




Consequences of the application of technical barriers to imports in Latin America

Consecuencias en Latinoamérica de la aplicación de obstáculos técnicos a las importaciones

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Abstract

The application of technical barriers to trade in Latin America can be both positive and negative. To analyze the subject and deepen the existing literature, the objective was to determine which technical barriers have been applied in Latin American countries and their effect on exporting and importing companies. For this purpose, a systematic literature review based on the PRISMA method was carried out in the following databases: Scopus, Dialnet, Scielo, SpringerLink and Redalyc, from which 518 results were obtained, including articles, reports and books related to the field of research. These results were filtered to obtain a list of 55 sources that were relevant to the construction of the topic. It is concluded that the main effects on imports are: cost increases; reduction of consumption; protection of the national industry; inequality in international trade and possible consequences for the quality of national and foreign products.

Keywords: economic policy; export/import; international trade; protectionism; trade policy.

Resumen

La aplicación de barreras técnicas al comercio en América Latina puede ser tanto positiva como negativa. Para analizar el tema y profundizar en la literatura existente, se estableció como objetivo determinar cuáles son los obstáculos técnicos que se han aplicado en los países latinoamericanos y su efecto en empresas exportadoras e importadoras de productos. Para esto, se realizó una revisión sistemática de literatura basada en el método PRISMA; en las bases de datos: Scopus, Dialnet, Scielo, SpringerLink y Redalyc, de las cuales se obtuvieron 518 resultados, entre artículos, informes y libros relacionados con el campo de la investigación. Estos resultados fueron filtrados para obtener una lista de 55 fuentes que eran relevantes para la construcción del tema. Se concluye que los principales efectos sobre las importaciones son: aumentos de costos; reducción del consumo; protección de la industria nacional; desigualdad en el comercio internacional y posibles consecuencias para la calidad de los productos nacionales y extranjeros.

Palabras claves: comercio internacional; exportación/importación; política comercial; política económica; proteccionismo.

Introduction

Free trade is traced back to ancient history, as during the neolithic period and the first barter-trades (Acuna, 2012). Further on, during the Roman Empire the second trade boom took place and the exchange of goods was refined, implementing taxes and fees that traders had to pay. Through these historic events, it is possible to state that as time went by, trade evolved acquiring norms and procedures for its better operation (Alvarez & Santiago, 2002).

Another relevant point is the evolution of the economy, which has resulted in a great quantity of ideologies that state how to operate it. However, there are two main thoughts that, for a long time, have kept an ongoing debate: protectionism and liberalism, better known as free market, and which of them is the most appropriate for an economical growth and trading development (Fernandez, 2020). Thus, an array of norms, policies and regulations that lead to an increase of trading activities in national and international markets have been applied.

Into these great varieties of norms, policies and regulations that countries have applied, striving for the growth of their economies and markets, there are two fundamental groups: tariff and technical barriers. Tariff barriers refer to an impediment applied by governments in the trading of foreign goods, unless an economic disbursement takes place, for instance a fee or tax for their entrance. On the other hand, technical barriers are norms implemented by governments that demand the good to meet specific requirements - in quality, labeling, safety, resistance, among others - for its entrance into the country. The differences between these groups result in diverse consequences in the market sectors of a country.

In this light, the study of the effects that may be caused by the application of Technical Barriers to Trade (TBT) in Latin American markets is of high importance; as the countries from this region seek the growth of all their sectors, increasing the production of their national industries and consequently of their economies. Notwithstanding, regardless of the effort to boost trade and the freedom of market regionally, there still are States that opt for protectionist measures that hinder imports into their territories (Vanegas & Baena, 2019; Gomez, 2021).

These barriers include technical regulations, norms and quality standards, complex customs procedure, phytosanitary certifications and requirements, among others. These Non-Tariff Barriers (NTBs) may limit the access of imports to international markets and generate regional and global trade distortions.

Therefore, the present research has the objective of determine positive and negative effects that entail the implementation of TBTs towards imports in Latin America, complete the theoretical framework of the most meaningful barriers in the regions and the results that these have in the different industrial sectors as importers, followed up by the development of the research as planned.

The research will be developed through a rigorous literature review applying the PRISMA methodology, using a variety of academic sources, international organizations' reports and Scopus, Dialnet, Scielo, SpringerLink and Redalyc case studies. The purpose is to collate and synthesize relevant information to identify the main TBTs in Latin America and their consequences.

The economic impacts of TBTs will be analyzed, as are the increase of transaction costs, the reduction of competitiveness and the stagnated economical growth. Likewise, social effects, employment variations in the involved sectors and the limitation of consumption options will be analyzed as well.

In consequence, it is expected of this research to provide a deeper understanding of the effects of TBTs' implementation in Latin America and for it to be an starting point in the identification of these policies and a mainstay for the creation of strategies oriented towards preventing these results in the different sectors in which these norms are applied, and encourage a more inclusive and equitable trade among all actors. Besides, through this research it is expected to raise awareness about TBTs in Latin American and entrepreneur countries, so these have an opportunity in overcoming the barriers to fully leverage the benefits of international trade, as well as visualize economic growth and an improvement in their populations' well-being.

Theoretical framework

Trade policy as a concept refers to the group of decisions, strategies and actions adopted by a country or a government entity that regulates and encourages the international trade of goods, services and factors of production. In this manner, trade policy seeks economic, politic and social objectives through the implementation of trade measures as: trade agreements, tariffs, TBTs and NTBs, subsidies, regulations, among others, to promote a fair development of the country's inner economy and improve the relationships of the international market (Irwin, 2020).

Thus, it is imperative to mention international trade which is defined as one of the main contributors to economic growth - one of the objectives of trade policy; through the exchange of goods and/or services, countries acquire some products from foreign sources, which turn out cheaper outside of their territory in comparison to producing them in the country. Consequently, international trade offers the countries an improvement as they have opportunity to obtain new machinery or productive tools and so greater competitiveness, reflected in the products' efficiency as

in their fabrication for exportation and internal consumption (Acosta et al., 2018). Nevertheless, the two strongest ideologies on international trade must also be referred: liberalism and protectionism; in which one proposes a free market for the direct transaction of goods or services, and the other one proposes the closure to international trade, with the objective to preserve its own industry and interests.

In this sense, according to Pereyra (2015) the free market is a political-economical stance that offers direct and indirect advantages to a country's trade. In itself, it gives the green light to the imports into a nation, by allowing free access to new products that are not produced in the country or products that are produced in the territory, but with different qualities. As a result, a new horizon of trade opportunities is opened for local and international development.

Conversely to what was aforementioned, another concept to consider is protectionism, which is an economic policy established by a government to directly protect their own industry. This policy has the objective to restrict any access to products that have a foreign origin, so only national products are consumed, triggering an alleged growth in the country's industry by boosting the national industry, generating more jobs and encouraging the population consumption (Aguilar, 2020). Albeit, protectionism has been understood as a trade policy analyzed and imposed by central governments, with the objective to establish restrictions and/or measures that can be expressed in tariff or non-tariff barriers. Through this, the government attempts to specifically restrict the entry and even the exit of national products, in order to guarantee some interests of the country, mainly social, economic and safety wellbeing (Baena, 2018).

Once the differences and similarities between these two thoughts and international trade are explained, it is pertinent to name some of the most used policies to stop imports in Latin America. As a first concept, it is important to mention import tariffs which are payments placed over the importing sector by the government, so it can keep carrying out its activities. The objective of these taxes is to collect an amount of money for the amount of product that enters the country, so the imported products contribute with an extra income for the country. Nonetheless, these may cause some difficulties to the importers as well as the clients since, as they must pay an extra amount of money, traders will find themselves in the need to increase prizes to cover the mentioned investment and so it signifies the increase of the final prize for the consumer (Krugman et al., 2018)

Following up the most remarkable terms about international trade and the implemented policies for the management and development of it, there are trade barriers, which are divided in two subgroups: tariff and non-tariff barriers.

Trade barriers play a fundamental role in any external trade activity, due to the fact that each government ensures to evaluate the necessary measures for the existence of control in trade exchange development. These barriers may be monetary, as are the tariff barriers, or not monetary as the TBTs, which are restrictions imposed by governments that receive imports of goods or services. Therefore, it is necessary to take into account the control provisions established by the governments when an exchange with another country takes place (Huaman et al., 2021).

Continuing with the subgroups derived from trade barriers, there are the tariff barriers, defined as direct monetary obstacles towards importations. These measures are implemented by the countries as means to prevent the entrance of new merchandise to the country, through the raise of import prices, which normally are a higher tax fee to pay. Ergo, the industries specialized in the importation and commercialization of these products are forced to increase their prices, which in some cases is not cost-effective, leading to a shutdown of production by the same company (Baena, 2018).

On the contrary, according to the World Trade Organization (WTO), the TBTs are rules or norms established by the organization or the governments, based on the protection of health, and the people or the environment wellbeing. For this reason, every member state of the organization has the authority to implement new barriers as a way to protect their industries. Still, it is recommended for these policies to be established in accordance with international norms to facilitate international trade between two or more countries.

Furthermore, there are some of the most used policies by Latin American governments, these are phytosanitary measures (PSMs), which are regulations and procedures created by the government to protect the health and the flora and fauna of the country. The main objective of the PSMs is the protection of all the ecosystems by inhibiting the introduction and transmission of plagues or diseases as harmful organisms, insects, bacteria or virus to plants, animals and/or humans, that may have a negative impact in agricultural production, food safety, the environment and the population's health (DaSilva, 2020).

Similarly, other TBTs applied in the region are quantitative restrictions, which are norms used in international trade to limit the amount of goods or services that may be imported into the national market or establish an amount of goods that can be exported by the country. This restriction is of high importance, as it is based in the imposition of limits over a physical quantity to maintain an equilibrium in the nation's market and to deter the shortage of national products or an oversupply of imported goods (Lodono and Baena, 2020; Martin, 2020).

Literature review

Before a deeper understanding of what are non-tariff barriers or TBTs, it is useful to emphasize the history that precedes them. This refers to the General Agreement on Tariffs and Trade (GATT) and how this agreement was in force from 1948 to 1994. Its objective was to regulate all tariff and non-tariff measures taken by member countries and the organization in itself (Gaspar, 2013). In the beginning, the agreement was signed by twenty three countries, among which were: Chile, United States, Belgium, Brazil, China, Australia, France, and others. Out of the the measures stated in the agreement, there were NTBs, which were considered an additional difficulty for the multilateral trading system between countries because, when they were implemented, these barriers seeked to avert any disruption in international trading, but at the same time, they were a viable option to achieve new political objectives and increase the international trading of some countries (World Trading Organization, 2023a).

During the first years that the GATT was in effect, the main points of discussion were the tariff measures that were focused on the balance of payments, development and employment

during the Kennedy administration in 1960. However, as time went by, the points experienced a change of direction, as they become eclipsed by the new non-monetary measures related to the elaboration techniques of the products, sanitary and even environmental standards which were encompassed in trading obstacles not retaliate to tariffs, during the Tokyo round in 1970 (Gaspar, 2013). This change of direction resulted in mixed results, as it was debated due to the update of the measures and how these may be more complex to implement and would even cause friction among countries and their international trading regulations. Besides, as the new trading policies were applied, there was the opportunity to achieve higher trading standards since they were related to foreign products with different standards not found in the national market, thence a new purchase choice was offered to consumers (Chang, 2013).

In accordance with the previously mentioned policies, a differentiation between non-monetary and monetary regulations was instituted, which favored tariff measures, and consequently they considered it a more equal protectionism measure in economic terms (WTO, 2023a). This implies that as these policies were only monetary, they do not represent great difficulty in regard to their implementation or elimination through agreements between both parties, contrary to non-tariff policies since these were considered discriminatory by trading and market forces (Irwin, 2020). According to the history of the TBTs, the GATT founders overcame some difficulties as they compiled and defined these measures in a sole section because they included different categories of edible and non-edible products, qualities, labellings, language, and others; in addition to taking into consideration the diverse origins of each good. The most significant policies during that time, which were subjected to the GATT's drafting, were the quantitative restrictions which were based on the amount of product that entered a nation's market. Notwithstanding, the agreement was planned to regulate the NTBs, so these would not be prohibited and accordingly they could institute the necessary policies, so these would not be discriminatory and avoid a higher level of restriction in future negotiations.

Moreover, it is substantial to highlight that since 1995, the organization responsible for monitoring the application of TBTs is the World Trading Organization, WTO. The organization's primary objective is to offer aid to less developed countries in regards to international trading and national productivity. By this means, the WTO has 164 affiliate members as of May, 2023; the members are free to implement all types of trading policies, protectionists as well as liberals, but without dismissing the fact that these cannot be discriminatory or disrupt other country's international market. Ergo, the organization has a principal role on the forthcoming policies or measures, and so it must objectively collate, analyze and disseminate the new dispositions of each nation and corroborate that they meet the standards regulated by the WTO (World Trading Organization, 2023b).

One of the most relevant factors internationally speaking is the free market, which is based on the implementation of economic policies in the pursuit of gradually reducing tariff barriers and the NTBs between different countries (Aguilar, 2020; Baena, 2020). Likewise, governments strive for the liberation of the market as a fundamental factor of the positive growth of their countries' economy, assigning this policy to the creation of full employment and greater dynamization of products or services that citizens may need (Krugman et al., 2018). This is why there is a certain degree of understanding between the aforementioned economic statement and Latin American countries that look for the growth of their national economies.

The openness to free trade without any restriction may cause severe consequences in the countries (Chavez and Lee, 2019). By creating a strong dependence on imported products or in the massive exportation of products to a specific country, it may cause a decline in national industries similar in goods or services as they are extremely surpassed by the foreigner or if there is an only product, like raw material, that is exported and it stops being exported, then there would be a dramatic decline in the industry, leading to the close of businesses or entire sectors, which translates in an increase of national unemployment (Baena, 2019; Bonfanti, 2015). In this context, Latin American governments believe that applying protectionist measures will allow them to increase national consumption, protecting their main sectors, generating more employment nationally and finally leading to a better product or service specialization in their own countries (Torres, 2017; Ramirez & Guevara, 2018).

To better exemplify the NTBs implemented throughout the years with the goal of protecting the industries and economies of different countries, there are the phytosanitary and sanitary measures (PSM, for its initials), which were measures adopted by governments to protect and preserve the wellbeing of people and animals. This measure was also applied towards the preservation of national agriculture by preventing plagues or illnesses that may be caused by imported products. Other applications that can be explained are the Technical Barriers to Trade (TBT, for their initials) which is commonly applied by governments as a means to establish certain requirements to be met by the product that is about to enter the market, with the objective of protecting their consumers (Baena, 2019). This measure was implemented by the WTO in 2003 as a more efficient means to protect the national economy but also as a new way to improve the consumption and lifestyle of people (Londono and Baena, 2020).

A case worth mentioning on NTBs and the effects they may have on countries the moment they enter the WTO is the case of China in 2001. The asian giant kept close trading relationships for years, being a huge exporter of products to varied destinations, as the United States of America, the European Union, Japan or Mexico, which are countries that up to that moment had already adopted tariff and non-tariff measures to the entry of foreign products into their markets. Subsequently, when China joined the organization, it was under the agreements and measures implemented by the other nations and the WTO, so the moment the merchandise from China was entering the countries, it was denied and returned to China, as it did not meet the established policies as the technical regulations of quality for electronic devices in Japan, Spanish instruction manuals for electronic devices in Mexico or the corresponding tagging system in the as well as in the European Union (Huaman et al., 2021).

Another important point is reflected in the first non-monetary technical barrier applied by Ecuador in July of 2003 for the importation of steel rods and cables to strengthen reinforced concrete. In this case, the Ecuadorian government notified the WTO its intention on implementing this technical regulation about the product quality to be commercialized in the country, with the objective of ensuring its citizens' safety through durability and resistance of this construction material (DaSilva, 2020). It is also important to mention that this measure was not implemented immediately; according to WTO standard the regulation had a period of 90 days to take effect, so exporters and Ecuadorian importers could prepare for this change in trading policies (Barajas, 2019).

Another Ecuadorian case is the implementation of a new regulation for the tagging and labeling of fabrics, footwear, related accessories and items of clothing from Colombia in March of 2013. This regulation stated a technical rule in which a minimum standard of requirements was established for tagging and labeling. The main goal of this barrier was the protection of consumers by guaranteeing safety and quality standards printed in the tags, as well as preventing practices that may cause mistakes or discomfort in the consumers at the moment of the products' acquisition (Larco & Bazurto, 2020).

One last case related to Ecuador and product quality may be identified in the Ecuadorian Technical Project for ceramic tiles established in 2014 and negotiated until June of 2015 (World Trading Organization, 2023b). This regulation intended to establish a field of application in the obligatory requirements for ceramic tiles, with goal of preventing possible health and wellbeing risks for consumers, as well preserving the national industry by guaranteeing the rival products keep the same quality standard as the one in the country and evade the prejudice of the final consumers (Tonon, 2015).

It is also necessary to stress how the NTB or non-monetary are not only based on product quality, but they also look after the health of the consumers or the general population. This is the reason why there are certain technical obstacles that have been enforced with the purpose of maintaining the health and wellbeing of citizens and consumers, as is the case of one of the first non-monetary applications in France in 1997. The French government decided to apply a prohibitive measure to asbestos, in which every product that uses this material in its fabrication, production or everyday use will be restricted and rejected (Kuhn and Viegelahn, 2019). Through this, the State sought to preserve its citizens' integrity and health by preventing the trading or use of products that contained this material, consequently asbestos was classified as a toxic material and even cancerogenous to human beings (Valverde, 2016).

Methodology

For the development of this systematic literature review, the PRISMA 2020 methodology was applied (Page et al., 2021). The method is based on the compilation of scientific articles and research, which will be evaluated to finally be included in the final review. It is relevant to remark that due to the nature of the methodology, it uses a verification list of 27 parts, albeit not all the steps were considered for this review. Consequently, the items considered will be detailed further on.

Eligibility criteria

The number of references was determined as a starting point to consider the relevance of the content of the articles and the dates of publication, grouping the most notable sources in the research areas, in English as well as Spanish. In relation to the date of publication, it was limited to the most recent years of publication, specifically between 2018 and 2023; notwithstanding, the use of older articles or reviews is also valid to broaden the range of eligibility of the research.

Research

The theoretical base for the compilation of articles is quantitative, by establishing a theoretical literary retrieval. Databases were used for the bibliographical retrieval, as are: Scopus, Dialnet, Scielo, SpringerLink and Redalyc. The selection of the articles was completed through crucial phases, which started with a general study of the concepts and history of the “technical obstacles to trade”. The research process provided 3 165 results. During the second research phase the same process was used, but adding the term “Latin America” shortening the research level to the 19 countries that belong to the region: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panamá, Paraguay, Peru, Dominican Republic, Uruguay and Venezuela, since the review is focused on the effects in this area. Subsequently, 518 results were determined between research, articles and studies.

In addition, a first filter was established through title reading, discarding duplicate research and low relevance to the topic, resulting in a sample of 110 articles. Following the proposed methodology, a second filter was reading the introduction and conclusion of the articles, with the goal of corroborating the similarity between them and the research objectives, their relevance in Latin America as a focus of study and their effects in the region.

Bias risk

The bias risk of this research was evaluated through the selection and notification of articles to be used. The risk is evidenced during the inclusion or exclusion of certain articles, which may incline the review results towards a specific perspective. On the other hand, the risk of publication was also evident as the meaningful information related to the topic lacked certain factors, and so the research ratio was amplified to years out of the pre-established range to compile all the imperative information for the research.

Research results

Once the sources used for the research were established, key words were stated for a better segmentation to validate the most remarkable articles and studies. The words used in research of information were: TBT, NTB, phytosanitary barriers, exportations and importations in English and Spanish to widen the retrieval range. The time established for the bibliographic compilation was approximately 8 weeks in which necessary, relevant and high-quality information was compiled; followed by an important information retrieval for the analysis, to use all the acquired knowledge to develop a precise research.

Once again, the information was stored, and only the most relevant and beneficial studies were kept. Once compiled, they were summarized and verified to corroborate their similarity to the topic to be developed as well as their relevance in regard to the research objectives stated previously.

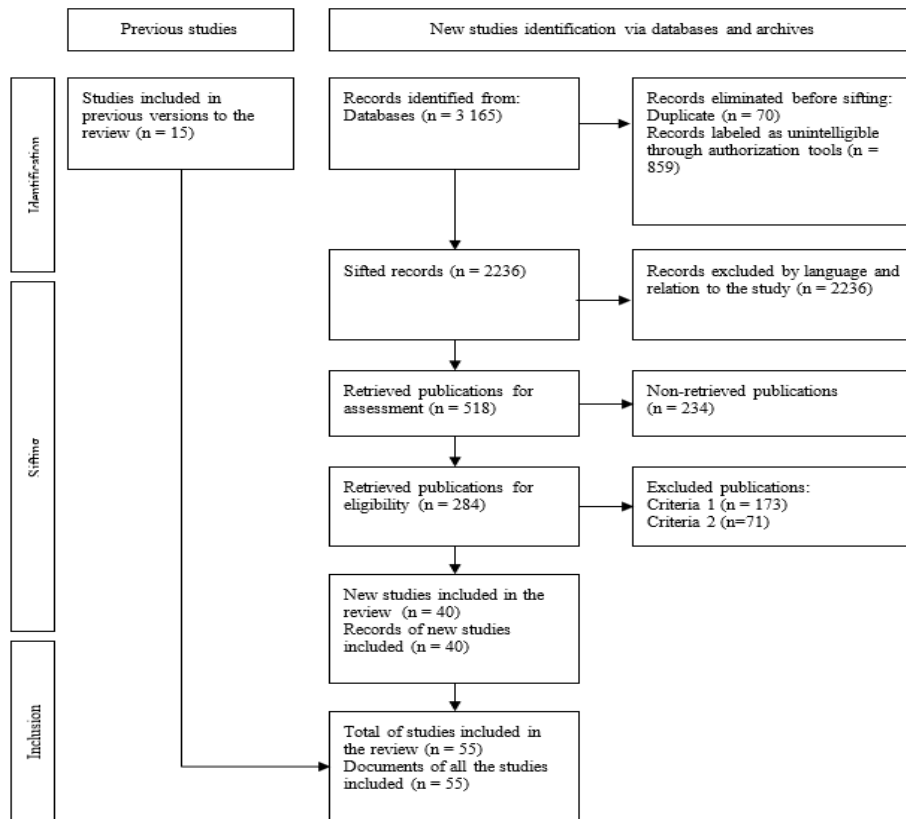
Lastly, a qualitative selection was applied to determine the articles through the creation of a database in the Excel software for a better compilation of information based on the objectives, conclusions, publication date and references, to deal in a better way with interpretation and

contextualization of all the research reviewed. The result of this phase was a selection of 55 sources.

As it is displayed in Figure 1, the reference selection process is described.

Figure 1

PRISMA flow chart



Source: Elaboration based on Page (2021)

Discussion and results

Effects of technical barriers on importations in Latin America

Once the theoretical framework, origin and motifs for the implementation of technical barriers have been established, it is time to consider the effects that these may have in Latin American countries. Even though some examples explaining the reasons and the possible consequences of these barriers have been provided, consecutively, deeper advantages and disadvantages in the considered countries will be explained.

Aguilar, (2012); Hidalgo, (2018) considered that these NTBs are decisive in a country's international trade, referring to the difficulties that may present due to their implementation. A

clear example provided by the authors is price increase in national and international products, specifically in the case of Brazil and the technical regulations on international goods' quality. The State, by applying these measures, conditions importers to pay an extra charge for their products' commercialization and so a price increase once they are in the market. On the other hand, by restricting the entry of competitive products, the national industry may increase its prices due to a demand increase of the products still leading to the increase of prices in the country (Esteve et al., 2020).

The increase of importation prices in consequence to the application of technical barriers is highly detrimental for import companies. This was evidenced in 2013 with the implementation of the new Ecuadorian Technical Regulation RTE INEN 033, which was implemented for ceramic floors and tiles and established a minimal quality regulation for the importation of this product. Every foreign manufacturing company that did not have the INEN 033 verification could not export its product to Ecuador, pushing importers to disburse large amounts of money for the pertinent evaluation in national laboratories and prevent losing future sales because of the rejection of its product (Tonon, 2015). In this context, ceramic importers raised the prices to the public for the additional cost applied to their products and lost competitiveness in the market against other national and foreign producers that had the required verification (Rojas et al, 2022).

Likewise, Latin American countries that want to implement the TBTs have to consider how these may destabilize the market to satisfy the demand of the product if they are applied in foreign products without a local substitute product (Marquez, 2022; Rodriguez, 2014). Furthermore, as a consequence of the application of new NTBs in a national market, there could be a drop in consumption, leading the competent entities to find new ways of meeting the unplanned deficit by the barriers, applying new measures to raise income as the increase of tax rates (Tello, 2022).

A very important factor related to the TBTs is how mostly these have been implemented in Latin America in relation to the quality of foreign products willing to enter national markets. A clear example of this is how Brazil, Ecuador, Colombia and Mexico are the countries which most have implemented NTBs (Alvarado, 2019; Badillo, 2008). In some cases to metals and construction material, ceramics and footwear. They based the application of NTBs on the objective of preserving the quality of national products and avoiding products of lower quality and price from entering the market and losing competitiveness against them (Gaspar, 2013; Londono and Baena, 2020; Huaman et al., 2021). However, these policies may be counterproductive over a long period of time since, by restricting the entry of any kind of foreign products due to their quality, local producers acquire a certain level of a monopoly in their respective markets and in some cases industrial sectors may lower their quality to cheapen costs without altering the established prices due to a lack of competitiveness (Baena 2018a; Gomez, 2021).

Another imperative factor in the establishing of non tariff barriers is the government's compromise of ministering to the wellness of the internal market and its population by implementing these regulations to only allow the entry of the best products into the market to benefit its people (Baena, 2018b). Thus, it imposes adaptations to every foreign product that wants to be commercialized inside the country, by establishing the same or higher quality standards than the national production and satisfying the needs of the consumers. Additionally, it is possible to

identify how the variety in products can match each of the consumers' social classes, generating massive consumption in each class (Bernal, 2018; Chavez, 2019).

In a different light, the application of NTBs to foreign products may generate a new effect in the market, considering that, if higher quality products enter the market, national producers propose new strategies to keep their products cost-effective in the national market and not lose competitiveness (Olha et al., 2021). Besides, the importers that pass the verifications imposed by the TBTs acquire an advantage in the market by offering products of the same quality as the ones commercialized in the country, but at a lower price, which signifies a boost in the importer sector of specific goods (Rodriguez, 2014). Nonetheless, this situation explained by the authors may lead the national market to a price war since the industrial sector, seeing how its product stops being competitive against the foreign good, will attempt to lower its prices to match the ones of the importer sector (Acosta et al., 2018; Bergamini and Dextre, 2022).

In most of the countries that implement technical obstacles, these are commonly pushed by different - and most commonly - national sectors, who compel the competent entities to apply these new trading regulations. In this sense, the national industrial sector protects itself from foreign competitors, but at the expense of harming an importer sector which operates in the country alike, by hiring workers, at a lesser than the industrial sectors, paying taxes and specially offering a similar product at different prices. Once the new trade disposition is established, the importers are in a risk position as they have more complications to commercialize their product in national territory and so a possible discontinued operation as a result of shortage of product or sales (Baena, 2019; Martin, 2020).

Another negative effect for the importer sector once the TBTs are applied to its products is the alteration of the supply chain (Delgado & Yanez, 2019; Pereyra, 2015). This refers to how the importers, as they must abide by the new dispositions and regulations for the entry of their products, have to keep their goods in warehouses, laboratories and customs offices until they are approved so they can enter the country to be commercialized. This delays the delivery of merchandise to their clients, who will delay the final delivery to the consumer (Vanegas & Baena, 2019).

From a similar point of view, by applying restrictive norms or stipulating new requirements for the commercialization of foreign products, importers of food and non-food products, witnessing that new policies are applied to their products, will be unmotivated. As governments implement obstacles that difficult their operations or enhance the uncertainty of the importer sectors, they must decide if it is convenient to carry on with their operations and adjust to the new scheme by raising prices, or reduce the volumes of their purchases and keep the same activity level they had worked at, in the hopes of a change in the government dispositions that opens the market to importations but risking loss during production, which also puts them in risk of closing their companies (Bonfanti, 2015; Larco & Bazurto, 2020).

As it has been explained, the implementation of TBTs is based on the protection of the national industry, specifically industrial sectors that maintain an important percentage in the operations in the country (Leping, 2022). The sectors that have received greater protection in Latin America are the basic metal production sector in Brazil, the construction with materials and

supplements sector in Colombia and Ecuador, but it also takes place in agriculture products to preserve the wellbeing of the flora and fauna in the national territory in Mexico, Guatemala or Nicaragua (Garcia & Guevara, 2018; Vernaza et al. 2020).

In regard to the protection of industrial sectors by Latin American States by applying TBTs, it is relevant to highlight different sectors as footwear in Brazil, food tagging in Uruguay or toys manufacture in Argentina. These have acquired a remarkable performance in their operations as they behold how their respective governments seek to protect the sectors through these policies and strengthen national consumption as well as a possible exportation of these products (Kuhn & Viegeln, 2019). Besides noticing how the safest the sectors feel, the more openness they will have to develop their activities, hiring more labor which increases the employment levels in the different countries (Fernandez, 2020).

Furthermore, as it was mentioned in previous paragraphs, in Latin America, there are countries who have implemented a great number of technical barriers to the TBTs, applying few or none of these trade policies, as it is the case of Paraguay, Bolivia, Dominican Republic or Nicaragua and Honduras (Baena, 2020). These countries possess common characteristics, all have relatively small territories. Such is the case, that there is commercial inequality among them, since there is not a fair distribution between foreign and national products. Also, it is relevant to state that if the smaller countries implement NTBs or PSMs, these would lose suppliers, conditioning their situation in the internal market due to a shortage of indispensable products for the population (Steinberg, 2006).

As it was developed, the effects of the different applications of the TBTs have an influence in national importers and manufacturers, but it is also noteworthy how international relations between two countries may also be harmed or finished if these get to a point of no return. To the better understanding of this, authors Quiroz et al. (2022), Sarmiento (2018) and Tello (2020) provide a hypothetical case. If a country like Peru decided to implement varied barriers to Ecuadorian products, with the goal of protecting their national production, this would not only reduce the money income of Ecuador, but it would also condition the exporter sector that have Peru as destination, since they are adversely affected by these barriers as they restrict the commercialization in the Peruvian market. Consequently, this would trigger an answer by the Ecuadorian government, who will also implement non-monetary barriers to products of Peruvian origin, creating a trade conflict between two neighbor countries who have a strong commercial relationship (Garcia, 2017).

Discussion

The effects faced by import and industrial national sectors during the application of TBTs in the region are diverse. This refers to the uncertainty that these generate when they are applied by governments in the pursuit of maintaining economic stability for the country and conditioning these sectors in their activities to the point of layoffs, liquidation and permanent shutdowns of companies (Gaspar, 2013; Gomez, 2021; Huaman et al., 2021)

Mostly, the analyzed authors approached a different point of view in regards to the effects of the adoption of new NTBs in Latin America. They reckoned that the application of these

measures is purely protectionist of national industries, considering a greater economic growth (Aguilar, 2021; Londono & Baena, 2020). Conversely to what was explained, in most cases the NTBs or PSMs are applied in the region's markets stemming from political decisions which should not influence the market and, in contrast, should spread a free market ideology with the purpose of encouraging the consumption of the inhabitants due to the excess of national and foreign offerors, resulting in the growth of national economy as long as there are enough competitive sectors in the market (Baena, 2018a; Bernal, 2018).

Another relevant factor in regards to their implementation are the effects of the quality of the products that are commercialized in the national market (Esteve et al., 2020; Petrova, 2020). Such is the case that some authors like Rodriguez (2014), Sarmiento (2018) & Tello (2020) state how the application of NTBs to restrict the consumption of imported products is beneficial for the general public, as they prevent low or untrustworthy quality products from entering the country, understanding that these products harm consumers and producers due to unfair competitiveness since they count with extremely low prices in comparison to national productions (Garcia, 2017; Hidalgo, 2018; Rojas et al., 2022). Notwithstanding, other authors differ on this idea about the adoption of non-monetary barriers, commenting that when national producers witnessed a lack of competitiveness in similar products, they tend to build monopolies or oligopolies, or simply decrease costs by maintaining their prices, lowering the quality of the product (Marquez et al., 2022; Tello, 2022; Torres, 2017).

An example of the discrepancies found regarding the analysis of the effects of technical obstacles to trade is demonstrated in the works of Chen & Mao (2020) and Vanegas and Baena (2019). They express that the application of these measures during specific time periods, as during the COVID-19 pandemic, was sound concerning the restriction of entry of food products to the markets because of the great uncertainty during this time; due to the little knowledge about the virus' propagation, the measures protected the population's health. However, the converse is mentioned by Krugman et al. (2018) & Irwin (2020). The last state that limiting trade between countries during a crisis may be counterproductive for the economy, harming trade activities, since during difficult times, it is imperative to maintain as much as possible a stable economic activity to avert worsening the inhabitants' and the countries' situation.

In respect to the political aspect of the implementation of these measures, it is based on the protection of industries and social wellbeing. In this light, governments apply the NTBs to avoid the entry in large quantities of foreign products, which means a lower exit of currency to cover transportation fees, insurance, documentation and the product per se (Olha et al., 2021; Quiroz et al., 2022). States seek for a way to anticipate these exits and for the money to stay in national territory so it keeps flowing through the economic cycle (Alvarado, 2019; Betancourt, 2022; Chavez, 2019). Meanwhile, once new trade regulations are imposed, different commercial sectors or groups are affected as not only their products are restricted, but companies also have to implement shortages in insurance, transportation, importers and local traders who perform their activities through foreign products. If all these groups stop their activities in sequence, there would be an increase in the country's unemployment levels and thus a recession in the economic cycle, conditioning even farther a State's situation (Baena, 2020; Martin, 2022).

Additionally, it was evidenced how the implementation of NTBs in a region with such close relations - as it is in Latin America's case - could be damaging for its development in the

international market (Garcia & Guevara, 2018; Leping, 2022). The absence of ethics in governments while seeking a profitable position of their markets above the other countries to preserve their interests may be counterproductive. When States implement these regulations as a means to protect their industries, it could result in a blunt disbalance of international trade. Besides, it portrays in front of the other countries of the region as extremely protectionist and it may lead to the end of international relations with the countries that perceived the application of non-monetary barriers as a threat for their own markets (Fernandez, 2020; Bergamini & Dextre, 2022).

Moreover, it may be interpreted how an excessive application of TBTs leads to inequality between the nations that do not apply these policies. It is detrimental for every involved territory. If a nation of small economy decided to implement these regulations, it will harm its own market by limiting the importing goods for the consumer. In consequence, there will be a shortage of products which in some cases do not have substitutes in the national market or in an extreme case it will push the inhabitant to satisfy their needs with local products, which not always can supply all the population (Barajas, 2019; Steinberg, 2006; Vernaza et al, 2020).

Conclusion

After considering all the aspects about the implementation of TBTs, and complying the objective, it was found that the main consequences of the application of these regulations in Latin America are: quality variation of imported and national products, price increase in the importer sector, over protectionism of the national industry, monopolies or oligopolies in industrial sectors, and the decline of the economic activities of the importer sector.

It was possible to show how these results are significant for Latin American markets, in which there are positive effects such as: the quality improvement of imported products and so the improvement of national production; a clear protection of the industrial sectors of each territory which leads to an economic recovery that offers new employment opportunities and this an increase in local consumption. However, the implementation of these regulations bring negative consequences, specially for importer sectors, as their operation costs increase due to the new requirements established, and these lead to a raise of prices by these sectors to cover the new costs. In addition, a strong implementation of NTBs to imported goods may result in a clear unmotivation in regards to the activities of this group, unchaining a possible shutdown of operations.

Since the Latin American region has 19 State members, the main technical obstacles applied by mis of the nations are: restrictive quality regulations, tagging and clothing labeling, environmental and health. This group of policies applied to prevent the entry of imports is divided in two subgroups, the NTBs and the PSMs. One pretends to control the market of non-food goods by regulating the national market and preventing a dependency on imported products, and the other one pretends to maintain the population's health and the wellbeing of the region's flora and fauna.

In small economies, the implementation of TBTs is not really beneficial, as they tend to generate conflicts between producers and importers, and create uncertainty in the citizens because they do not completely understand the purpose of these regulations. This is mainly related to the common restrictions applied throughout the last two decades, e.g. the quality restrictions of products for their commercialization in a territory. In this context, the implementation of TBTs in

big and small economies may lead to the emergence of commercial retaliations, since these can be applied to import products from countries with good trade relations that, in response, will apply the same policy to another product from the first country or in extreme cases it will end any trade relation with the country.

Also, it was evidenced how through the application of restrictive measures by Latin American governments, the industrial sectors receive the direct protection of the State, which looks for the preservation of the sectors and to encourage them in the best way possible. They take these industrial groups to a new commercial level by the hand of restrictive measures towards their competitor products and by offering better products manufactured in the territory for the consumption of the people, creating more employment opportunities, increasing the expenses of the population and so incrementing the revenues for the State. This translates in a remarkable growth of the local economy as it expands the limits of the national industrial sector.

Simultaneously, while the national products are severely benefited by the implementation of non-tariff measures, importers - a commonly smaller group - also perceive drastic changes. This refers to how these groups' operation model changes radically in the need of adaption to a new trade system under the application of NTBs.

Due to the variables mentioned, it is visible how through the implementation of TBTs there are many factors that, as a whole, seek to build an ideal situation for the industrial sector as well as for the importers and for them to share a same market, as well as generating advantages and disadvantages in the analyzed sectors, and the studied region. Their implementation is closely related to the different trade activities that importers and national producers maintain, trying to evade a conflict over the market between the products of the national sector and the imported goods. Besides, they pretend to avoid dependency on foreign goods or, on the other hand, encourage only local consumption, even though it is not prepared enough to satisfy each of the needs of the different social classes.

As it was mentioned previously, the existing information relating to the TBTs in Latin America is scarce as a result of the lack of research exclusively related to the topic and the limitation around the language, in this case Portuguese, since Brazil is the biggest country in Latin America and the one that has mostly implemented TBTs, it is fundamental to know its language to approach the most precise information relevant to the topic because there still is plenty of information to approach. Therefore, the purpose of this review was to contribute to future reviews, government institutions and/or companies that want to deepen their knowledge about TBTs and be able to prepare for them.

What is currently known about TBTs is that they are a trade policy pretty delicate to implement, which must be applied knowing the general context of the market of each of the countries where these regulations intend to be implemented. Also, it is necessary to understand their effects in the commercial sectors and international trade, avoiding extremes, seriously harming one group or the other, and also maintaining the good trade relations between countries that seek for the protection and growth of their own markets, as well.

For future research, it is pertinent to establish what may be the effects resulting of the implementation of non-monetary barriers in different specific sectors as tiles and ceramics, food products or clothing, to determine in depth what are the consequences in each of these sectors. Moreover, this research is applicable in other regions as it is the case of developing countries like districts in Asia or Africa. Further, the effects of these policies in the trade between continents as Europe, Asia or regions like North America should be considered, evaluating their result in contrast to Latin American countries.

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