Summary of International trade in goods - Colombia

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Exports of Colombia are highly concentrated in few markets and few products. Colombia has transitioned from a high dependence on coffee exports in the 1970s to a high dependence on Oil and other minerals. The latter account for more than 60% of today's export basket (61.2% in 2019), although Colombian oil production account for less than 1% of world production (OECD, 2019). Moreover, the 10 principal destinations of Colombian exports of goods accounted for 70% of total value exported in 2019; United States and China alone add up to 47% of gross exports. (Argüello, 2017) decomposed Colombian export into its intensive and extensive margins during the period 1991-2011. The results indicate that trade diversification is relatively limited, the extensive margin contributed 37% to export growth in the covered period and the intensive margin 63%. (Garcia, Rivera, & Robledo, 2020)

Integration in global value chains (GVC) is minimal and is concentrated in low value-added products. Colombian producers use very few international inputs in their exports, among others due to protectionist policies (Echavarría Soto , Giraldo Salazar , & Jaramillo Mejía , 2019). Estimates of Trade in Value Added find that Integration in GVCs remains limited, the share of foreign value-added embodied in Colombia's export is low (OECD, 2019). Colombia's only important GVC link is with the United States, while many Asian and European economies are tightly intertwined through their trade relationships, both among themselves and with advanced economies (Criscuolo & Timmis, 2017) (Garcia, Rivera, & Robledo, 2020) (Estrades & Osorio-Rodarte, 2020).

Many analyses at the firm level find that productivity, quality upgrading and backward and forward linkages are key drivers of export growth. (Fieler, Eslava, & Yi Xu, 2018), (Eslava, JohnH, Kugler, & Maurice , 2013), (Eaton, Eslava, Kugler, & Tybout, 2007). All these authors studied the dynamism of Colombian firms, identifying some relevant characteristics. Taking a typical year, half of all Colombian exporters were not exporters in the previous year. Most of the newly exporting companies expand their foreign sales very quickly. Newly exporting companies tend to start with a single export destination and then gradually expand to other markets. Over the last decade, these newly successful exporters account for almost half of total export expansion. Meléndez, Arbeláez, & León (2012) show that in the export discovery process, the presence of foreign investment played a key role and helped trigger the discovery. In addition, the association with foreign companies for distribution and commercialization, as well as for acquiring knowledge about foreign demand and consumers' needs and preferences, was crucial for success. (Garcia, Rivera, & Robledo, 2020)

The tariff structure shows higher restrictions than regional peers and recent trend towards higher levels and dispersion. Tariffs have been reduced in levels, but its dispersion increased, reflecting the protection of agricultural, and some industrial sectors like automotive, footwear, textiles and apparel. The Andean Community's Price Band System (APBS), impose a variable tariff scheme on agricultural products, protecting them from international competition and exacerbating their protection and the dispersion of tariffs (Rivera, y otros, 2020).

The number of products and imports affected by Non-tariff measures (NTMs) are similar to Chile and lower than Argentina and Brazil. However, their ad-valorem equivalents (AVEs) are high compared to LAC countries. Consumption and food products faced most NTMs in Colombia, while capital goods faced least NTMs. Vegetable oils, food for livestock, fertilizers and other chemicals are some of the products used by exporters that face the higher number of NTMS. The most common NTMs in Colombia are inspection and certification requirements, for public health and safety reasons (Kee & Forero, 2020). Nevertheless, the AVEs are relatively high compared to the LAC countries agricultural, food and beverages, footwear, textiles and

apparel, based on estimates made by (Kee & Nicita, Trade Frauds, Trade Elasticities and Non'Tariff Measures, 2017).

Any tariff reform should pursue a low dispersion, simplicity and transparency, much like the original Structural Tariff reform (REA) of 2010. With this reform, the general tariff of 3,981 lines was reduced, mainly on raw materials and capital goods and the tariff was maintained of final consumer goods in levels comparatively higher to favor the cost structure of the national producer, and was issued through Decrees 4114 and 4115 of 2010. Subsequently, adjustments were made on 536 additional tariff lines through Decrees 492 and 511 of 2011. Such adjustments were able to reduce the average nominal tariff from 12.23% to 8.30%. (Rivera, y otros, 2020)

There are big institutional and governance challenges regarding trade policy and trade administration. The constitution stablishes that the executive branch of the Government rules the policies related to tariffs and customs procedures, but trade agreements must be approved by congress. The Superior Council for Trade is the main authority in these matters, discussing and defining overarching principles and general policies. It is headed by the President and includes most ministers and the directors of the main related agencies (Customs office-DIAN-, Colombian Agricultural Institute -ICA, National Institute for Vigilance on Medicines and Food, Department of National Planning-DNP-, among others). Moreover, the Committee for Tariffs, Customs and Foreign Trade analyses, discusses, and advises on specific requests by the private sector. This committee is composed by deputy ministers and representatives from the Presidency, the competition authority and DIAN's Director of Customs. Regarding trade remedies, there is similar Committee for Trade Practices that advise the Ministry of Trade on specific requests regarding antidumping and countervailing measures. (Garcia, Rivera, & Robledo, 2020)

Trade policies can help boost the economy in the aftermath of the COVID crisis and contribute to a more efficient productive structure. Based on a general equilibrium model simulation, the adoption of a uniform tariff scheme has a larger impact on GDP and trade than engaging in any trade agreement. Reduction in input costs due to the fall in tariffs or NTMs leads to an increase in exports of manufactures. The accession of Colombia to Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the signature of an FTA with China have the highest impact on growth, trade and poverty reduction (Estrades & Osorio-Rodarte, 2020).

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Title: Review of International trade in goods - Colombia

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Main findings

- Increase trade of goods in Colombia will require promoting competitiveness and productivity while reducing barriers to trade and costs.
- Tariffs have been reduced in levels, but its dispersion increased, reflecting the protection of agricultural and some industrial sectors like automotive, footwear, textiles and apparel.
- The use of non-tariff barriers increased during the 1990s and remains high. This requires an institutional effort to reduce their scope and impact and remains a priority to boost export performance.
- Integration in global value chains (GVC) is minimal and is concentrated in low value-added products.
- It is necessary to continue improving customs logistics, including inter-agency cooperation, and making further use of paperless online solutions for permissions and payments at the border.

Diagnostic

During the last decades, Colombia has maintained stable macroeconomic conditions and has sign numerous trade agreements. Colombia has 16[1] trade agreements in force being one of the countries with the most agreements in Latin America. This network of agreements gives preferential access to Colombian products to around 65% of world's GDP.

However, these policies have not yet materialized Colombia's full export and investment attraction potential and the country's level of internationalization remains low. Exposure to trade of goods and services has remained relatively low over time**.** Exports represented 15,8% of GDP in 2019, slightly below the level of 50 years ago. Imports have increased relative to GDP but remain relatively low, increasing 7 percentage points in the same period to 21,9% in 2019. This contrasts with dynamics seen in most advanced and emerging economies, where the role of trade has increased significantly over the last 50 years (OECD, 2019).

During the last 50 years, the goods export basket has not diversified and remains concentrated in low value-added goods and a handful of partner countries. Colombia has transitioned from a high dependence on coffee exports in the 1970s to a high dependence on Oil and other minerals. The latter account for more than 60% of today's export basket (61.2% in 2019), although Colombian oil production account for less than 1% of world production (OECD, 2019). Moreover, the 10 principal destinations of Colombian exports of goods accounted for 70% of total value exported in 2019; United States and China alone add up to 47% of gross exports. Arguello (2017) decomposed Colombian export into its intensive and extensive margins during the period 1991-2011. The results indicate that trade diversification is relatively limited, the extensive margin contributed 37% to export growth in the covered period and the intensive margin 63%.

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[1] Andean Community, Canada, Caribbean Community, Costa Rica, Cuba, European Union, Chile, European Free Trade Association, Republic of Korea, México, Mercosur; Salvador Guatemala, Honduras; Pacific Alliance, United States, Venezuela, Israel.

Since the beginning of Colombia's economic liberalization of the 1990s tariffs have fallen steadily but remain relatively high, with an increase in dispersion. MFN average tariffs were reduced from 12.4% in 2000 to 6.2% in 2019. Nevertheless, Colombia holds the fourth highest average tariff in Latin America, after Venezuela, Argentina, and Brazil and average tariffs are five times higher than in Chile. Moreover, tariff standard deviation has increased from 7.7 in 2010 to 9.6 in 2019. The highest tariffs are in manufacturing and agricultural products for consumption (Mauricio Ramírez & Gómez Gaviria, 2013). Nominal MFN tariffs on agricultural products average 16% but could be as high as 209% for poultry, 194% for maize and 189% for rice, due to the variable tariff rates of the Andean Community's Price Band System (APBS) which are only bounded by WTO consolidated tariffs for Colombia. In manufacturing textile and apparel, footwear and the automotive sectors have the highest tariffs (35%-40%), as they are frequently excluded from reforms looking for lower tariffs (OECD, 2019; Echavarría Soto , Giraldo Salazar , & Jaramillo Mejía , 2019).

There have been some important efforts to reduce tariff levels and dispersion, even after the economic liberalization of the 1990s. In 2010, the Colombian government implemented a Structural Tariff Reform (REA for its acronym in Spanish). This reform reduced import tariffs for raw materials and capital goods necessary for national production and simplified the tariff structure, establishing a general 15% tariff for consumption goods, 10% or 5% for agricultural and non-agricultural raw materials and capital goods (Torres & Romero, 2013). The REA decreased dispersion by reducing the number of sectors of the economy with effective protection levels above 100%, and the average rate was lowered from 12.2% to 8.3%, covering around 3,987 products (tariff lines). However, the REA excluded some agricultural goods and the automotive sector, and during 2011 and 2012 there where further reforms that increased tariffs for locally produced raw materials and capital goods while lowering the rates for non-produced goods and this policy have been maintained since (generally called as PIPE).

Some policy instruments heavily protect agricultural products from international competition. Colombia introduced the Andean Community's Price Band System (APBS) in 1995, with the objective of reducing domestic price instability by buffering fluctuations in international prices. The study of Reina & Zuluaga (2011) illustrate the negative effects of the APBS on market distortions, company competitiveness and labor productivity, decreasing the level of internationalization of some productive sectors, especially those that use basic goods as inputs like the food and beverage industry. For instance, (Leibovich & García, 2014) find the Producer Support Estimate[2] for the sugar producers was around 99% compared to 12% for the OECD average in the period 2000-2004. They proposed adjustments to the APBS, noting it decreased the competitiveness of higher value-added industries demanding sugar intensively. In addition, they argue there are market instruments such as futures and options that agents can use to stabilize the price of imports instead of using tariffs. Melendez (2014) points out that the Price Stabilization Fund for sugars (FEPA for its acronym in Spanish) is a public policy instrument through which the government intervenes in the sugar markets, trough the control of quantities sold in the local market. In practice, the FEPA has served for producers to receive a higher income than they would obtain in a competitive market. Melendez (2014) shows that Colombia has a sugar industry that is highly subsidized by consumers through excessive prices, affecting the competitiveness and economic growth in the food, beverage, and confectionery industries. Therefore, it would be better to substituted FEPA for a policy that solves market failures through the provision of public goods fostering the benefits of transparency, competition, and creating valued added scenarios for all the industry.

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[2] Producer support estimate (PSE), measured as a percentage of gross farm receipts.

As tariffs were reduced, non-tariff barriers have increased, restraining productive reallocation and reducing social welfare (García J. , 2014; Botero, García, & Correa, 2018)**.** In Colombia, the number of products affected by these measures is relatively high, and larger than in other countries in the region. In 2013 these measures covered 78% of the total tariff lines, becoming the most used instrument to protect local production from international competition (Echavarría Soto , Giraldo Salazar , & Jaramillo Mejía , 2019). The Ad-valorem equivalent tariff of non-tariff barriers (AVE) increased rapidly until the year 2000, reaching an average level of 123% and has remained close to that level since (García López, Montes & Esguerra (2014). These authors also estimated that non-tariff barriers by type of good were concentrated in intermediate goods (81%), consumer goods (82%) and capital goods (57%). Recent estimates for Colombia find that these measures imply significant increases in trade costs both in agriculture and in manufacturing sectors, reaching 40% in footwear or 20% for vehicles (Cadot, Gourdon, & van Tongeren, 2018; OECD, 2019).

Colombia's participation in global value chains (GVC) is low. Colombian producers use very few international inputs in their exports, among others due to the protectionist policies mentioned above (Echavarría Soto , Giraldo Salazar , & Jaramillo Mejía , 2019). Estimates of Trade in Value Added find that Integration in GVCs remains limited, the share of foreign value-added embodied in Colombia's export is low (OECD, 2019). In 2016, the share of foreign value added in gross exports was around 10% below the average for Latin countries (16%) and Euro Area (17%); for industry value-added embodied in exports was 17,6%, 7,9% for agriculture, 4,9% for mining and 6,4% for services. Forward participation in GVCs, measured as domestic value added in foreign exports as percentage of gross exports was 21,9% in 2015, similar to South and Central American average and higher than the OECD average (18%). However, this indicator is lower than 1% in sectors like agriculture and mining. Also, Colombia's only important GVC link is with the United States, while many Asian and European economies are tightly intertwined through their trade relationships, both among themselves and with advanced economies (Criscuolo & Timmis, 2017).

In Colombia, many analyses at the firm level find that productivity, quality upgrading and backward and forward linkages are key drivers of export growth (Fieler, Eslava, & Yi Xu, 2018; Eslava, JohnH, Kugler, & Maurice , 2013)**.** (Eaton, Eslava, Kugler, & Tybout, 2007). These authors studied the dynamism of Colombian firms, identifying some relevant characteristics. Taking a typical year, half of all Colombian exporters were not exporters in the previous year. Additionally, most of the newly exporting companies expand their foreign sales very quickly. Newly exporting companies tend to start with a single export destination and then gradually expand to other markets. Over the last decade, these newly successful exporters account for almost half of total export expansion. To illustrate a successful case in the flower market, Meléndez, Arbeláez, & León (2012) show that in the export discovery process, the presence of foreign investment played a key role and helped trigger the discovery. In addition, the association with foreign companies for distribution and commercialization, as well as for acquiring knowledge about foreign demand and consumers' needs and preferences, was crucial for success.

Ports in Colombia are less efficient than in Latin-American peers. Since more than 85% of global merchandise trade is carried by sea, developing strong, well-functioning maritime transport infrastructure is a key element of internationalization. Although Colombian port infrastructure has increased its capacity in recent years, international rankings indicated that port and border handling remain as a significant bottleneck for international trade in goods (OECD, 2019). Colombia's exports required nearly twice as much time (112 hours) as exports from Chile and six times more than Mexico. Most delays in processing exports are explained by port handling and clearance and inspections required by agencies other than customs (World Bank, 2020). The study

of García, López, & Montes (2019) indicates that the cost[3] of importing into Colombia is high, but it has decreased between 1999 and 2012, mainly due to unilateral tariff reductions in Colombia or induced by trade agreements with other countries. For total imports, costs fell from around 49% of domestic prices in 1999-2001 to 36% percent in 2012; reflecting the high share of manufacturing imports in total imports. The highest reduction took place in agricultural goods, which had a cost of around 79% during 1999-2001, because of tariffs protection cost, and it was reduced to 44% in 2012. For manufacturing goods, the cost fell from 46% to 36% over the same period.

Many efforts have been made to reduce times for clearance goods in import and export operations, but meaningful reductions have been achieved only in imports. Using a methodology from the World Customs Organization, the national customs agency -DIAN- found a reduction of 11% in import clearance times at the Buenaventura port, from 9,6 days in 2017 to 8.6 days in 2019 (The National Tax and Customs Office (DIAN), 2020). There was not a significant change in times for exports through Cartagena port, which take on average 6,3 days. At sea and air import times, customs have the greatest incidence, especially the time needed to present the import declaration, make the payment and request the release of cargo. For exports by sea and air most of the time is taken in the process of transfer times and boarding authorization, which includes the inspections by the Colombian Anti-Drug branch of the police. In this sense, digital technologies and non-intrusive inspection technologies should make a great difference in facilitating trade. To this end, in 2012 Colombia established The Integrated System for Simultaneous Inspection (SIIS) to coordinate agencies at border control, which improved import and export operations as each cargo is only inspected once.

Policies related to tariffs, customs procedures, agenda for free trade agreements negotiations, and trade remedies have a relatively well-defined institutional framework. The constitution stablishes that the executive branch of the Government rules the policies related to tariffs and customs procedures, but trade agreements must be approved by congress[4]. The Superior Council for Trade is the main authority in these matters, discussing and defining overarching principles and general policies. It is headed by the President and includes most ministers and the directors of the main related agencies (Customs office-DIAN-, Colombian Agricultural Institute -ICA, National Institute for Vigilance on Medicines and Food, Department of National Planning-DNP-, among others). Moreover, the Committee for Tariffs, Customs and Trade is in charge of analyzing, discussing and advising on specific requests by the private sector. This committee is composed by deputy ministers and representatives from the Presidency, the competition authority and DIAN's Director of Customs. Regarding trade remedies, there is similar Committee for Trade Practices that advise the Ministry of Trade on specific requests regarding antidumping and countervailing measures.

There are big institutional and governance challenges regarding trade policy and trade administration. In 2013, the Colombian central bank carried out a survey of the main public and private foreign trade operators to identify the main institutional challenges of international economic policy (Echavarría Soto , Giraldo Salazar , & Jaramillo Mejía , 2019). The main institutional challenges encountered were:

- Colombia lacks a solid and efficient institutional framework to control foreign trade. The survey results identified that all entities, even those that were rated by operators, can improve their performance.

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[3] This study compares import prices with producer prices at the product level were feasible. Total cost incudes warehouse, tariffs, international transportation, etc. This information allows to separate the external costs from the internal ones, and to decompose the internal ones between tariff costs and non-tariff costs. Non-tariff costs inform about the amount to which the costs associated with customs procedures of foreign trade amount (approvals, non-tariff measures, customs procedures and inspections, etcetera.) handling of merchandise in port, and the costs of moving merchandise from the port to the warehouse of the wholesaler or factory.

[4] National Constitution; article 150, numerals 1,3,7,12,16, 19 b & c, 21, 22 & 24; Articles 334; 338; 339; 340; 341; 342 & 372. Law 7 of 1991.

- State entities are poorly coordinated, and regulations represent an obstacle to trade as they are unclear, difficult to access and their implementation is sometimes delayed.
- Companies need to deal with multiple, uncoordinated entities to access the documents necessary to export and import.
- There are dual functions, management failures, inadequate technology, human resource training failures, insufficient and low-quality infrastructure, and logistical problems in air and seaports to carry out customs procedures.

The National government has implemented some reforms to foster coordination and facilitate trade. In 2017 Colombia adopted the "The trade Facilitation Agreement" of the WTO (Law 1789 of 2018), and one of the mandates was to implement a national Trade Facilitation Committee, which was formally established in august 2018. It has already met 31 times to date. The committee identifies obstacles to trade from roundtables among public and private actors and establishes clear commitments and goals to solve them. It has been successful in implementing incentives for the use non-intrusive inspection, reducing physical police anti-drug inspections and defining guidelines to hasten inspections by customs and other agencies at ports (for instance, agencies are instructed to begin inspection earlier and issue certificates of inspection upon inspection and not at the end of the day). Moreover, the OECD (2019) highlighted the successful implementation of the automation of customs procedures for foreign trade via the single window for foreign trade (VUCE, for its initials in Spanish). This platform has reduced authorization times and the number of procedures to comply by exporters and importers.

Policy recommendations

Review high tariff levels of some sectors, including the use of price bands and price stabilization funds. Although there have been efforts in order to reduce the level of nominal protection of some sectors coupled with an agenda of liberalization through free trade agreements, some sectors remain protected trough tariffs or other price instruments.

There is a need for a significant reduction of costs and times associated with trade operations. To reduce the other costs of trading, it is necessary to increase the productivity of service providers, which implies investing in physical and human capital, innovating, adopting and adapting new technologies, and promoting competition in those links of the chain where the service is provided under monopolistic or oligopolistic conditions (García, López, & Montes, 2019).

Improve customs logistics, improving inter-agency cooperation and making further use of paperless online solutions for permissions and payments. Reducing further the processing times of import license applications, via the single window for foreign trade (VUCE), including faster issuance of import-related permits, would also be important. Adopting common standards can also be a promising way to reduce the costs associated to other non-tariff measures, such as technical barriers, as they help to build trust and facilitate smoother trade (OECD, 2019).

Gradually remove import restrictions and review other non-tariff barriers. Reducing the costs associated with NTBs does not require large investments, but it does require changing regulations and laws. If eliminating them were possible, the cost reduction from eliminating NTBs would exceed that which can be obtained by reducing other costs (Echavarría Soto , Giraldo Salazar , & Jaramillo Mejía , 2019).

Greater coordination among the institutions responsible for non-tariff trade barriers. Cooperation with other countries on rules of origin, sanitary measures and other technical barriers can be improved. This would contribute to boost intra-regional trade. This indicates that reviewing these measures, in order to reducing their

scope and impact, should be a priority in an agenda to boost export performance. Quantitative measures would require attention, as they are the most distortive (OECD, 2019).

Broader implementation of regulatory impact assessment could help deter de imposition of new non-tariff barriers not necessarily identified as a technical or sanitary barrier to trade. This could ensure new measures have greater benefits than costs. Existing measures also need to be revised, many of which will continue to penalize firms and competitiveness (Departamento Nacional de Planeación, 2016).

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The Free Trade Zones (FTZ) regime offers tax, customs and foreign trade benefits to established companies under it. . The FTZ are "*geographically delimited areas within the national territory, where industrial activities relating to goods and services or commercial activities are performed, and are under special regulations in tax, custom and foreign trade matters*" (Procolombia, 2020). Colombia has established three FTZ types: Multicompany Free Trade Zones[5]; Single Enterprise Free Trade Zones[6] and Transitory Free Zones[7] (Procolombia, 2020). Some benefits of the FTZ regime in Colombia are preferential income tax rate (20% compared to 32%[8] in the general regime), no value added tax (VAT) or custom duties on goods imported into the FTZ; no VAT on raw materials, parts, inputs and finished goods sold from anywhere in the country to users of FTZ; the possibility of partial processing outside the FTZ for up to 9 months (the processing may not exceed 40% of the cost of the total production); exemption of VAT on merchandise sales to foreign markets; and simplified customs procedures (Kalin, 2009) (Procolombia, 2020). The status of FTZ is granted for a maximum of 30 years for Single Enterprise Free Trade Zones and for 60 years for Multicompany Free Trade Zones (included the time of extension).

The FTZ regime has been adjusted several times aligned with the country's investment policy objectives. Initially, FTZ were an instrument to promote exports. They were created by Law 105 of 1958 and, subsequently, Law 109 of 1985 established the statute of the free zones. With Law 1004 of 2005, a new regulatory framework for FTZ was created[9], to date. Its objectives are to encourage job creation, new capital investments attraction and promotes regional competitiveness where these projects are established. Additionally, Law 1004 establishes the differential minimum investment and job creation requirements, among others, defined depending on the FTZ type (Pinzón Alvarez & Lora Suarez, 2015), providing the opportunity for companies and sectors with different requirements of production factors to apply to the FTZ regime (Ruiz Restrepo, 2016). Currently, the FTZ are regulated by Decree 2147 of 2016 and by Decree 1054 of 2019. The latter regulates the corresponding extensions (in time) of free trade zones established.

The number of FTZ in Colombia has increased rapidly since the Law 1004 of 2005. Before the Law 1004 in Colombia there were 11 Multicompany Free Trade Zones with 351[10] companies established (DNP & Econometría, 2012). By 2019 115 FTZ were declared (40 Multicompany Free Trade Zones and 75 Single Enterprise Free Trade Zones) with 1091 companies. It reflects an increase of approximately 945% FTZ and 211% companies installed in FTZ, between 2004 and 2019. Regarding the sectoral composition, 52% of the total FTZ belong to the industrial sector, followed by the service sector (36%) and agro-industrial sector (12%). **¡Error! No se encuentra el origen de la referencia.** presents the evolution of FTZ declared from 1993 to March 2020.

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[5] The Multicompany Free Trade Zones, called permanent free trade zones in the regulation, are areas within the national territory, managed by an operator user, in which new companies that establish their projects are benefited with a special tax and customs treatment.

[6] The Single Enterprise Free Trade Zone, called special permanent free trade in the regulation, enables the declaration of an FTZ in favor of a specific new company, in any location within the country.

[7] The Transitory Free Zones are delimited areas of the national territory where international fairs, exhibitions, congresses and seminars are held.

[8] The income tax rate in the general regime established is: 33% in 2019; 32% in 2020; 31% in 2021; 30% in 2022 and following years.

[9] Due to the fact that the FTZ regime was considered a prohibited incentive for the export of goods within the framework of the World Trade Organization (WTO), the reform of FTZ regime took place in 2005 (DNP & Econometría, 2012).

[10] The number of companies in FTZ correspond to the year 2004 (DNP & Econometría, 2012).
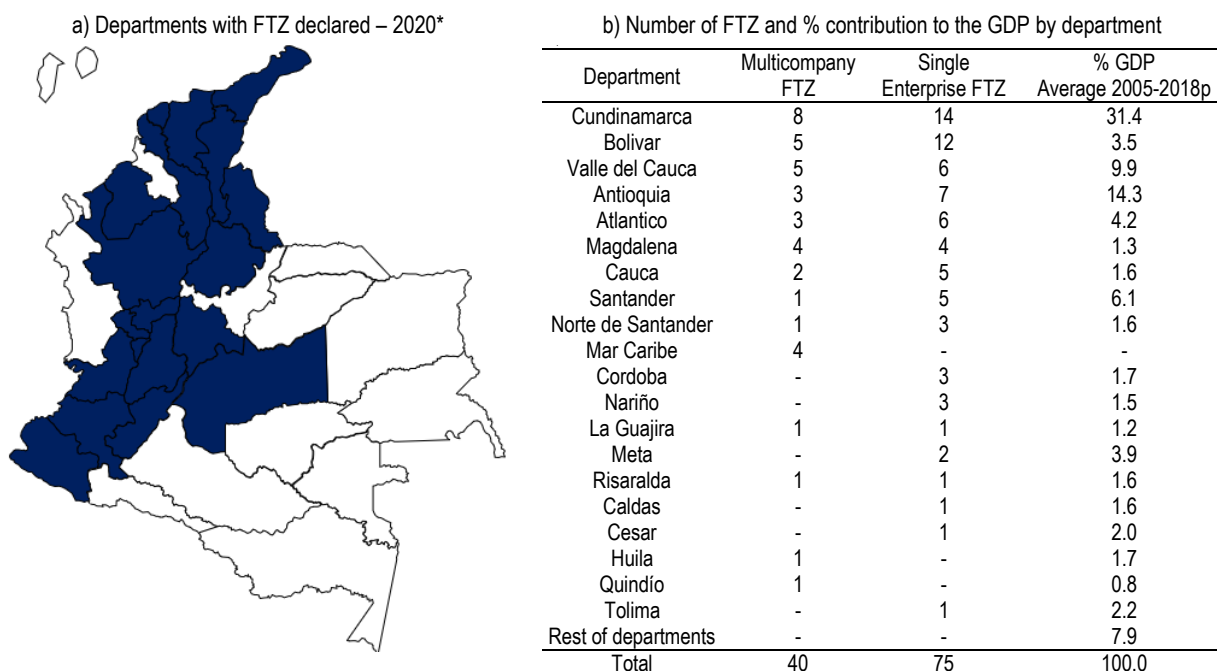
Latest FTZ Regulatory framework
Law 1004/2005:
Introduced Single Enterprise FTZ

Multicompany FTZ

Single Enterprise FTZ
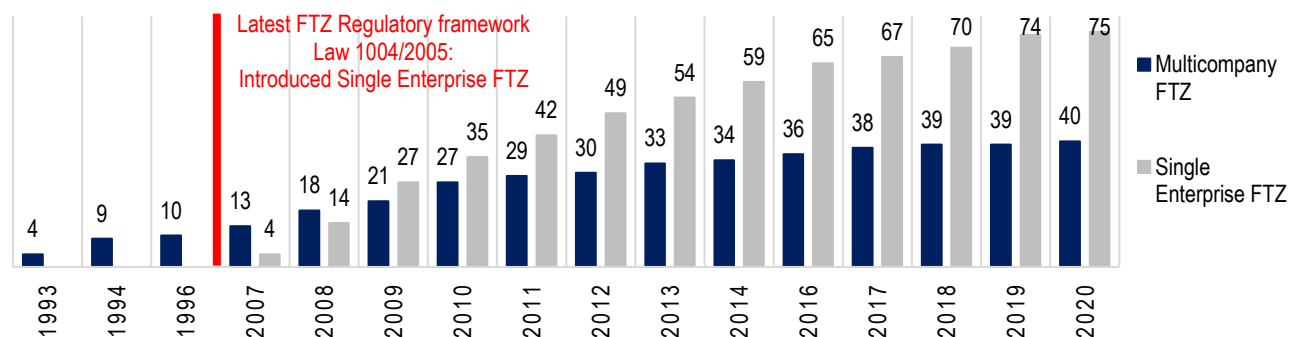
Note. The number of FTZ are referred to FTZ declared. The FTZ that were declared and lost the status are not accounted.
Source: (Ministry of Commerce, Industry and Tourism, 2020)

The FTZ regime has contributed to consolidate existing regional growth hubs and has facilitated the increase of regional disparities. According to (Arévalo-Luna & Arévalo-Lizarazo, 2019) the FTZ regime has intensified regional disparity. Colombia has FTZ in 22 departments[11], but 56% of the total FTZ are concentrated in five departments[12]. Therefore, in departments with higher economic development, FZF belong to companies of a variety of sectors, but in the less developed departments, FTZs have not high value-added and technological sophistication industries. According with Graph 1, the five department that concentrate 56% of FTZ have contributed with 63% of their total GDP (average in the period 2005-2018).

Graph 1. Current number of FTZ declared and percentage contribution to the GDP by department

a) Departments with FTZ declared – 2020*

b) Number of FTZ and % contribution to the GDP by department

Department	Multicompany FTZ	Single Enterprise FTZ	% GDP Average 2005-2018p
Cundinamarca	8	14	31.4
Bolivar	5	12	3.5
Valle del Cauca	5	6	9.9
Antioquia	3	7	14.3
Atlantico	3	6	4.2
Magdalena	4	4	1.3
Cauca	2	5	1.6
Santander	1	5	6.1
Norte de Santander	1	3	1.6
Mar Caribe	4	-	-
Cordoba	-	3	1.7
Nariño	-	3	1.5
La Guajira	1	1	1.2
Meta	-	2	3.9
Risaralda	1	1	1.6
Caldas	-	1	1.6
Cesar	-	1	2.0
Huila	1	-	1.7
Quindío	1	-	0.8
Tolima	-	1	2.2
Rest of departments	-	-	7.9
Total	40	75	100.0

p: provisional data.
Note. The departments colored in blue have declared at least one FTZ. Data updated to March 2020.
Source: Own elaboration based on data provided by (Ministry of Commerce, Industry and Tourism, 2020) (DANE, 2020).

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[11] Colombia is divided in 32 departments, in which 13 of them have not declared any FTZ.
[12] Bolivar, Cundinamarca, Valle del Cauca, Antioquia and Atlantico.

Investment and employment commitments have been exceeded by companies established in FTZ. Based on reports by the Ministry of Trade, Industry and Tourism (2020) the amount of the accumulated investment buy the companies in FTZs, during 1993-2019, was approximately $46.79 billion of pesos (US$12,881 million) and by December 2019 they have created 23.678 direct and 52.401 indirect jobs. The investment progress of the FTZ has been exceeded by 200% in the value of their initial commitments. Similarly, direct and indirect jobs were higher in a 3% and 55%, respectively, compared with their initial commitments.

Colombia is the country with the highest number of FTZ in Latin America, followed by the Dominican Republic, but it is not reflected on the employment generated by them (Table 1). According to (AZFA, 2019), Colombia created 54.091 direct jobs with 963 companies installed in 112 FTZ, while the Dominican Republic created 161.257 direct jobs with 630 companies installed in the 65 FTZ. Thus, Colombia created a smaller amount of jobs compared to the Dominican Republic, although Colombia reported more companies installed on FTZ.

Table 1. Number of FTZ, companies in FTZ and direct job creation, by countries in Latin America

	Number of FTZ	Number of companies installed in FTZ	Direct jobs created in FTZ
Colombia	112	963	54.091
Dominican Republic	65	630	161.257
Nicaragua	50	297	110.314
Costa Rica	39	331	82.086
Honduras	39	350	146.000
Brazil	27	620	122.836
Panama	22	2.977	41.415
El Salvador	17	155	80.000
Guatemala	13	308	15.567
Uruguay	13	1.420	13.321
Perú	4	134	1.500
Puerto Rico	3	219	15.000
Chile	2	2.000	18.000
Paraguay	2	143	2.500
Cuba	1	44	6.749

Note. The list is a sample of countries in Latin America with FTZ.
Source: Own elaboration based on data provided by (AZFA, 2019)

Some studies indicate the FTZ regime has significant positive impact. The FTZ regime in Colombia has generated employment, has increased the amount of investment and exports, and have promoted regional development, business agglomerations formation and productive chains, among others according to (Gómez-Restrepo, Mitchell-Restrepo, & Gallo, 2014) (Arévalo-Luna & Arévalo-Lizarazo, 2019)[13]. Additionally, (DNP & Econometría, 2012) found some positive effects, during the period 2006-2010, on gross revenues of companies in FTZs; fulfillment of the objectives in investment; synergies in logistics and regional services, among others. The greatest participation has been on the sectors of metallurgy; food and beverages; clothing and textiles; petrochemical, paper and cardboard, health services; and construction (Pinzón & Lora, 2013).

However, it is unclear that investment boost is caused by FTZ benefits. A study from the World Bank (2012) found that, although FTZ are associated with the generation of investment and employment, it is difficult to establish causation and economic literature suggest that it often does not exist. This study adds that a significant part of the investment projects would have likely been carried out without the FTZ regime, because many projects are financially profitable under the general regime. This is consistent with the results of a survey developed by (DNP & Econometría, 2012) in which 50% of the consulted investors indicated they would have executed the

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[13] (Gómez Restrepo, Mitchell Restrepo, & Gallo, 2014) built an econometric model in order to estimate the fiscal cost of FTZ regime, in which compared companies, from the same sector, located in FTZ and in the national territory. Additionally, the authors used data and results obtained by other studies, in order to analyses other aspects related to FTZ regime. The study developed by (Arévalo-Luna & Arévalo-Lizarazo, 2019) used the analytical-descriptive method from public and private statistical sources.

same amount of investment without the FTZ benefits. Although (DNP & Econometría, 2012) found that the investment commitments of the FTZ regime is effective in increasing the accumulated investment average levels of companies,[14] this result is inconclusive because the differences in tax regimes could affect the decisions of investors, either disincentivizing investment in the national territory or moving companies to the FTZ.

Moreover, the net fiscal effects of the FTZ regime are uncertain. The (World Bank, 2012) pointed out that there are technical arguments that question the effectiveness of the FTZ regime in Colombia, since the decision of the investment depends on different factors that go beyond tax aspects. However, the analysis of the fiscal impact of FTZs conducted by (DNP & Econometría, 2012), during the period 2006-2010, found some positive effects on income tax and VAT revenues and (Ramos F. & Rodriguez Z., 2011) concluded that a differential income rate applied to FTZ companies has not represented a significant cost to national finances, by 2009, as some analysts have stated, The (World Bank, 2012) mentioned that by 2020 the fiscal cost would be increased by approximately 10 times (compared with 2010), going from 0,03% of the GDP in 2010 to 0,33% of the GDP in 2020. According to (Avendaño Cruz, Parra Garzón, Parra, & Sierra Reyes, 2018) the calculation of the fiscal cost attributed to the FTZ regime in 2016 was estimated in $0.94 billion[15] of pesos (0,1% of the GDP). Additionally, (Ramos F. & Rodriguez Z., 2011) added that in the medium term the fiscal cost could not maintain a low level, because of the dynamism of new companies declared in the FTZ regime.

The FTZ regime creates unequal competition between companies in the same sector. The (World Bank, 2012) found that the average tax rate for companies in FTZ was 6 percentage points lower than under the general regime. This difference in tax rates has effects on the profitability of companies, which are higher in companies in FTZ (Ernst & Young, 2016). At the sectoral level, there is a greater concentration of large companies that also operate in FTZs. For instance, The (World Bank, 2012) indicates that of the top of 100 biggest companies in Colombia ranking (Semana, 2009), only 8 were FTZ: 3 were leaders in their respective sectors and 5 were in the top 10 in their sector. Additionally, Graph 2 shows the results of the Internal Rate of Return of companies located in and out of FTZ calculated by (Ernst & Young, 2016), in which is demonstrates that, in average, companies in FTZ have a higher financial return than companies in the rest of the country.

Graph 2. Internal Rate of Return. Estimation for Colombian´s companies by sector
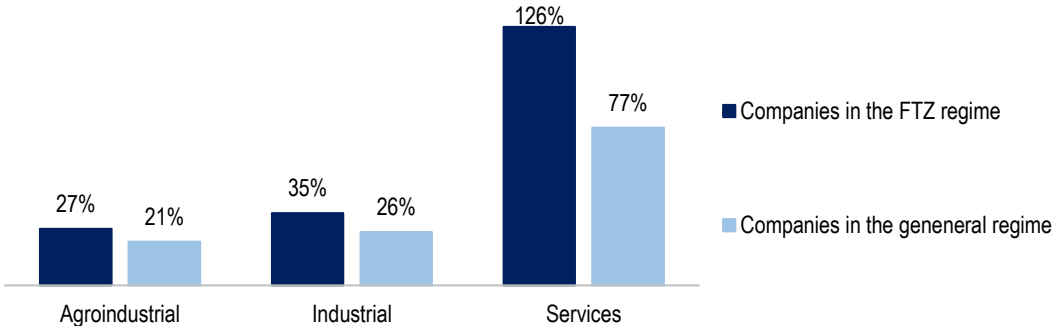
Source: Own elaboration based on the results of (Ernst & Young, 2016).

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[14] The result in only for the sample of FTZ companies and not for the total of FTZ companies. The analysis built a counterfactual scenery for FTZ companies and the methodology used was Propensity Score Matching. The control group was composed by the 18% of the total of companies in the FTZ regime (122 companies of a total of 685). And the treatment group was integrated by companies of the national territory with the same economic activity (there were selected 347 companies). The group was controlled by three variables: gross income, total assets and operating income. The number of companies in the control group depended on the availability of financial information in the database consulted.

[15] The estimation in 2016 included only the fiscal cost for income and CREE tax.

The Single Enterprise Free Trade Zones could not generate the theoretical benefits of FTZ. (Melendez, 2015)[16] argues that Single Enterprise FTZ should not be perpetuated and should be eliminated because they do not have the potential benefits associated with an enterprise cluster, such as knowledge spillovers; they are more difficult to monitor by the authorities and they are essentially a scheme used to access a reduction in income and supplementary taxes.

FTZ companies have not increased exports and their production is mainly oriented to the domestic market (Although the FTZ do not aim to increase national exports). (Melendez, 2015) mentioned there is an absence of a robust relationship between the benefits of the instrument and export performance in Single Enterprise FTZ. According to (Pinzón, 2013) approximately 77% of the FTZ production is sold in the local market. In consequence, it could affect companies that do not have the benefits of FTZ regime.

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[16] Regarding to FTZ, (Melendez, 2015) used data to analyses the export activity of Multicompany FTZ and Single Enterprise FTZ compared with the total of the country, during the period 2000-2014 (Multicompany FTZ) y 2008-2014 (Single Enterprise FTZ). The variables analyzed were annual value of exports, number of exporters, number of companies in FTZ and percentage share of some variables (FTZ respect to total country). The data was collected from the Directorate of Taxes and National Customs (DIAN for its acronym in Spanish), National Administrative Department of Statistics (DANE for its acronym in Spanish) and Ministry of Trade, Industry and Tourism.

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<h1 style="text-align:center">Title: Annex Review Non- Tariff Measures in Colombia</h1>

Authors/Collaborators

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Colombia reduced its tariffs since the economic liberalization of the 1990s but non-tariff measures (NTMs)[17] increased in the last three decades. Based on the initial methodology[18] of (Kee, Nicita, & Olarreaga, 2009), researchers from the central bank of Colombia estimated Ad-valorem tariff equivalents (AVEs) for non-tariff measures in the period 1989-2014 (Echavarría, Giraldo, & Jaramillo, 2019). The authors found that in the 1990s there were 300 tariff lines (products) with identified NTMs, but this number increased rapidly reaching more than 7,000 items in 2013 and dropped to 5.120 in 2014.Thus, Colombia went from an average of 1.3 NTMs per tariff lines, in 1990s to almost 10 NTMs per product in 2014. The authors illustrated how, despite of the reduction in tariffs throughout the 1990s, the AVEs of those NTMs increased from 38% in 1990 to an average level of 123% in the year 2000; there was a period of stability of the AVE between 2000 and 2008, followed by one slight decrease in its value and was estimated in around 118% in 2014. In brief, there is an increasing positive correlation between the total protection and NTMs effects, given by the fact that while tariff rates decreased, they were apparently replaced by the imposition of NTMs. The authors suggest that Colombia´s trade policy has provided a considerable level of protection for local production, resulting in negative effects on efficiency; economic productivity; and wellbeing of the final consumers and the users of internally produced inputs and goods.

<p style="text-align:center">Table 1: Average protection for 38 sectors (ISIC Classification-Three digits)</p>

AVE DISTRIBUTION	SECTOR
OVER 150%	Clothing, except footwear; wood extraction; motion pictures and other related products; food except beverages; textiles; agriculture; footwear and parts thereof.
100% – 149%	Tobacco Industries; chemicals; forestry; clay, pottery; beverages; oil refinery; other non-metallic minerals; petroleum and coal products; wood; basic iron and steel.
50% – 99%	Plastics; glass; transportation equipment and supplies; leather and products; rubber and products; machinery, apparatus, and accessories; professional and scientific material; metal products; other manufacturing industries.
0% - 49%	Paper and products: fishing; libraries, museums, botanical gardens and zoos; furniture and accessories; machine building, except electricity; basic non-ferrous metals; printing, publishing products.

<p style="text-align:center">Source: DNP based on Echavarría, Giraldo, & Jaramillo (2019)</p>

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[17] See annex 1

[18] The standardized method in the literature to measure these restrictions is to find the tariff equivalent of the NTM. Following these authors, the AVEs are computed as the equivalent tariff that would be necessary to impose in order to obtain the same proportionate change in quantity imported due to the presence of NTMs. In summary, the estimation method seeks to identify the instantaneous semi-elasticity of trade with respect to differences in the observed tariffs and apply this elasticity to the estimated effects of NTMs on the quantity of trade. (annex 2).

Imports of goods are subject to numerous NTMs, both in coverage by sector and in intensity of coverage.
García , López, & Montes (2016) study these measurements for 106 products (91 manufactured and 15 agricultural) for which trade costs were calculated through the period 1999, 2008, and 2014. The NTMs distributions identified in this analysis are showing below:

Table 2: imported value subject to NTMs -average for 1999,2008 and 2014- (range in %)

ISIC SECTOR	< 20	20-40	40-60	60-80	80-99	100
1. Chemicals					*	
2. Machinery and equipment		*				
3. Vehicles					*	
4. Oil derivatives				*		
5. Television and communication equipment				*		
6. Food and drinks					*	
7. Food and drinks					*	
8. Other types of transportation equipment			*			
9. Agriculture, livestock, and hunting					*	
10. Office machinery			*			
11. Rubber and plastic products		*				
12. Clinical devices				*		
13. Textile products					*	
14. Fabricated metal products			*			
15. Paper and Cato Products	*					
16. Furniture		*				
17. Other non-metallic minerals	*					
18. Tanning and preparation of leather					*	
19. Clothing						
20. Wood and cork products						*

Source: Taken from (García , López, & Montes, LOS COSTOS DE COMERCIAR EN COLOMBIA: APROXIMACIÓN BASADA EN UNA COMPARACIÓN DE PRECIOS, 2016) based on information from WITS-UNCTAD.

Besides the increasing use of non-tariff measures, the authors conclude and state that NTMs were designed to protect local production using and taking advantage of the argument of achieving legitimate policy objectives, such as the protection of human health and safety or protection of the environment.. Additionally, the lack of coordination between the institutions in relation to foreign trade cause an overlap of requirements and procedures, affecting the process of exporting and importing merchandise. Finally, based on these results, they conclude that the evidence does not support the hypothesis that there will be more imports with fewer NTMs. Nonetheless, this result also suggests that products with fewer imports are less relevant and therefore there is no interest in protecting them through NTMs. This apparent inconsistency between what is expected and what is observed deserves a separate study.

The OECD (2019) **suggests that reducing the extent and impact of non-tariff barriers should be a priority in any political agenda whose objective is to boost exports.** Furthermore, quantitative measures would require special attention, since these are the ones that cause the greatest distortions, they do not just entail higher economic costs, but they also carry substantial administrative costs. For this reason, Colombia plans to perform on all new non-tariff barriers a regulatory impact assessment. This initiative aims to ensure that the new measures respond to real and objective reasons, rather than acting as a safeguard for disguised interests in some markets. To achieve this, it is necessary to guarantee greater coordination among all the institutions responsible for non-tariff trade barriers.

Estimates made for Colombia suggest high implementation of non-tariff measures in all sectors. (Kee & Nicita, 2017) updated these calculations[19] using trade data for 41 countries and considering six-digit tariff items between 2012-2016, dividing the effect between technical (Sanitary and phytosanitary measures, and technical regulations and standards) and non-technical barriers. About the technical component, Colombia has huge non-tariff barriers (AVE) mainly in sectors such as processed rice (89%); crops (38%); vegetable, oils, and fats (30%); food products (28%); beverages and tobacco products (26%); wearing apparel (15%). This technical measurement is higher than the Latin American average or the E.U. average. Regarding to non-technical measures, there are higher restrictions in sectors such as sugar (26%), Beverages and Tobacco products (25%), Bovine meat products (14%) and, food products (12%).

Table 3: AVE estimates at GTAP sector (Percentage points)

Sector	Technical				Non Technical			
	Colombia	Latin America *	European Union	Rest of the World	Colombia	Latin America *	European Union	Rest of the World
Processed rice	89	78	270	124	41	56	157	58
Crops n.e.c.	38	36	14	38	6	2	0	5
Vegetable oils and fats	30	27	51	27	4	2	0	7
Food products n.e.c.	28	25	25	21	12	1	0	4
Beverages and tobacco products	26	27	22	21	25	20	0	13
Wearing apparel	15	8	11	6	10	3	0	5
Animal products n.e.c.	9	12	3	8	2	1	0	2
Bovine meat prods	8	8	11	9	14	2	20	19
Forestry	8	4	6	11	7	0	5	4
Dairy products	7	14	7	9	7	2	3	3
Meat products n.e.c.	7	10	16	11	2	2	0	4
Fishing	6	10	6	7	2	0	0	1
Vegetables, fruit, nuts	5	5	4	6	7	5	0	8
Sugar	3	3	5	3	26	20	7	22
Motor vehicles and parts	3	6	15	8	1	16	0	29

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[19] See annex 1

Sector	Technical				Non Technical			
	Colombia	Latin America *	European Union	Rest of the World	Colombia	Latin America *	European Union	Rest of the World
Leather products	3	3	7	2	5	2	0	5
Wood products	2	3	4	2	0	2	1	5
Chemical, rubber, plastic products	2	1	5	2	10	1	0	2
Metal products	2	2	7	2	0	1	0	3
Mineral products n.e.c.	1	1	3	2	0	2	0	10
Gas	1	1	1	3	0	0	0	0
Minerals n.e.c.	1	0	2	0	1	0	0	1
Textiles	1	2	8	1	4	1	0	3
Machinery and equipment n.e.c.	1	2	3	1	2	2	0	4
Transport equipment n.e.c.	0	1	1	2	1	1	0	2
Petroleum, coal products	0	1	1	0	4	1	0	1
Paper products, publishing	0	1	2	1	0	1	0	4
Wool, silk-worm cocoons	0	1	2	1	0	0	0	0
Manufactures n.e.c.	0	4	10	2	1	3	0	7
Ferrous metals	0	1	3	1	2	1	0	3
Metals n.e.c.	0	1	2	0	1	1	0	1
Coal	0	0	0	0	0	0	0	0
Electronic equipment	0	2	6	2	2	1	0	5
Gas manufacture, distribution	0	0	0	0	0	0	0	0
Bovine cattle, sheep and goats, horses		3	13	1	0	0	0	0
GRO - Cereal grains n.e.c.		0	0	0	0	0	0	0
Oil seeds		0	0	0	0	0	0	0
Paddy rice		15	30	79	1	1	0	3
Plant-based fibers		1	3	2	0	0	0	0

Source: Own elaboration based on (Kee & Nicita, 2017). *Zero values indicate no effects, while missing values indicate that AVE could not be reliably estimated. *The Latin American countries correspond to Argentina; Bolivia; Brazil; Chile; Costa Rica; Ecuador; Mexico; Peru; Paraguay; Uruguay; Venezuela; Honduras; Panama.*

Non-tariff barriers imply high additional restrictions on imports. according to recent estimates for Colombia, based on Cadot, Gourdon, & van Tongeren (2018), thatanalyzed approximately 5,000 goods traded and 80 countries for the period 2011-2012. The authors break the results down into border control measures; sanitary and phytosanitary; technical barriers and quantitative restrictions. Estimates for Colombia show that non-tariff

measures imply considerable increases in trade costs in both the agricultural and manufacturing sectors, reaching around 40% in footwear and 20% for vehicles. Technical measures for trade are specifically concentrated in the animal sectors (40%); leather (18%); chemicals (10%); drinks and tobacco (7%), among others.

Graphic 1: Non – tariff barriers imply high additional costs on imports (Estimates for Colombia)
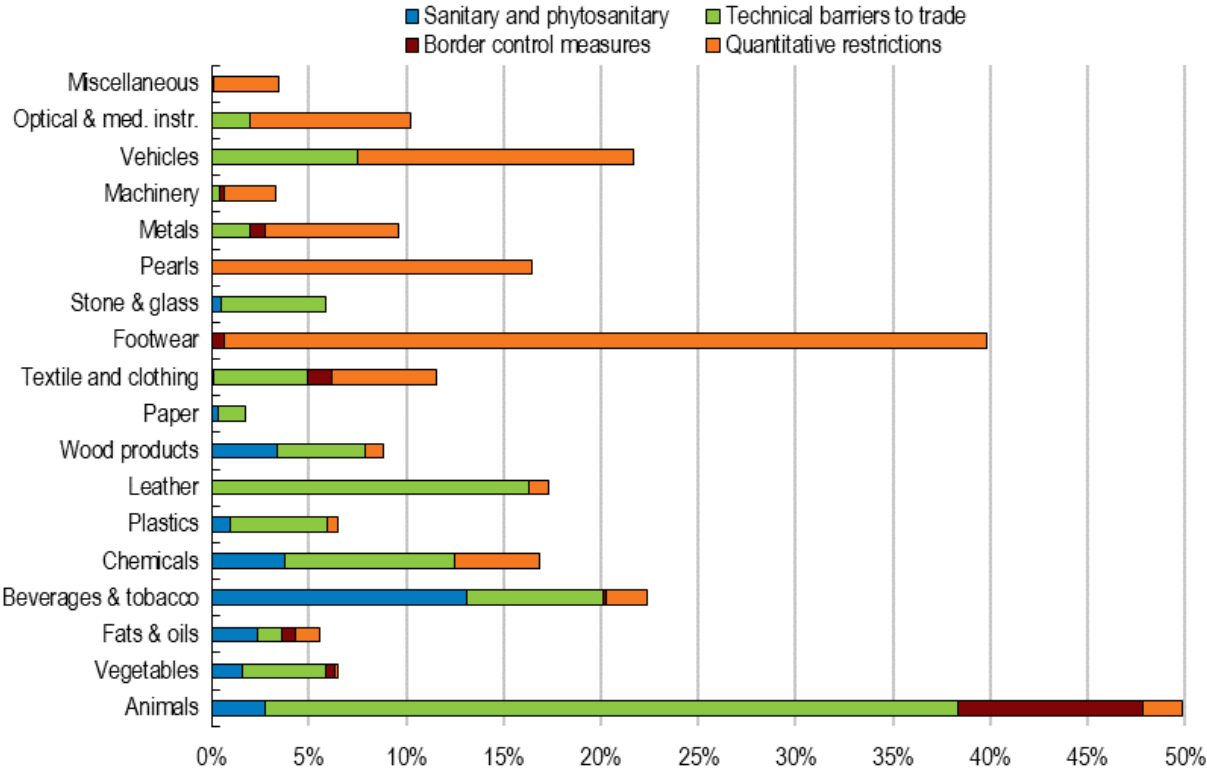
Source: estimates from (OECD, Economic Surveys: Colombia, 2019) based on (Cadot, Gourdon, & van Tongeren, Estimating Ad Valorem Equivalents of Non-Tariff Measures: Combining Price-Based and Quantity-Based Approaches, 2018)

Non-tariff barriers cause adverse effects on international trade. In the last decades, international tariff rates have been reduced to promote trade. Meanwhile, non-tariff barriers have increased, seeking to solve market failures or prevent negative externalities. However, these measures generate short-term adverse effects on international trade due to higher costs imposed on firms (Quintero, 2018). Digging into the impact of non-tariff barriers on the Colombian export activity by company level, (Quintero, 2018) found heterogeneous effects by the size of the firm. Smaller firms and local farmers tend to be more fragile because of their difficulties to allocate resources to comply with the standards required.

The author highlights that the imposition of NTBs, specifically SPS, affect both exported value and the probability of the firm to survive in the long term. The empirical analysis was made for the period between 1996-2014 with data from DIAN, UNCTAD and World Bank, as well as the information provided by the Superintendence of Companies. Moreover, the methodology of the study was based on the article of Fontagné et al (2013), in which a similar analysis was developed for French firms.

The results of the data for Colombia shows that the imposition of SPS negatively affect the ability of the firms to continue in a certain market and its internationalization. However, (Quintero, 2018) demonstrated that the impact in larger firm is limited and lower as they tend to participate with more dynamism in trade, given them the

possibility to support additional costs to comply with international standards. Besides, larger firms possess either higher productivity or greater financial strength. Therefore, governments should seek the reductions of NTMs with emphasis in those that create unnecessary obstacles to trade and competition.

Furthermore, productivity of industrial firms could be affected by the imposition of NTMs. According to (López, 2015) there is a negative relationship between non-basic non-tariff measures (NTM) and firm productivity in Colombia between 1992 and 2009. Moreover, some studies (Esguerra, 2014) identify a significant increase of NTMs over the time and their impact on local producers. While in 1991, around 27% of Colombian tariff lines had some NTBs, by June 2012 the number raised to 76%. Most of those NTBs were applied to intermediate goods and raw materials affecting local producers (Esguerra, 2014).

The study also explores productivity gains thanks to imported intermediate inputs. In Colombia, there is a negative relation between a three-digit sector productivity and its output and intermediate input tariffs. In a three-digit sector fixed effect model, a 10 %-point output tariff reduction leads to a productivity gain between 0.6% and 2.2%, while the same reduction in input tariffs can lead to a gain in productivity between 2.1% and 6.6% (López, 2015)

The author obtains the information at the firm level from the Annual Manufacturing Survey (EAM) and use the methodology of Levinsohn & Petrin (2003) to calculate the total productivity of the factors. After de analysis, the study demonstrated that sectors highly protected by NTMs in Colombia are not compelled to compete with foreign firms, while sector with less NTMs protection must increase their productivity to compete. These findings support the argument that trade policies should pursuit the reduction of negative effects of NTMs, thereby achieving increases in the productivity of industrial firms.

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Annex 1: International classification of non-tariff measures. Measures covered

AVE measures capture the effects of these measures:

Technical measures	Non-technical measures
Chapter A: Sanitary and phytosanitary measures: requirements restricting the use of specific substances, hygienic requirements or other measures for preventing the dissemination of diseases as well as conformity assessment measures related to food safety, such as certification, testing and inspection, and quarantine. **Chapter B**: Technical measures: labelling requirements and conformity assessment measures relating to technical product requirements, including certification, testing and inspection.	**Chapter D**: Contingent trade measures: measures to counteract adverse effects of imports, including antidumping, countervailing, and safeguards measures. **Chapter E**: Quantitative restrictions: licensing requirements, quotas and other quantity control measures, import prohibitions that are not related to sanitary and phytosanitary or technical barriers to trade measures. **Chapter F**: Price controls: measures to control or affect the prices of imported goods to support or stabilize the domestic price of competing products or raise tax revenue. Includes para-tariff measures. **Chapter G**: Finance measures: policies restricting payments for imports, including regulation of access and cost of foreign exchange and terms of payment.

Source: Based on UNCTAD (2015).

Annex 2: Technical details

The equation to estimate in two stages is as follows:

$$\ln E\big(Q_{nij}|X\big) = \beta_n + \beta_{nij}^t \hat{t}_{nij} + \beta_{nij}^{NTM} \widehat{NTM}_{nij} + \gamma Z_{ij} + e_{nji}$$

where
$$\beta_{nij}^t = \beta_n^t + \beta_1^t share_{ni} + \beta_2^t share_{nj}$$
and
$$\beta_{nij}^{NTM} = \beta_n^{NTM} + \beta_1^{NTM} share_{ni} + \beta_2^{NTM} share_{nj}.$$

Where Q denotes quantities, t tariffs, and NTM the presence of an NTM. These explanatory variables are denoted by "hat" as they are instrumented using the average tariff or NTM of the three closest countries; and where n denotes products, i importing country and j exporting country. The variable share denotes the import market share of country i in world trade of product n, and denotes export market share of country j in world trade of product n. Z_{ij} are the standard gravity variables: the log of the gross domestic product (GDP) of the importer and the exporter, bilateral distance between the importer and the exporter, landlocked indicators for the importer and the exporter, and common border indicator. In this setup the elasticity of trade with respect to tariff is:

$$\hat{\beta}_{nij}^t = \frac{\partial \ln (E(Q_{nij}|X)}{\partial t_{nij}},$$

and the AVE measuring the ad-valorem tariffs that induce the same proportionate change in quantity as the presence of an NTM is:

$$AVE_{nij}^{NTM} = \frac{\exp\big(\hat{\beta}_{nij}^{NTM}\big) - 1}{\exp\big(\hat{\beta}_{nij}^t\big) - 1} \cong \frac{\hat{\beta}_{nij}^{NTM}}{\hat{\beta}_{nij}^t} \quad \text{for small } \hat{\beta}_{nij}^t \text{ and } \hat{\beta}_{nij}^{NTM}.$$

In more intuitive terms, to measure the AVE of NTMs the first step is to construct the proportionate change in quantity imported due to the presence of NTMs, and then use the elasticity of trade with respect to one percentage point increase in the tariff to convert the proportionate change in quantity imported due to NTMs in terms of ad valorem equivalents.

Source: (Kee & Nicita, 2017)

Title: Annex Trade Facilitation in Colombia

Authors/Collaborators

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Colombia's performance in trade facilitation indicators is below the Latin America & Caribbean average, according to the Doing Business Report for 2020. The Trading Across Borders indicator measures the time and cost (excluding tariffs) associated with two sets of procedures: documentary compliance and border compliance within the overall process of exporting or importing a shipment of goods. Colombia is ranked 133 over 190 economies in 2020 (World Bank Group, 2020). The Report shows that Colombia's export cost is 324% and to import 388% higher than the average for Organization for Economic Cooperation and Development (OECD) (Figure 1). Nonetheless over the past year Colombia made trading across borders easier by digitizing the responsibility card, one of the required documents to export, which allowed the time to export in documentary compliance to decrease from 60 to 48 hours (World Bank Group, 2020).

### Figure 1. Doing Business 2020 Trading Across Borders Results
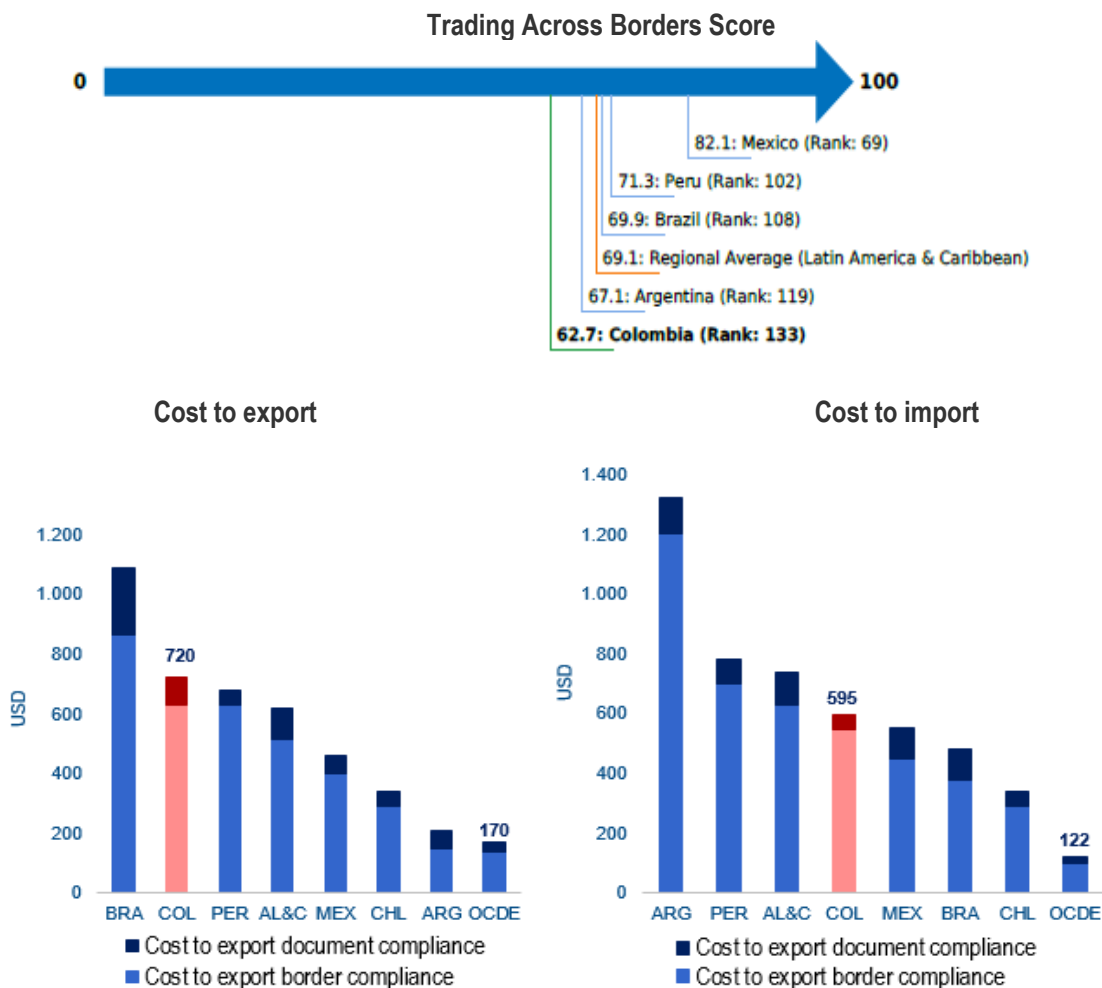
Source: World Bank Group, Doing Business Study, 2020.

Colombia presented high trading costs, although there is a decreasing trend. García, López, & Montes (2016) study calculated the cost of trading in Colombia comparing FOB prices of imports and wholesale prices

at the product level for a sample of agricultural and manufacturing products. This study indicates that Colombian import cost[20] is high, but it decreased between 1999 and 2012, mainly due to unilateral tariff reductions in Colombia or induced by trade agreements with other countries. For total imports, costs fell from around 49% of domestic prices in 1999-2001 to 36% percent in 2012; reflecting the high share of manufacturing imports in total imports. The highest reduction took place in agricultural goods, which had a cost of around 79% during 1999-2001, because of tariffs protection cost, and it was reduced to 44% in 2012. For manufacturing goods, the cost fell from 46% to 36% over the same period.

Figure 5. The costs of trading between the foreign port and the warehouse in Colombia
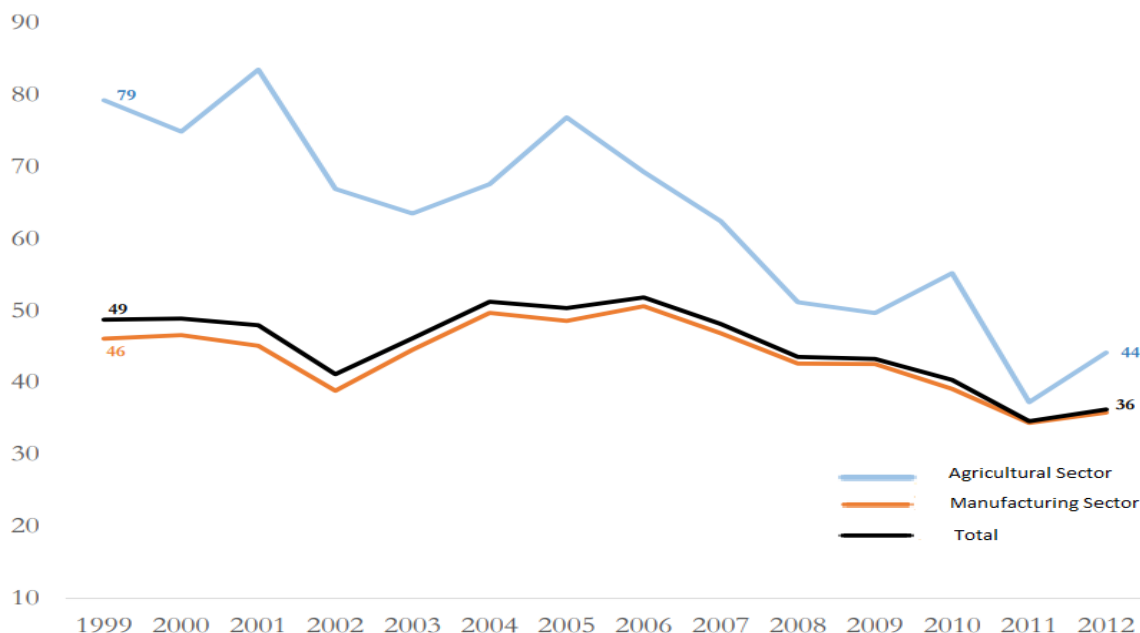
Source: (García, López, & Montes, 2016)

Port and border handling remain a significant bottleneck for import and export processing times. Colombia's exports required nearly twice as much time for handling (112 hours) as exports from the next slowest peer country (World Bank Group, 2020). Similarly, logistics play a crucial role in facilitating the movement of goods (OECD, 2019). Colombia's performance in logistics is also well behind OECD standards and most countries in the region, because of the country's infrastructure. First, there are high land transportation costs. Domestic transportation costs represent around 5% of the total price of an export, while international transportation represent 4.5% of the price (García, Collazos, López, & Montes, 2017). Second, quality of port infrastructure is poor. On a scale of 1 to 7, where 7 is the best, Colombia stands at 3.8 according to calculations made by the OECD based on WEF Global Competitiveness Index data form 2007-2017. Additionally, there are weak clearance processes, uncompetitive shipment prices, low quality logistics services, and poor ability to track and trace consignments. Whether physically inspected or not, Colombian export shipments require more time for clearance than shipments from other countries.

Recently the country implemented changes to reduce times for clearance goods in import and export operations, but meaningful reductions have been achieved only in imports. Using a methodology from the World Customs Organization, the National Tax and Customs Agency (DIAN, for its initials in Spanish) found a

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[20] This study compares import prices with producer prices at the product level were feasible. Total cost includes warehouse, tariffs, international transportation, etc. This information allows to separate the external costs from the internal ones, and to decompose the internal ones between tariff costs and non-tariff costs. Non-tariff costs inform about the amount to which the costs associated with customs procedures of foreign trade amount (approvals, non-tariff measures, customs procedures and inspections, etcetera.) handling of merchandise in port, and the costs of moving merchandise from the port to the warehouse of the wholesaler or factory.

reduction of 10% of sea import clearance times at the Buenaventura port, from 9.6 days in 2017 to 8.6 days in 2019. Also, DIAN (2020) found a reduction of 10% of air import clearance times at the Bogota airport, from 10.4 days in 2017 to 9.3 days in 2019, mainly explained by the reduction of hours in the delivery of cargo from to the bonded warehouse in the case of new imports -new import declarations- (DIAN, 2020)[21].

Reductions in time for exports have been marginal. From the presentation of the shipment authorization request to the shipment and departure by air or sea, the study of DIAN found a reduction of 5.4% of air export clearance times at the Bogota airport, from 37 hours (1.5 days) in 2017 to 35 hours (1.5 days) in 2019. Also DIAN found a reduction of 4% of sea export clearance times at the Cartagena port, from 156:50 hours (6.5 days) in 2017 to 150:40 hours (6.3 days) (DIAN, 2020).

At sea and air import times, customs have the greatest incidence, especially the time needed to present the import declaration, make the payments (tariff tax and value added tax), and request the release of cargo. For exports by sea and air, most of the time is taken in the transfer process and boarding authorization, which includes the inspections by the Colombian Anti-Drug branch of the police. In this sense, digital technologies and non-intrusive inspection technologies should make a great difference in facilitating trade. To this end, in 2012 Colombia established the Integrated System for Simultaneous Inspection (SIIS, for its acronym in Spanish) to coordinate agencies at border control, which improved import and export operations as each cargo is only inspected once. The SIIS currently works for port export operations, for cargo that enters containerized, cross docking and loose cargo, and since it was implemented it has been incorporating new functionalities in the operation.

The efficiency of customs procedures in Colombia is lower than countries like Chile or Mexico, according to the World Bank Logistics Performance Index 2018 (LPI). However, the customs component score showed an improvement between 2016 and 2018 for Colombia, from 2.21 to 2.61 (Figure 5). In this period of time, a new customs regulation was issued (Decree 390 of 2016) to simplify and optimize procedures, save administrative efforts and reduce customs clearance times (Sánchez, 2017).

Figure 5. International Logistics Performance Index (LPI). Customs component.
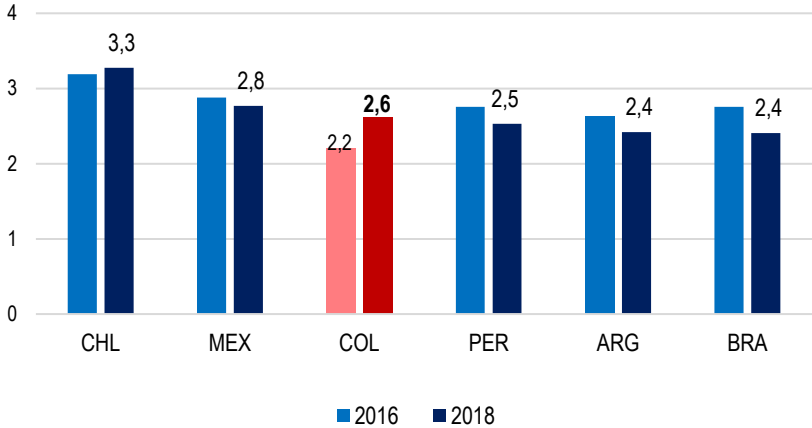

Source: World Bank.

Regarding the OECD Trade Facilitation Indicators, Colombia's performance improved between 2017 and 2019. Specifically, the improvement areas are information availability, advance rulings, appeal procedures, fees and charges, governance and impartiality. Colombia exceeds or is closest to the best performance across the

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[21] These results are obtained from the first two measurements carried out in the country related to this issue, in order to monitor the goal set by this government of reducing 30% import and export times by 2022.

sample as regards: information availability, involvement of trade community, fees and charges, automation of border processes, internal border agency co-operation, governance, and impartiality[22] (Figure 6).

Figure 6. OECD Trade Facilitation Indicators 2019
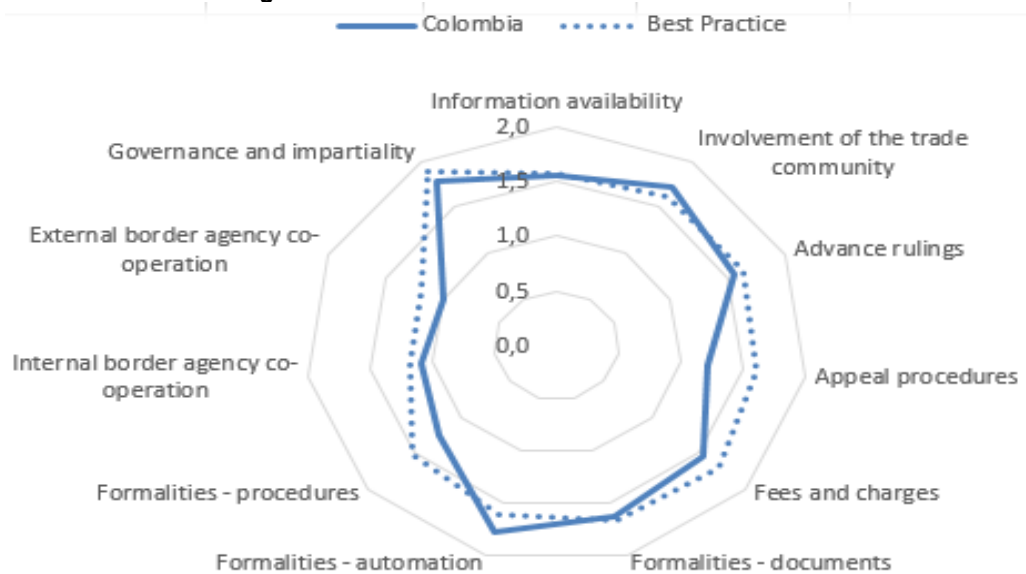
Source: DNP elaboration based on OECD Trade Facilitation tool for compare countries

According to OECD Trade Facilitation tool for compare countries[23], Colombia would benefit from continued improvements in the following areas:

- o Formalities – documents: expand the acceptance of copies of documents
- o Formalities – automation: reinforce the use of risk management procedures
- o Formalities – procedures: expand the coverage of Authorized Economic Operator programs (OEA, for its Spanish acronym), expand the application of Post-Clearance Audits (PCAs), support controls of other border agencies through a risk management system.

Trade Facilitation Policies in Colombia

In 2017 Colombia adopted the "The trade Facilitation Agreement" of the WTO (Law 1789 of 2018), and one of the mandates was to implement a national Trade Facilitation Committee, which was formally established in august 2018. The committee identifies obstacles to trade from roundtables among public and private actors and establishes clear commitments and goals to solve them. Since 2018 to date, 32 meetings have been held. Other achievements are the incentives in the use non-intrusive inspection (mandatory scanning of trucks entering ports, significant reduction in physical police anti-drug inspections from 31% in 2015 to 10% in 2019, etc), an guidelines to hasten inspections by customs and other agencies at ports (begin inspection at 7 am, issuance certificates of inspection upon inspection and not at the end of the day, improvement in inspection procedures, etc), and in the time of the pandemic by COVID 19, it has been a great instrument for permanent coordination and communication with all members of the foreign trade chain.

National government set the goal of reducing 30% imports and exports times by 2022, and the National Development Plan 2018-2022 "Pact for Colombia, Pact for Equity" set out four objectives for Trade

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[22] Taken from https://www.oecd.org/trade/topics/trade-facilitation/, last seen: 17th July 2020.

[23] Taken from https://www.oecd.org/trade/topics/trade-facilitation/, last seen: 16th July 2020.

Facilitation. The first two objectives aim to reduce the clearance time for sea and air exports by 27% and 25% respectively by the end of the actual government period in 2022, from 49 and 12 hours in 2017 respectively. The third objective is to reduce the import clearance time by 18%, form 22 hours in 2017, and the last one is increasing the percentage of advance import declarations to 20% form 12% in 2017.

To achieve these objectives, it is necessary to optimize foreign trade processes, through the use of trade facilitation tools, such as the single window for foreign trade 2.0 (VUCE, for its acronym in Spanish) . Currently, the import module of the VUCE has interoperability with 3 entities that issue registration or licenses (DIAN, Superintendence of Industry and Commerce, and Ministry of Justice). This year it is expected to increase to 6 entities, and the goal is to interoperate with the 15 entities that have the technological capacity to do so in 2022.

The recently issued National Logistics Policy (CONPES Document 3982) sets forth various actions aimed at trade facilitation. First, MinCIT will design and develop a strengthening plan for VUCE that includes development of the simultaneous inspection module, for all types of cargo, in ports and airports, border crossings and Specialized Logistics Infrastructure (ILE for its acronym in Spanish) to be finished no later than 2022. Second, DIAN will establish a plan to promote the use of advance declarations to 2022. Third, the DIAN, the Colombian Agricultural Institute (ICA, for its acronym in Spanish), the National Institute for Food and Drug Surveillance (INVIMA, for its acronym in Spanish) and the National Police will: i) develop computer services that allow interoperation between the risk management systems of foreign trade control entities, ii) implement a management plan for the mutual recognition of the OEA with the foreign trade control entities of the prioritized countries[24], to facilitate trade with these destinations and iii) implement the single monitoring and control center for foreign trade in the country, all of this to 2024.

Recently, Colombian government launched the "*Program to support the Modernization of the Directorate of National Taxes and Customs*" with an investment of USD 250 Million for the next five years The program aims to improve tax collection levels through the technological and organizational modernization of the DIAN, and is being funded by a loan from the Inter-American Development Bank, which will also provide technical assistance in its implementation. The specific objectives are: i) improve the institutional governance to strengthen the management and strategic planning of the institution, including the human resources model; ii) enhance tax and customs management processes to increase their efficiency in terms of higher collection and risk management; iii) deepen and extend the digitalization of the management and control of tax collection and improve the data and information security. Thus, trade facilitation will be improved with the development of an electronic system to control the movement of cargo, among others technological tools for tacking and controlling the security and the risk management of trade operations.

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[24] Pacific Alliance (Peru, Chile, Mexico), Andean Community (Peru, Bolivia, Ecuador), Costa Rica, Mercosur (Argentina, Brasil, Paraguay y Uruguay) y Corea del Sur.

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