage of the infrastructure offered by the environment in terms of its logistics infrastructure that allows it to improve its competitive position against the competition ([Medina et al., 2014; Fan et al., 2022](#)). This last

logistical aspect will be decisive in facing the market's competitive dynamics, allowing it to develop its export capacity.

The improvement in commercial activities, as well as the improvement in the financing capacity of investments for the improvement of export performance, is added to the improvement of the logistic capacity of a country. In this way, Asian countries, especially South Asia, have shown that by improving the conditions above, they can create the capacity to access resources in the market in order to operate efficiently in foreign markets, having the capacity to Being able to be part of a global supply chain and thus be able to develop the capabilities of people to take advantage of the investments made ([Zhai, 2018](#)).

According to the above, logistics is critical at the micro and macro levels. In this way, logistics creates a meeting point between the provision of products and the expectations of consumers, a relationship that allows for improving the economic conditions of a country ([Suroso, 2022](#)). Studies in the field have shown the critical relevance of logistics infrastructure in international performance ([Host et al., 2019; Wang and Choi, 2018](#)). Finally, for authors such as ([Luttermann et al., 2020](#)), recent studies have shown that the improvement in logistics performance not only influences the improvement of the economic conditions of a country. However, it also improves the attractiveness of collaborating countries in investment objectives. According to the above, recent research has shown that there is a positive relationship between the logistics performance of a country and both local and external performance in international trade ([Kaplan and Bozyigit, 2021; Darmanto et al., 2021](#)).

## Hofstede cultural dimension

Scholars in the field of culture have considered Hofstede's vision of dimensions as a helpful perspective to assess the dynamics of the cultural environment in company activities ([Alipour, 2021; Escandon-Barbosa and Salas-Páramo, 2022](#)). However, despite the above, other studies suggest that Hofstede's approach cannot explain the nature of changes over time ([Sivakumar and Nakata, 2001](#)).

In Hofstede's five dimensions, this research is part of the long-term orientation, especially from Confucius' idea of dynamism. In this way, and according to ([Hofstede, 1990](#)), the long term refers to how culture considers the future, seeking gratification through achieving objectives. In this way, cultures with this dimension to a high degree tend to execute planning and persist in reaching goals. Moreover, this search for the scope of the objectives leads societies to consider savings a fundamental aspect of their lives because it makes it easier to deal with emergencies and investment in education.

For [Hofstede \(2001\)](#), culture and values are stable due to their historical roots. In this way, the country's historical past will influence the social and economic developments in the different social subsystems, such as education, the law, and the political structure reinforced by the values established in the past. Once these factors are reinforced, they tend to be stable over time, thus allowing a greater degree of certainty in the type of policies and actions of the countries that affect their export performance.

For scholars such as [Gill \(2017\)](#), this approach to culture allows for a vision of how cultures allow a country's infrastructure to have business activities and business plans that allow them to face market dynamics. An example of this condition is in Asian countries; the expansive dynamics over time that increases trade and investment can be observed based on and exposed to each country's values, ideas, and cultural systems ([Alipour, 2021](#)). Finally, scholars such as [Ye et al. \(2020\)](#) found that cultural variables are more determinant than other variables in economic, demographic, and social security growth, especially in Asian countries, without losing sight of their considerable differences.

**H1 (Hypothesis 1).** Eastern Asian countries with a high long-term orientation dimension accumulate more **commercial, logistical, and financial drivers** over time than South-eastern Asian countries with a low long-term dimension.



Literature supports them as:

**Commercial drivers:** Impulse the organization's commercial strength, giving opportunities to service new markets. However, the growth may increase accountability and the requirement for a faster reaction capability to satisfy the requirements of its consumers.

**Logistical drivers:** Initiatives and foreign investments to help governments construct infrastructure around major cities to increase regional stability and connectivity.

**Financial drivers:** Because of the requirement to operate more successfully, firm management must take a financial risk to support the company's new export plans.

## Methodology

### Sample selection and data collection

The data used for this paper were obtained through the information of the World Development Index (WDI) of the World Bank between 1960 and 2021. This database has information from different official sources and includes national, regional, and world-level estimates (See Appendix 1). WDI has more than 1600 indicators to 217 economies and information since 1960.

The data relating to Singapore, Hong Kong, Japan, South Korea, Philippines, and meridional Asia performance between 1970 and 2021. The indicators are available for the last 60 years for all commercial, logistical, and financial indicators. Therefore, this base allows us to have 80 indicators over the last six (6) decades.

The export volume index measures the dependent variable for export performance. The independent variables are distributed as follows: Seven variables were used for logistical indicators, twenty-three for commercial indicators, and nine for financial indicators.

**Independent variables:** External influences impact a firm's performance, particularly at the country level. These theories are the contingency theory, which establishes the link between the environment and the various methods used by the organization to adapt to market changes.

**Dependent variables:** The dependent variable  $y$  is a multivariate variable in the linear regression model.

The descriptive analyses of the sample allow us to conclude that the development of the Asian continent's internal and even global gross domestic product has been significantly influenced by trade. From the 1960s to 2021, trade behavior in countries like China and Singapore has increased by more than 400%. China's export-related revenues have steadily increased from 1987 through 2021, with participation amounts as high as USD 3,554,296,099,846, followed by countries like Japan with USD 823,184,000,000,00 that have shown a steady increase over the study period.

In contrast, despite not having the same high levels of income as Japan, South Korea has shown a consistent increase in its export-based income since 2002, reaching a high of USD 644,400,000,000,00. As a result, there may be a significant difference between the percentage of goods exported to developing economies within the region and outside of it. All the study's regions, including Hong Kong, Japan, China, South Korea, Singapore, and others, have higher percentages of goods exported to developing economies outside the region (steady growth starting in 1987 with participation rates ranging around 29.11%). Different categories of exports are present in markets, such as exports of manufactured goods, which have the most considerable impact on exports of metals, minerals, and foods, with participation rates as high as 93,551% in 2001. In contrast to other exports, manufactured goods exports have maintained participation rates between 1992 and 2021.

## Method

The group-based trajectory modeling (GBTM) estimates different trajectory curves over time and simultaneously assigns a probability of

belonging to everyone in each trajectory. In contrast, many models (growth curve models) estimate an "average trajectory" for all individuals and compute the standard deviation for everyone. This paper, Asian countries are examined as the subject of analysis using data from 1960 to 2021. In this regard, the generated trajectory for each of the drivers is examined to understand how they have changed over time, necessitating the use of the individual-centered approach methodology to report changes in the exporter performance over time for each country based on the logistical, commercial, and financial drivers (Frankfurt & Frazier, 2016).

After estimating the trajectory model using group-based trajectory modeling (GBTM), weighted linear regression determined the group to which each country has the greatest likelihood of belonging. Each country is assigned to the group with the highest likelihood. The changes in the variables over time are assumed to be independent of previous periods, but they help to form the trajectory. The trajectory model allows one to examine how the variables behave about a time-dependent polynomial function. Additionally, the linear model's hypotheses are assumed to be fulfilled (Hair et al., 2004), and culture is established as a random variable. However, by including the matrix of error covariances, Weighted Linear Regression models also produce lower heteroscedasticity probabilities.

In this study, GMA (Growth Mixture Analysis) was used to create profiles of nations based on various export performance trajectories and to examine the elements that influence financial, logistical, and commercial drivers. Two groups of countries were found to exist, distributed into three different categories, highly stable, decreasing, and unstable.

On the other hand, we estimate using maximum likelihood estimation because it is a method for estimating unknown parameters by enhancing the likelihood function of a model. The dependent variable  $y$  is a multivariate variable in the linear regression model:

By setting the derivative of the previously mentioned term with respect to  $w$ . Now,  $w$  is estimated:

(CE): Covariance of errors of the diagonal inverse matrix.

Also, it is useful for determining regression coefficients and is as simple as substituting the diagonal elements with their reciprocals. Based on each observation's variance, weighted linear regression assigns a different weight to each one. Because of its low weight, an observation with a high error variance will have less of an effect on the outcome.

The final model is:

$$y_{it}^* = \beta_0^j + \beta_1^j CD_{it} + \beta_2^j + \dots + \beta_5^j CD_{it}^5 + \delta_1^j z_{1t} + \delta_2^j z_{2t} + \dots + \delta_L^j z_{Lt} + \varepsilon_t$$

$Y$ : Dependent variable called Export performance.

The variable ( $Y$ ) was weighted with the following:

(CD): Cultural dimension for each country.

(t): Time in which each variable is measured.

(Bj): Polynomial parameter that each driver has.

eit: error term.

(BIC): was used to determine the number and shape of the trajectories.

The number of competing models was calculated to find the best fit for the data. The Bayesian information criterion helped to find the average posterior probability of membership used to evaluate the model's viability.

## Description of the trajectories

Table 1 displays the goodness-of-fit of the different solutions from one to three profiles and commercial, logistic, and financial indicators. Different indicators, including the Akaike Information Criterion (AIC), the Adjusted Bayesian Information Criterion (ABIC), and the Bootstrap Likelihood Ratio Test (BLRT), are used to confirm the model's adjustment according to Jang and Hong (2022). These indicators should show a decrease in level with each increase in new profiles (OECD, 2001). The research demonstrated that these findings were statistically sound and

**Table 1**

Goodness-of-fit of the different solutions.

Model GMA	LL	AIC	CAIC	BIC	ARABIC	aLMR	BLRT
1. Profile	−1542.910	3101.820	3144.743	3138.745	3113.342	–	–
2. Profile	−1484.812	2991.624	3053.400	3042.400	3007.474	0.020	<0.002
3. Profile	−1441.844	2911.680	2990.312	2976.314	2931.863	<0.002	<0.002
<i>Controls Results</i>							
Null effects	−1305.780	2645.557	2739.405	2722.410	2668.433	–	–
Effects on Profile	−1295.997	2649.996	2910.093	2781.093	2689.018	0.020	<0.002
Effects on Profile, Intercept	−1292.986	2651.872	2834.153	2801.093	2696.374	0.017	<0.002
Effects on Profile, Intercept, Slope number (var.)	−1266.584	2655.170	2991.928	2930.928	2737.257	0.050	<0.002

Note: Own source. Model log-likelihood; AIC: Akaike information criteria; CAIC: constant AIC; BIC: Bayesian information criteria; ABIC: sample size adjusted BIC; aLMR: adjusted Lo–Men del–Rubin likelihood ratio test; BLRT: bootstrap likelihood ratio test.

that the ideal number of trajectory or profile points should be two.

Table 2 displays the findings of research on export performance profiles in Asia. Our findings revealed that the levels of export performance differed substantially across the southern and eastern groups. In addition, the first year of the study (1975) detected differences in starting conditions, but with a significance close to 90% (BLRT: 0.77 p0.1), indicating that the study's initial parameters had already identified aspects of development that were favorable for the countries in Profile 1 (the eastern), but not for the other countries.

According to our findings, nations with a long-term culture have the highest levels of export success, which is linked to a growing long-term career trajectory. Therefore, the long term will be important in understanding how each of these groupings' countries deals with their international dynamics and available resources.

The variations between the end and first periods are most clearly seen in Profile 1, where there are significant differences (p 0.01). In contrast, trajectory 2 shows that the changes are not statistically significant when all the indicators are considered (p = 0.1). In this sense, it is confirmed that the differences in the long-term cultural perspective employed in Eastern countries allow for better exploitation of the commercial, financial, and logistical aspects. In contrast, having a more short-term perspective does not allow south-eastern countries to anticipate and produce long-term effects on their exporter performance. This

supports hypothesis 1 that nations in eastern Asia with a high long-term orientation dimension accrue more financial, logistical, and commercial drivers over time than those in south-eastern Asia with a low long-term dimension (See Fig. 1).

Compared to Profile 2 and Profile 1, export performance levels were maintained higher. However, the most glaring flaw with trajectory 2 is its prolonged lack of consolidation, which leads to extremely unstable export results. This is depicted as a trajectory with a downward tendency and a more pronounced decline between 2020 and 2021.

The previous profile, which could not explain, was unnecessarily fragmented by creating a new profile. Additionally, the third profile fails to achieve significance or to consolidate outcomes related to the Balti (BLRT) initiator (p > 0.1) (See Table 1).

Profile 1 Highly stable started with higher levels across all indicators and a culture connected to the long term. The nations that make up this group are China and Japan. While profile 2 has a Decreasing behavior for absorbing more countries, such as Singapore and South Korea, by having levels of indicators that range from moderate to high and as a short-term culture. For countries like Hong Kong and the Philippines.

Fig. 2, which shows the various trajectories for the examined nations, is shown below. The first group (Profile 1) stands out and has high export success, particularly distinguished by sustained performance over time. Profile 2, on the other hand, shows levels that are declining over time and that sharply decline due to international trade restrictions related to COVID-19.

## Conclusion

It has been possible to find a growing interest in identifying drivers of a firm's performance; this achieves the purpose and objectives. The previous condition results from worldwide commercial dynamics, which demonstrate variances in the various tactics produced by corporations in nations with a strong exporting predominance. A growth trajectories model was employed for the investigation. This shows export strategies after determining the country level, and the above results consider judgments about commercial, logistical, and financial methods.

In the case of China, they have increased tremendously in recent years. The trajectory analysis employed in data analysis is an approach that allows us to see changes in a country's export policies over time.

This research makes use of the World Bank database. As a result, the theory of business behavior indicates that strategic methods allow for lower information costs and changing performance goals over time.

Furthermore, the motivation of the firm's management is tied to the risk that is accepted, and the firm's success is impacted by external variables, particularly at the national level. Eastern Asian nations with a strong long-term orientation component collect more commercial, logistical, and financial drivers over time than Southeast Asian countries with a low long-term orientation dimension. It has been discovered that countries in eastern Asia with a high long-term orientation dimension accumulate more financial, logistical, and commercial drivers over time than those in south-eastern Asia with a low long-term dimension. It is established that Profile 1 has a very stable beginning with greater levels

**Table 2**

Analysis of Export Performance among Profiles.

	Profile 1 (Higher) Mean [Interval]	Profile 2 (Declining) Mean [Interval]	Differences
<i>Logistic*Long Term</i>			
Time 1975	0.567 [−0.411; −0.865]	0.465 [0.265; 0.944]	4 > 2 > 3 > 1
Time 2021	0.745 [−0.488; −0.668]	0.504 [0.202; 0.721]	3 > 2 > 1 = 4
<i>Commercial*Long Term</i>			
Time 1975	0.516 [0.241; 0.607]	0.311 [−0.111; −0.774]	1 > 3 > 2
Time 2021	0.711 [0.234; 0.553]	−0.816 [−0.511; −0.713]	1 > 2 > 3
<i>Financial*Long Term</i>			
Time 1975	0.439 [0.377; 0.500]	−0.806 [−0.886; −0.726]	1 > > 2 = 3
Time 2021	0.438 [0.469; 0.468]	−0.785 [−0.856; −0.705]	1 > 2 > 3
<i>Long Term</i>			
Time 1975	0.247 [0.183; 0.310]	−0.476 [−0.597; −0.356]	1 > 2 = 3
Time 2021	0.229 [0.173; 0.287]	−0.456 [−0.570; −0.342]	1 > 2 = 3

Note: Own Source.



Fig. 1. Country trajectories.

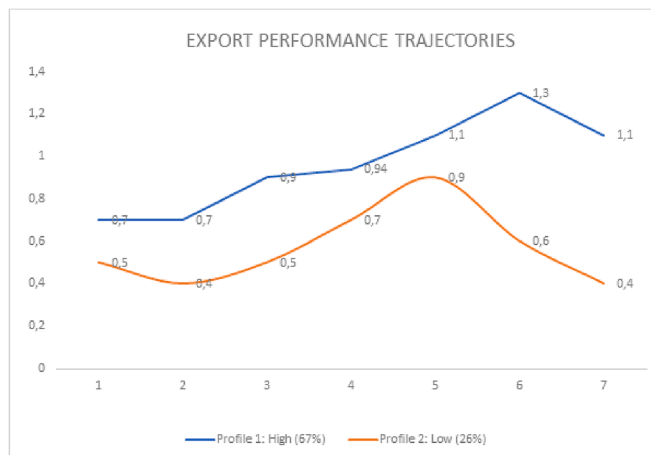


Fig. 2. Export performance trajectories for profiles Note: Own Source. Trajectories are estimated using time-invariant factor scores ( $M = 0$ ;  $SD$  (Standard Deviation) = 1).

across all metrics and a long-term culture (China and Japan). It stands out and has a high level of export success, as evidenced by consistent performance over time.

On the other hand, Profile 2 has a declining result, like Singapore, Hong Kong, Philippines, and South Korea, due to having levels of indicators ranging from moderate to high and as a short-term culture. On the other hand, it shows dropping levels over time and a significant decline owing to international trade limitations associated with COVID-19.

Our research demonstrates that strategic business, financial, and logistical activities are the basis for the results of internationalization. However, our article also connects with several studies that suggest that these results are influenced by internal cultural characteristics that may change how they relate to one another and their exporter behavior (Ximei, et al., 2022; Mehmood et al., 2022). In this sense, the findings show how the theory of company behavior allows for determining the purpose and conditions that cause international business firms' aspirations to develop through time.

When export performance declines, companies alter how they approach the market and use their strategic business to improve their

international results. In this regard, the trajectory analysis enables the identification of the shifts in focus that the countries have experienced throughout time, focusing on financial, logistical, and commercial activities as instances of corporate activities on global markets. The financial aspect serves as a component of international support, while the commercial and logistical aspects enable value addition and promote the exporting processes and facilities. When it comes to culture, it is seen that countries with a long-term focus on their cultural dimension have a more intense dynamic in their commercial, logistical, and financial spheres.

According to our study, countries with a long-term emphasis, like the eastern block, can focus on commercial and logistical activities, which has resulted in strong exporter performance over time. On the other hand, the literature suggests that nations with a short-term concentration have less dynamic behavior. Therefore, our study confirms the existence of commercial, logistical, and financial pressures in the south-eastern block, but they are not as strong as those noted in the eastern. The stated career dynamics, as a result, exhibit unstable levels with a propensity to deteriorate.

High levels across all inputs related to the drivers are associated with a highly stable trajectory. Looking at the eastern bloc's results through time, the logistics drivers are established as having the most weight (1975–2021). It suggests that several financial indicators tend to improve over time, which has stabilized the 2009–2019 career trajectory. However, COVID 19 effects may be seen in all the drivers' strong drops, although they are most obvious in the financial driver. China and Japan are included in this category of highly stable countries because they share long-term visionary cultural traits and high levels of average drivers in the financial, commercial, and logistics sectors. They also exhibit an export-driven growth dynamic that has been stable since 1975 and has increased since 2010. However, Profile 1 had eastern countries with high export performance; Profile 2 had southeast countries with less export performance. Our findings supported (Liu, 2020), who said that differences between countries are associated with their strategies to face the international markets. However, culture demonstrates how the nations effectively utilize their resources related to their commercial, financial, and logistical components.

## Managerial CONTRIBUTION

Within the practical implications, it is possible to visualize the possibility in which countries can develop public policies to strengthen a

country's productive infrastructure. This condition is possible by considering distinct aspects of each country that integrates its historical, cultural, social, and economic dynamics in order to be able to respond appropriately directed to the needs of the market. At the company level, it is possible to show that cultural elements play a fundamental role in the company's performance, especially with the set of decisions that allow them to take advantage of the conditions of their location.

## Limitations AND FUTURE RESEARCH LINES

The limitations in the database used mainly due to the restriction of the data, especially with the variables analyzed. This restriction leads to the need to merge the information with other databases that would allow for more in-depth analyses by adding new variables to the studies at the country level. In line with the above, there is also the possibility of future studies to determine the significance of financial, commercial, and logistical indicators. It is proposed to conduct studies comparing the trajectory between Asia and the Continent-based on a general study of countries that conformed to it. Additionally, the cultural element would be able to document more significant differences between Eastern and Western countries.

## CRedit authorship contribution statement

**Diana Escandón Barbosa:** Conceptualization, Methodology, Software, Validation, Formal analysis, Resources. **Jairo Salas-Páramo:** Writing – review & editing, Visualization, Supervision, Project administration. **Ana Virginia Moreno-Charry:** Data curation, Writing – original draft.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Acknowledgments

We are glad of what we achieved, thanks everyone who inspired us by giving advice and providing the equipment which was needed. It would be harder if anyone gather their knowledge and abilities.

## References

- Abdullahi, B. N., dingchou, M., Yeboah, F. K., and Ibrahim, H. Y. (2023). Econometric Analysis of China-ECOWAS agricultural products trade. *Ciência Rural*, 53(1). 10.1590/0103-8478cr20210556.
- Akhvlediani, T., & Śledziowska, K. (2017). The impacts of common commercial policy on export performances of visegrad countries. *Prague Economic Papers*, 26(1), 3–18. <https://doi.org/10.18267/j.pep.593>
- Alipour, A. (2021). What matters for the future? Comparing Globe's future orientation with Hofstede's long-term orientation. *Cross-Cultural and Strategic Management*, 28(4), 734–759. <https://doi.org/10.1108/CCSM-08-2020-0163>
- Brooks, D. H., & Go, E. C. (2011). Infrastructure's Role in Sustaining Asia's Growth. *Research Papers in Economics*. <https://econpapers.repec.org/RePEc:ris:adbewp:0294>.
- Chen, W.-R. (2008). Determinants of firms' backward- and forward-looking R&D search behavior. *Organization Science*, 19(4), 609–622. <http://www.jstor.org/stable/25146205>.
- Chen, W.-R., & Miller, K. D. (2007). Situational and institutional determinants of firms' R&D search intensity. *Strategic Management Journal*, 28(4), 369–381. <http://www.jstor.org/stable/20142446>.
- Chen, X., Shang, J., & Ji, X. (2023). Impact of urbanization on agricultural ecological efficiency: Evidence from China. *Ciência Rural*, 53(3). <https://doi.org/10.1590/0103-8478cr20210650>
- Chen, Z., Poncet, S., & Xiong, R. (2020). Local financial development and constraints on domestic private-firm exports: Evidence from city commercial banks in China. *Journal of Comparative Economics*, 48(1), 56–75. <https://doi.org/10.1016/j.jce.2019.09.005>
- Cyert, R. M., and March, J. G. (1963). A behavioral theory of the firm (Vol. 2, No. 4, pp. 169–187).
- Darmanto, E. B., Handoyo, R. D., & Wibowo, W. (2021). The impact of the Asean-china free trade area (ACFTA) agreement on Indonesia's major plantation export commodities. *Business: Theory and Practice*, 22(1), 91–97. <https://doi.org/10.3846/btp.2021.11012>
- Escandón-Barbosa, D., & Salas-Páramo, J. (2022). The role of informal institutions in the relationship between innovation and organizational learning in export performance: A bidirectional relation? *Asia Pacific Management Review*. <https://doi.org/10.1016/j.apmr.2022.08.001>
- Fan, M., Wu, Z., Qalati, S. A., He, D., & Hussain, R. Y. (2022). Impact of green logistics performance on China's export trade to regional comprehensive economic partnership countries. *frontiers in environmental. Science*, 10. <https://doi.org/10.3389/fenvs.2022.879590>
- Frankfurt, S., & Frazier, P. (2016). A review of research on moral injury in combat veterans. *Military psychology*, 28(5), 318–330.
- Gill, C. (2017). *Hofstede's cultural dimensions and differences across cultures*. Oxford's University Press: Academic Insights for the Thinking World. OUPblog..
- Guo, F., Wu, N., & Zhu, L. (2022). Performance feedback and strategic R&D classification: A further study of an R&D tax credit. *Applied Economics Letters*, 1–5. <https://doi.org/10.1080/13504851.2022.2099795>
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2004). *Análisis multivariante*. ISO 690.
- Hofstede, G. (1990). Empirical models of cultural differences. *Contemporary Issues in Cross-Cultural Psychology*.
- Hofstede, G. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations* (2nd ed.). Thousand Oaks, CA: Sage.
- Host, A., Pavlič Skender, H., and Zaninović, P. A. (2019). Trade Logistics – the Gravity Model Approach. *Zbornik Radovan Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu/Proceedings of Rijeka Faculty of Economics: Journal of Economics and Business*, 37(1), 327–342. 10.18045/zbefri.2019.1.327.
- Hu, S., He, Z. L., Blettner, D. P., & Bettis, R. A. (2017). Conflict Inside and Outside: Social Comparisons and Attention Shifts in Multidivisional Firms. *Strategic Management Journal*, 38(7), 1435–1454. <https://doi.org/10.1002/smj.2556>
- Jakšić, S. (2022). Modeling CESEE countries export dynamics: global vector autoregressive approach. *Zagreb International Review of Economics and Business*, 25(2), 39–63. <https://doi.org/10.2478/zireb-2022-0014>
- Jang, Y., & Hong, S. (2022). Evaluating the quality of classification in mixture model simulations. *Educational and Psychological Measurement*. <https://doi.org/10.1177/00131644221093619>, 00131644221093619.
- Kaplan, Z., & Bozyigit, S. (2021). The effect of Turkey's logistics performance on Turkey's foreign trade. *International Journal of Trade and Global Markets*, 14(1), 48. <https://doi.org/10.1504/ijtgm.2021.113346>
- Kaur, R., & Singh, B. (2020). The impact of CEOs' characteristics on corporate leverage: indian scenario. *Vision: The Journal of Business Perspective*, 25(4), 428–438. <https://doi.org/10.1177/0972262920954596>
- Le, Q. A., & Lee, C. Y. (2021). Below-aspiration performance and risk-taking behavior in the context of Taiwanese electronic firms: A contingency analysis. *Asia Pacific Business Review*, 1–24. <https://doi.org/10.1080/13602381.2021.1932091>
- Liu, Y. (2020). Does vertical administrative integration of environmental monitoring at the provincial level effectively motivate firms to improve environmental behaviour in China? *International Review of Administrative Sciences*, 86(3), 547–566. <https://doi.org/10.1177/0020852318780993>
- Liu, Y., Shi, L., Su, L., van der Mei, H. C., Jutte, P. C., Ren, Y., & Busscher, H. J. (2023). Nanotechnology-based antimicrobials and delivery systems for biofilm-infection control. *Chemical Society Reviews*, 48(2), 428–446. <https://doi.org/10.1039/c7cs00807d>
- Luttermann, S., Kotzab, H., & Halaszovich, T. (2020). The impact of logistics performance on exports, imports, and foreign direct investment. *World Review of Intermodal Transportation Research*, 9(1), 27. <https://doi.org/10.1504/writr.2020.106444>
- Lv, D. D., Chen, W., Zhu, H., & Lan, H. (2019). How does inconsistent negative performance feedback affect the R&D investments of firms? A study of publicly listed firms. *Journal of Business Research*, 102, 151–162. <https://doi.org/10.1016/j.jbusres.2019.04.045>
- Medina, R. P., Selva, M. L. M., & Menéndez, L. G. (2014). LogisTics performance index: European exports. *Revista de economía mundial*, 38, 77–100.
- Mehmood, U., Agyekum, E. B., Kamel, S., Shahinzadeh, H., & Moshayedi, A. J. (2022). Exploring the roles of renewable energy, education spending, and CO2 emissions towards health spending in south asian countries. *Sustainability*, 14(6), 3549. <https://doi.org/10.3390/su14063549>
- Mitrovic, D. (2017). China's Belt and Road Initiative: Connecting and Transforming Initiative. *The Belt and Road Initiative in the Global Arena*, pp. 17–34. 10.1007/978-981-10-5921-6\_2.
- OECD. (1999). Foreign direct investment and the environment. *OECD Publishing, Paris*. <https://doi.org/10.1787/9789264266315-en>
- OECD. (2001b). *Measuring Productivity - OECD Manual Measurement of Aggregate and Industry-level Productivity Growth: Measurement of Aggregate and Industry-level Productivity Growth*. Van Haren Publishing.
- Peng, Y., Wang, H., Wang, Q., Jing, S., An, J., Gao, Y., ... Chen, C. (2023). Observation-based sources evolution of non-methane hydrocarbons (NMHCs) in a megacity of China. *Journal of Environmental Sciences*, 124, 794–805. <https://doi.org/10.1016/j.jes.2022.01.040>
- Rojanaleekul, V., Pungchompoo, S., & Sirivongpaisal, N. (2022). Trade values predictive model of Southeast Asia under the Belt-Road Initiative. *The Asian Journal of Shipping and Logistics*, 38(3), 162–172. <https://doi.org/10.1016/j.ajsl.2022.06.001>
- Sivakumar, K., & Nakata, C. (2001). The stampede toward Hofstede's Framework: Avoiding the sample design pit in cross-cultural research. *Journal of International Business Studies*, 32(3), 555–574. <http://www.jstor.org/stable/3069497>



- Smulowitz, S. J., Rousseau, H. E., & Bromiley, P. (2020). The behavioral theory of the (Community-oriented) Firm: The differing response of community-oriented firms to performance relative to aspirations. *Strategic Management Journal*, 41(6), 1023–1053. <https://doi.org/10.1002/smj.3123>
- Suroso, A. I. (2022). The effect of logistics performance index indicators on palm oil and palm-based products export: The case of Indonesia and Malaysia. *Economics*, 10(10), 261. <https://doi.org/10.3390/economics10100261>
- Taheri, T., Noubar, H. B. K., & Taghizadeh, H. (2020). Designing and presenting an application to improve the export performance of commercial companies (Case study of commercial companies in Ardabil province). *International Journal of Nonlinear Analysis and Applications*, 12, 279–295. <https://doi.org/10.22075/ijnaa.2021.5150>
- Tangpong, C., Hung, K. T., & Li, J. (2013). Toward a theory of behavioral supply chain management. *Academy of Management Proceedings*, 2013(1), 15118. <https://doi.org/10.5465/ambpp.2013.15118abstract>
- Tarakci, M., Ateş, N. Y., Floyd, S. W., Ahn, Y., & Wooldridge, B. (2018). Performance feedback and middle managers' divergent strategic behavior: The roles of social comparisons and organizational identification. *Strategic Management Journal*, 39(4), 1139–1162. <https://doi.org/10.1002/smj.2745>
- Tien, C., & Chen, C.-N. (2015). The power of momentum on firm performance: A myth or a reality? *Journal of Organizational Change Management*, 28(3), 452–468. <https://doi.org/bdbib.javerianacali.edu.co/10.1108/JOCM-02-2014-0032>
- Tjandra, N. C., Garavan, T. N., Aroean, L., & Prabandari, Y. S. (2022). Understanding the ethical legitimacy of tobacco advertising, promotion, and sponsorship in Indonesia in the context of increased government regulation: A legitimacy-as-perception perspective. *European Journal of Marketing*, 56(4), 1042–1064. <https://doi.org/10.1108/ejm-06-2019-0512>
- Vershinina, N., Markman, G., Han, L., Rodgers, P., Kitching, J., Hashimzade, N., & Barrett, R. (2020). Gendered regulations and SME performance in transition economies. *Small Business Economics*, 58(2), 1113–1130. <https://doi.org/10.1007/s11187-020-00436-7>
- Wang, M. L., & Choi, C. H. (2018). How logistics performance promote the international trade volume? A comparative analysis of developing and developed countries. *International Journal of Logistics Economics and Globalisation*, 7(1), 49. <https://doi.org/10.1504/ijleg.2018.10011610>
- Welsh, D. H., Kaciak, E., Mehtap, S., Pellegrini, M. M., Caputo, A., & Ahmed, S. (2021). The door swings in and out: The impact of family support and country stability on success of women entrepreneurs in the Arab world. *International Small Business Journal: Researching Entrepreneurship*, 39(7), 619–642. <https://doi.org/10.1177/0266242620952356>
- Were, M., and Odongo, M. (2019). Competitiveness and diversification of service exports in sub-Saharan Africa: The case of the East African Community. WIDER Working Paper. 10.35188/unu-wider/2019/725-5.
- World Bank (2022a) Extracted from web page. <https://www.worldbank.org/en/country/china/overview>.
- World Bank (2022b). Extracted from web page. <https://www.worldbank.org/en/country/china/publication/china-economic-update-june-2022>.
- Wu, C., Lv, S., Wang, F., Liu, X., Li, J., Liu, L., ... Wang, G. (2023). Ammonia in urban atmosphere can be substantially reduced by vehicle emission control: A case study in Shanghai, China. *Journal of Environmental Sciences*, 126, 754–760. <https://doi.org/10.1016/j.jes.2022.04.043>
- Ximei, L., Latif, Z., Danish, L., S., & Waara, K. U. (2022). Estimating the impact of information technology on economic growth in South Asian countries: The silver lining of education. *Information Development*, 026666692211004. 10.1177/02666669221100426.
- Ye, D., Pan, S., Lian, Y., & Ng, Y. K. (2020). Culture and savings: Why do Asians save more? *The Singapore Economic Review*, 66(03), 621–651. <https://doi.org/10.1142/s0217590819500607>
- Zhai, F. (2018). China's Belt and road initiative: A preliminary quantitative assessment. *Journal of Asian Economics*, pp. 55, 84–92. 10.1016/j.asieco.2017.12.006.