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Relationships Between Economic Growth, Foreign Trade Activity, And Regional Economic Convergence: A Review Of The State Of The Art And The Case Of Mexico

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Abstract

The objective of this paper is to report on the main epistemological contributions made by specialists in economic growth, foreign trade activity, and regional economic convergence, associated with the interaction between these conceptual entities, reviewing the main results of such interaction in classical and recent theoretical and empirical research and, finally, contrasted with the historical experience of developing countries such as Mexico. After reviewing the state of the question, it was concluded that both at the theoretical level and in terms of empirical analysis, only progress has been made and there is still an important part of the path to be followed, as evidenced by the evident controversy that the different contributions raise, the cause of which lies in the different methodologies used in the different studies on the topic.

Keywords: Economic growth, foreign trade activity, regional economic convergence, Mexico.

Introduction

The study presented in these spaces is guided by two cardinal questions: is it possible to argue for the existence of a link between economic growth, foreign trade activity, and regional economic convergence; and, if such a link is considered feasible, what is the type of relationship between economic progress, trade and the phenomenon of convergence? For some time now, both economic scholars and decision-makers have expressed their positions on these questions through their academic works, articles or economic policy strategies (Barro, R. & Sala-i-Martín, X., 1991; Frankel, J. & Romer, D., 1999; Díaz-Bautista, A., 2003a; González, M., 2007; Busse, M. & Königer, J., 2012; Spence, M., 2012; Benavides, Perrotini & Mendoza, 2014; Reidel, K., 2015; Manta, O., 2020).

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However, the constant in this series of studies, analyses, and models, lies in a non-existent common criterion for the theoretical-empirical linkage between the conceptual elements of reference.

Based on a review of the state of the art, this paper aims to report on the main epistemological contributions made by specialists in economic growth, trade, and regional economic convergence, associated with the interaction between these conceptual entities, reviewing the main results of such interaction in classical and recent theoretical and empirical research, and finally contrasting them, briefly, with the historical experience of developing countries such as Mexico. To achieve this aim, the following structure has been followed in the current study: in the first part there is a brief introduction to the subject to be addressed; the following section deals with the main theoretical contributions that have been proposed to study the relationship between economic growth and trade activity, ranging from the approach of orthodox theories of economic growth and international trade to the contributions that some economists have made in recent times on the same subjects, based on the new theories of growth and trade. The third section postulates that the link between these two concepts has to do with the traditional and endogenous theories of economic progress, from which two general theoretical lines of convergence are derived: the neoclassical growth model and the technological approximation model; the fourth section brings together different theoretical and empirically supported studies that have sought to prove the existence and importance of the relationship and the effect of exchange on convergence, and of the latter on trade; the fifth section of the study is devoted exclusively to formulating some considerations on the association between growth, foreign trade and regional economic convergence in the case of Mexico; and the last section presents the main final considerations derived from the task of reviewing the state of the art carried out here.

Correspondence between economic growth and foreign trade

The link between economic growth and foreign trade is old and unconventional. Despite numerous research efforts with data from different nations, as well as the use of various techniques to measure the phenomenon, economic scholars and analysts have not yet agreed on the relationship between economic growth and trade (Barro & Sala-i-Martín, 1991; Frankel & Romer, 1999; Busse & Königer, 2012). Presumably, with recurrence, such works turn out to be causal analyses of the link between the progress of the economy and the increase in trade, which overlook the reasons for this progress.

During the 20th century, the study of the relationship between economic growth and trade activity was identified as being closely linked to the analysis of the adoption of import substitution policies, as well as the promotion of two-stage trade liberalization strategies. In the orthodox economic literature, the classical theory of international trade holds that when countries abandon protectionist practices and implement trade liberalization schemes, they create the conditions for each nation to specialize in the production that provides it with comparative advantages, thus generating economic gains -more efficiency, increased income and greater economic progress in the new integrated market space- for all the actors involved (Torres, 1990).

Throughout the first part of the twentieth century, the ideology of liberal capitalism enforced a free trade model, on which a large part of the economic growth strategy was based. Bowen et al. (1998) point out that several empirical studies have been designed to verify the postulates of the classical Heckscher-Ohlin-Samuelson model of trade; however, the latter is not fully accepted by other studies.

In the 1940s and 1950s, the neoclassical school of economics associated the concept of economic growth with that of capital accumulation. This current of economic thought is identified in the models of Solow (1956) and Swan (1956), although some academic works note that the new theories of growth are linked to the studies of Harrod (1939) and Domar (1946). In both approaches, the idea of economic growth is linked to technical, labor, and capital progress.

At the same time, there was a certain consensus among influential economists in decision-making at the time that economic growth was related to the promotion of industrialization and import substitution policies. In the case of the Latin American region, Prebish pointed out that the idea of import substitution was not only susceptible to operate in a single industry, but in the entire sub-sector (manufacturing) for the sake of industrialization, and that this process implied the restriction of imports of manufactures that already had a domestic demand to transform the demand of domestic producers and make it possible for countries to use the profits from their exports, thus making possible the foreign acquisition of indispensable capital goods (Prebish, 1950).

A series of case studies, such as those by Little et al. (1970) and Balassa (1978), compared import substitution policies across industries and nations, showing the high average level of protection of manufactured goods in developing countries. Another series of academic papers, led by Bhagwati (1978) and Krueger (1978), review cases of countries that have implemented measures to promote protectionism and trade liberalization, highlighting that import substitution policies often do not generate a sustained increase in long-term economic growth levels, which leads to the conclusion that strategies that promote foreign trade through liberalization are more effective in promoting long-term growth.

Another collection of analytical papers again highlighted the variety of approaches to the growth-trade activity link. Thus, Sachs and Warner deduced a negative link between the growth rate of per capita output and levels of trade openness (Sachs & Warner, 1995). For his part, Balassa, by setting up a regression of the growth rate of exports on the growth rate of Gross Domestic Product (GDP), with and without the inclusion of exports as a measure of GDP, showed a positive relationship between exports when considered in output, and a positive and significant effect when excluding them from the GDP measure (Balassa, 1978). And Krueger reported evidence that an increase in the growth rate of foreign sales results in an increase in the growth rate of GDP (Krueger, 1978).

Likewise, moved by severe criticism of the studies he considered statistically flawed with cross-sectional data of nations, Edwards tested the link between economic growth and trade policy measures in total factor productivity, with different types of openness strategies methodologically anchored to World Bank studies (Edwards, S., 1998); and, such openness strategies were found to be statistically significant and with the expected direction of causality, in research work by Leamer (1988), Wolf and Barro (1993) and Lee (1993), among others. Also, amid these conflicting positions on the relationship in question, are the academic works of Harrison (1996) and Balwin (2000), which report that the relationship between growth and foreign trade can be positive or negative, revealing causality in both directions.

For the case of Mexico, following the methodology of Mankiw et al. (1992) and Barro and Sala-i-Martin (1995), Díaz-Bautista constructed an empirical model of trade and growth, from which he deduced a positive and significant statistical relationship between the degree of trade openness by state and the rate of economic growth starting in the second part of the 1990s (Díaz-Bautista, 2003b). In the same vein, Acevedo and Medina (2001, p. 34) carried out a research study in which they analyzed the impact of foreign trade dynamics on economic growth in Mexico from the year 1965 to

2000, suggesting that there are elements that make it possible to affirm the existence of a positive and direct relationship between economic growth and trade activity and proposing a synthesizing policy option to overcome the dilemma of inward growth versus exogenous growth.

From the review of this theoretical framework, it can be seen that the key element of the above-mentioned controversy is to be found in the procedures carried out in the aforementioned studies. Certainly, the origin of the non-existent common criterion for the theoretical link between growth and foreign trade activity is to be found in the methodological guidelines implemented in both academic works.

Theoretical approaches to regional economic growth and convergence

From the review of the literature on economic growth, in general terms, two theoretical complexes are identified to account for material progress in an economy, namely: the traditional theory of economic growth and the new theory of economic growth. The former is identified with the neoclassical models of economic growth (Lucas, 2002, pp. 23-35), and the latter with the endogenous models of growth (Lucas, 2002, pp. 35-46).

Orthodox economic growth theories identify foreign trade as the engine of growth, while endogenous growth theories point to education, or human capital, in the format of job training and the development of new technologies for the international market as the cause of economic progress (Solow, 2018; Roll, 2020). That is, neoclassical models support an association of growth and trade, where causality works from trade openness towards increasing a nation's level of economic growth; and new growth theory models support the idea that human capital constitutes the crucial component for economies to progress and achieve a higher level of per capita income in the steady state (Lucas, 2002, pp. 23-46).

Thus, one criterion for identifying the models referred to consists of appreciating the difference in the rate of economic growth in the steady state. However, none of the theoretical options for explaining the growth phenomenon allow establishing a complete link between the levels and rates of per capita income growth and absolute differences in per capita income. On the other hand, the phenomenon of economic convergence is linked to the different levels of economic development of the various regional spaces and assumes that the heterogeneous income indices of the regions tend to coincide over time (Spence, 2012). In other words, the analysis of convergence identifies the differences in income levels between rich and poor countries, regions, or states, to bring about the elimination of economic imbalances in geographical areas.

It follows from the above that, in a process of economic convergence, the differences between income levels tend to dilute over time; and, therefore, an economic divergence scheme would imply that the distances between income indices tend to widen over time (Monfort & Nicolini, 2000). Therefore, if in a capitalist system the determinants of growth in the different geographic spaces experience an inverse link between the growth rates of real per capita income or output and their income or output levels respectively, the phenomenon of convergence will be present; and, on the other hand, if the phenomenon of growth accelerates in line with income or output levels, economic divergence will be registered (Rey & Montouri, 1999).

Studies that relate economic growth and convergence do so through the concepts of a relative, conditional or beta-type convergence (β) and absolute or sigma-type convergence (α) (Barro & Sala-i-Martin, 1992, pp. 1-26; Barro & Sala-i-Martin, 1997, pp. 223-251). The first type of convergence occurs if the more backward economies grow on average at a faster rate than the more advanced ones during the period under analysis. And absolute or sigma-type convergence implies a decrease over time in the cross-sectional dispersion of the per capita output levels of the economies compared to those of the more advanced ones.

Similarly, the link between the concepts of growth and economic convergence has to do with traditional and endogenous theories of economic progress (Mora, 2002, pp. 13-28), from which two general theoretical lines of convergence are derived: the neoclassical growth model and the technological catch-up model (Abramovitz, 1986). The explanations of the convergence phenomenon provided by the first type of model show that considering two regions with similar economic-institutional features and a given world technological level, the lagging region, characterized by a lower per capita capital stock, grows more than the more prosperous region due to the action of the law of diminishing returns, which gives higher marginal productivity of capital in the lagging regions, since the latter have higher levels of capital profitability and opportunities to invest because capital is relatively scarce. In the case of the technological approximation or matching model, the explanations for convergence point out that, considering two regions with different technological levels, the global diffusion of technology from the innovating region to the receiving region accounts for the convergence process.

Therefore, if the objective is to find out how fast and in what sense the per capita product of a particular economy approaches the average value among a complex of economies, then the concept to be presented is that of relative convergence; and, if the aim is to find out how the distribution of per capita product behaves among economies, it is appropriate to use absolute convergence. Moreover, in the neoclassical casuistry, convergence is determined by the law of diminishing returns applied to capital, as in the model of technological matching, which is generated by the effects of the global diffusion of knowledge. And in both cases, the phenomenon of convergence is conditional, so if two regions with unequal economic-institutional characteristics are estimated, economic convergence may not materialize.

Relationship between foreign trade and regional economic convergence

Is it feasible to argue that there are links between convergence and external trade? If so, what is the relationship between the phenomenon of economic convergence and foreign trade; and does convergence influence trade activity, or is it the latter that affects the levels of economic convergence phenomena in the regions? These primary questions, but of great importance, refer to a review of the theories of international trade and economic growth, together with a sufficient amount of empirical work that on more than one occasion are discrepant in the results they offer.

As a matter of principle, in the light of orthodox and new theories of foreign trade, reasons are identified for the links between income and trade; and, considering that the phenomenon of economic convergence is associated with the different income levels of the different regional spaces, it is assumed that the links between income and trade are also links between convergence and exchange (Inglehart, 1994; Calle, 2020). The Heckscher-Ohlin-Samuelson theoretical approach postulates that trade is based on differences in productive factor endowments, differences that could raise the levels of trade activity (Perroux, 1970). Thus, at the international level, each country exports the goods it produces relatively better than another and imports the products in which it has no comparative advantage.[1]

According to conventional trade theory, then, nations with different factor endowments, by lowering or removing tariff barriers between them, will promote greater trade dynamism than countries with similar factor proportions (Lamy, P., 2013). In other words, the integration scheme between nations with different factor endowments would result in a greater generation of trade than any other option. In addition, this integration between different nations can also be a more powerful engine of trade than integration with equal nations, so that the former will have greater benefits if the creation of trade is larger than the differences generated. Thus, trade between countries or regions with factorial differences will cause gaps but also convergence, the latter phenomenon is expected to be always greater than the differences (Díaz-Bautista, 2003b). Here is one view of the relationship between trade and convergence: trade between countries and regions tends to lead to economic convergence.

However, the new theories of international trade, which focus on imperfect competition between firms, economies of scale, transportation costs, increasing returns to scale, capital accumulation, and labor flexibility, among other elements, argue that similarities in income levels between nations increase trade volumes. These theoretical explanations, among which those of Krugman (1979) and Helpman (1981) stand out, contrast with orthodox theory, and at the same time, propose a different view of the relationship between trade activity and convergence: economic convergence between regions and countries generates local and international trade.

However, in the context of the new theory of international trade, Masahisa, Krugman, and Venables (1999) advanced such theory in the spatial aspects of the economy - where (location) and why economic activity materializes - giving rise to the new economic geography. And, from this area of contemporary economics that emphasizes industrial organization, transportation costs, the interaction of increasing returns, the mobility of productive factors, and economic agglomerations, these authors provide a solid and unified explanation of the link between trade and convergence: if the diffusion of knowledge that is inherent in the practice of product trade brings lagging nations closer to the leading countries, then trade promotes convergence; but if lagging nations become worse off as a result of trade promotion, then the idea that trade increases the levels of dispersion among nations, certainly among regions, is validated.

Thus, in light of the theory of economic localization, the link between foreign trade and economic convergence is dual: exchange promotes both economic convergence and divergence (Flores, 1957). And the causal association of trade and the phenomenon of convergence works from the former to the latter. From this, and insofar as the new economic geography is inscribed in the framework of the new trade theory, it must be concluded that this theoretical option assumes that the causal direction between trade and convergence has a mixed character: exchange creates convergence -or divergence-, and convergence fosters trade (Bajo, 1991; Feenstra, 2004).

Finally, four empirical studies on the trade-convergence linkage provide evidence of the above. In an academic paper, Samuelson (1971) finds that a higher level of trade activity leads to economic convergence among nations. Stiglitz (1970) reports the finding of an inverse link between trade and convergence in nations with economic differences. And Deardorff (1986), in the

[1] In the framework of this classical theory of international trade, it is assumed that a country's comparative advantages derive from the production of the good in which the use of the relatively abundant factor in that nation is intensive.

construction of a Heckscher-Ohlin cut-off model, with two nations, two factors, and four products, determines that a higher margin of trade generates a certain level of convergence in the prices of goods, although also dispersion in the price of productive factors. Finally, Slaughter (1998) studied how trade supports the convergence of per capita income between nations using a technique consisting of comparing the amounts of convergence before and after the implementation of trade liberalization strategies, finding that trade liberalization does not generate convergence, although trade did cause income dispersion.

Economic growth, foreign trade, and economic convergence:
Partnership rationale and the case of Mexico

As noted here, there is an extensive theoretical and empirical literature on the relationships between economic growth, foreign trade, and economic convergence (Barro & Sala-i-Martín, 1991; Frankel & Romer, 1999; Díaz-Bautista, 2003a; González, 2007; Busse & Königer, 2012; Spence, 2012; Reidel, 2015; Manta, 2020). Therefore, the initial question of whether it is valid to argue about the existence of links between the aforementioned concepts is settled.

However, in the review of the theoretical framework of the association of the reference variables, the lack of a common criterion for the theoretical linkage between growth, trade activity, and convergence are evident, the cause of which is to be found in the different methodology used in the different empirical studies. For this reason, different, ambiguous, and contradictory results on the correlation between the concepts in question have been identified.

This diversity of criteria and results, however, before inhibiting the interest motivated by the analysis of this subject, should challenge them to conquer new heights and to continue new studies in the same line of research. The non-uniform results on the growth-trade-convergence relationship should also lead to the question of the real objectives of the research work being carried out and to investigate whether the importance of certain indicators in the models has been omitted or overemphasized, or whether the indicators used are the most appropriate ones.

Nevertheless, based on a general review of the economic literature, it is possible to establish some considerations on the association between economic growth, foreign trade and economic convergence, which are outlined below: first, the classical theory of international trade assumes that exchange is explained and justified by the welfare gains it generates for the inhabitants of the nations that participate in it, by specializing in the production of goods with greater comparative advantages, thus generating economic growth; second, the neoclassical economic school and the new growth theory linked the concept of economic growth with technical, labor and capital progress; a third consideration is that import substitution industrialization, starting in the 1950s, was a policy implemented in underdeveloped countries that represented a sui generis version of the growth-trade relationship; fourth, orthodox economic growth theories identify foreign trade as the engine of growth, while endogenous growth theories point to education, or human capital, as the cause of economic progress; fifth, the analysis of convergence consists of identifying the differences in income levels between rich and poor countries, in order to eliminate the economic imbalances between them; a sixth consideration is that it is assumed that the links of income with trade are also links of convergence with exchange; seventh, in the light of conventional trade theory, exchange between countries with factorial differences will cause gaps but also convergence, the latter phenomenon being expected to be always greater than the differences; and finally, according to the new theories of international trade, economic convergence between countries generates international trade, if the diffusion of knowledge (which occurs with trade) brings backward nations closer to the leading countries, then trade promotes convergence; however, if backward nations become worse off (as a result of trade promotion), then trade activity increases the dispersion among nations.

In the case of Mexico, the association between economic growth, foreign trade, and economic convergence is relevant, and the theoretical framework derived from the literature review exercise on the concepts in question is equally applicable to the situation of the country in question. Since 1986 -with Mexico's accession to the General Agreement on Tariffs and Trade (GATT)- firstly, and then during the boom period of trade agreements, Mexico has promoted policies focused on trade liberalization to induce economic growth.

In a couple of academic papers, Díaz-Bautista articulated a solid basis for determining the relationship between growth, trade, and regional economic convergence, in the case of the Mexican economy, considering the periods 1970-2000 and 1994-2001 (Díaz-Bautista, 2003b; Díaz-Bautista, 2003c). According to this author, the empirical evidence in Mexico leads to an estimate that the trade openness variable played a central role in explaining economic growth after 1994 (Díaz-Bautista, 2003c, p. 1097). 1097); and economic policy (promoting growth via foreign trade), among other variables, has a leading role in explaining the existence of convergence in Mexico through two paths: the direct one, through its effect on the growth rate, and the indirect one, with its possible impact on other variables that also play a crucial role in explaining growth and convergence (Díaz-Bautista, 2003b, p. 1000).

The specialist concludes that, from the experience of developing economies such as Mexico, "(...) A good economic policy can serve to bring a backward country into the convergence group of the most advanced economies and, from a more general point of view, in terms of the neoclassical model, adequate policies, to the extent that they increase the steady state per capita income level of any region, can also contribute to accelerate the growth and convergence process of a country. (...) [And,] concerning the empirical exercise carried out in the last section [on the case of Mexico] the empirical evidence seems to support the thesis that a sound economic policy may consist of carrying out a process of trade openness and liberalization of the economy" (Díaz-Bautista, 2003b, p. 1000).

On the other hand, Diaz et al. (2017) contributed the few empirical works that have estimated the impacts of trade activity on regional convergence, and their analysis identifies the convergence derived from Mexico's trade after the entry into force of the North American Free Trade Agreement (NAFTA and today T-MEC, Treaty between Mexico, the United States and Canada). Their findings "show that, after the implementation of NAFTA, convergence among regions close to the U.S. border grew faster than in those whose geographic position is more distant. However, there is a significant reduction in the β coefficients after NAFTA, indicating a slowdown in the rate of convergence. Likewise, it is found that southern municipalities have not integrated into world markets; on the contrary, they have lagged behind their counterparts after the implementation of NAFTA" (Diaz et al., 2017, pp. 103-102).

The last study shows that the implementation of trade liberalization policies is not enough to reduce the convergence gap, as complementary policies (industrial development, education, etc.) are required to counteract regional disparities in growth. Thus, in addition to the identification of the theoretical and empirical foundations of the relationships between economic growth, foreign trade, and economic convergence that have been established so far, it is necessary to add the study of other factors -different and less well known than the traditional ones- that also determine regional convergence in Mexico, within the framework of the dynamic theory of economic growth.

Conclusions

The objective of this paper is to study the epistemological contributions made by specialists on economic growth, trade, and economic convergence, associated with the interaction between these conceptual entities, referring to the main results of such interaction in classical and recent theoretical and empirical research, and contrasting them with the Mexican experience. Such purpose was materialized, and the questions enunciated, likewise, at the beginning of this text, found preliminary and plural answers, depending on their theoretical origin.

After reviewing the state of the question, it can be pointed out that, both at the theoretical level and in terms of empirical analysis, only progress has been made and there is still an important part of the path to be followed, as evidenced by the evident controversy that the different contributions raise, the cause of which lies in the different methodologies used in the studies on the topic.

However, the richness of the different studies that address the growth-trade-convergence nexus lies in the diversity of the results they arrive at, which provoke the emergence of new study agendas, thus advancing, strengthening, and consolidating the research work. The new research tasks on the subject should lead to verifying the fulfillment of the true objectives of the studies to be carried out and also investigate whether the importance of certain indicators in the models has been omitted or overemphasized in past work, or whether the indicators used are the most useful and most appropriate ones.

Finally, the effort to analyze the relationship between economic growth, foreign trade, and convergence constitutes a wise, valuable and transcendent work per se. The validity of any theoretical argument -regardless of its direction- will reside in the analytical rigor employed, as well as in the fact that the empirical study is accompanied by a solid methodology, whatever the result obtained. And the comparison of the objectives and results obtained in the works that analyze the nexus of the aforementioned concepts will allow for significant advances in the academic discussions on how economic growth, foreign trade, and economic convergence are associated with each other.

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