

MINISTRY OF HIGHER EDUCATION, RESEARCH AND INNOVATION

IBA DER THIAM DE THIES UNIVERSITY



Agricultural Trade and Market Access for Food Security: Micro- and Macro-level Insights for Africa (ATMA4FS)



LEAP-Agri

A Long term EU-Africa research and innovation Partnership on food and nutrition security and sustainable Agriculture

WORK PACKAGE 2: MICRO-LEVEL ANALYSIS

Effects of Non-Tariff Measures on the Performance of Exporting Firms and Import/Export Sourcing Strategies

Case du Senegal

Research team – Sénégal

Pr Ibrahima Thiam

Dr Idrissa Wade

Dr Sam Agbahoungba

Dr Malick Touré

Khady Gueye

Mouhamadou Moustapha Sock

February 2022

This document was produced with the financial assistance of the Ministry of Higher Education, Research and Innovation of Senegal in the framework of the Leap-agri co-financing partnership.

Content

Abstract.....	i
Liste of tables.....	ii
Liste des figures.....	ii
1 Introduction.....	1
2 Methodological approach adopted.....	2
3 A few results.....	4
3.1 Context of foreign trade, non-tariff measures and COVID-19 effects.....	4
3.1.1 Background of Senegal’s trade.....	4
3.1.2 Agriculture trade in Senegal: Case of Fresh fruits and vegetables and cereals.....	6
3.1.3 Context of non-tariff measures in Senegal.....	7
3.1.4 Trade and the Covid-19 context.....	10
3.2 Analysis of foreign trade and non-tariff measures in Senegal.....	11
3.2.1 Evolution of trade flows between Senegal and its partners.....	11
3.2.2 Main trade partners and evolution of traded volume.....	12
3.2.3 Agricultural trade in Senegal: Case of export of fresh fruits and vegetables and import of cereals.....	13
3.2.3.1 Export of fresh fruits and vegetables.....	13
3.2.3.2 Import of cereals in Senegal.....	17
3.2.4 NTM and Senegal foreign trade.....	20
3.2.4.1 Entreprises affected by non-tariff barriers according to their sector.....	20
3.2.4.2 Size of enterprises and NTM in Senegal.....	21
4 References.....	22

Abstract

The project « Agricultural Trade and Market Access for Food Security: Micro- and Macro-level Insights for Africa (ATMA4FS) » is a partnership between the University of Thies (UT) – Senegal, KU Leuven (KUL) - Belgium, University of Göttingen (UGOE) - Germany, University of Ghana (UOG) - Ghana, Wageningen Economic Research (WR) - Netherlands, University of Pretoria (UP) - South Africa.

The main objective of the research is to analyze the effect of trade agreements, non-tariff measures, private standards, price trends and volatility, market logistics, and infrastructure on trade and market access for countries, firms, and farms. The specific aim is to contribute to the solving of trade and market access problems in three African countries (Senegal, Ghana, South Africa) and two trade regions (Economic Community of West African States) - ECOWAS and the Southern African Development Community (SADC). In the case of Senegal, the research project focuses on two categories of products: fresh fruits and vegetables on the one hand and cereals on the other.

The methodology of the study is structured around three parts: (i) the collection of secondary data for the analysis of the trade pattern, the effects of NTMs on exports and imports, and the performance of exporting firms; (ii) the collection of primary data through the administration of a questionnaire and an interview guide with the various actors in the agricultural value chain in relation to NTMs; and (iii) using the model of Kalaba et al. (2016) and Gebrehiwet et al. (2007), to assess regional and international agri-food trade and the role of trade agreements and NTMs, using a gravity model estimation approach combining macro and micro variables.

This interim report focuses on two main points. First, it analyzes the foreign trade context, with particular emphasis on Senegal's trade situation, the specific case of FFLs and cereals, non-tariff measures, and the impact of Covid 19. Second, the analysis of stylized facts focuses on the evolution of trade between Senegal and its partners, the NTM situation and its effects on FFL trade and exporting firms. It is worth noting that Senegal is experiencing a growth in exports, notably of fruits and vegetables. Thus, the main NTMs affecting agricultural exports are technical requirements, conformity assessment, fees, taxes and other para-tariff measures, pre-shipment inspection and rules and certificates of origin.

In the second phase of the project, it is projected to collect primary data and finalize studies on the determinants of trade performance (export and import) of agricultural enterprises, the effects of non-tariff measures on the export and import performance of agricultural enterprises, and the effects of non-tariff measures on the sourcing strategy of agricultural exporting/importing enterprises.

Liste of tables

Table 1: Classification of different non-tariff measures	8
Table 2: Main products (Vegetables and Fruits) exported by Senegal	15
Table 3: Main countries supplying cereals to Senegal over the period 2001-2020.....	19

Liste des figures

Figure 1: Evolution du commerce extérieur du Sénégal (% du PIB)	4
Figure 2: Part des entreprises affectées par des obstacles non tarifaires selon leur activité	9
Figure 3: Taux de croissance annuels du commerce de marchandises, 2019	11
Figure 4: Volume des échanges commerciaux du Sénégal sur la période 2001 – 2020	12
Figure 5: Principaux partenaires commerciaux du Sénégal.....	12
Figure 6: Evolution du volume exporté des fruits frais et légumes sur la période 2001 2020	13
Figure 7: Partenaires d’exportation des fruits frais et légumes du Sénégal.....	13
Figure 8: Evolution des importations de céréales au Sénégal	17
Figure 9: Groupes fournisseurs de céréales au Sénégal	17
Figure 10: Principales céréales importées par le Sénégal sur la période 2001 – 2020.....	20
Figure 11: Part des entreprises affectées par des obstacles non tarifaires selon le secteur des entreprises	20
Figure 12: Part des entreprises affectées par des obstacles non tarifaires selon la taille des entreprises Sénégal.....	21
Figure 13 : Chronogramme de réalisation des activités lors de la deuxième phrase	Error! Bookmark not defined.

1 Introduction

Market development for agricultural products in Africa faces multiple challenges in terms of product access, pricing, and institutions. The development of export-oriented value chains, as well as better integration of local markets into regional and international trade, could improve livelihoods, particularly in rural areas. On the other hand, market access barriers, particularly non-tariff barriers to imports into the EU, can hamper the development of value chains in Africa. Unlocking the potential for substantial reductions in (inflated) trade costs require a better understanding of the main barriers to trade facilitation, such as lack of physical infrastructure, transparent regulatory frameworks, or overly protective public or private standards. This project intitled « Agricultural Trade and Market Access for Food Security: Micro- and Macro-level Insights for Africa (ATMA4FS) » the result of a cooperation between the University of Thies (UT) and its partners (KU Leuven (KUL) – Belgium, University of Göttingen (UGOE) – Germany, University of Ghana (UOG) – Ghana, Wageningen Economic Research (WR) – Netherlands, University of Pretoria (UP) - South Africa) falls within this framework.

The main objective of the proposed research is to provide an overview of the trade and market access patterns of countries, firms, and farms; and how this access is influenced by trade agreements, non-tariff measures, private standards, price trends and volatility, market logistics, and infrastructure. Our project aims to understand trade relationships in local, regional, and international markets; on both the import and export sides; and at the macro and micro levels. The project specifically aims to address trade and market access issues in three African countries (Senegal, Ghana, South Africa) and two trade regions (Economic Community of West African States - ECOWAS, Southern African Development Community) for several product categories (fresh fruits and vegetables - FFV and cereal products).

The ultimate purpose is to contribute to a better understanding of the opportunities and challenges for expanding local, regional, and international trade and improving access to agricultural markets for different types of actors; and the policy and investment priorities for harnessing the opportunities and addressing the challenges.

In the case of Senegal, the research project focuses on two product categories: Fresh Fruits and Vegetables on the one hand and Cereals on the other. This work essentially aims to answer the following research questions:

How non-tariff measures, private norms and standards, harmonization requirements and market institutions affect:

- the downstream trade performance of exporting firms in regional/international markets and market access for exporters?
- upstream sourcing strategies of export companies, supply chain structures and market access for domestic farms?
- the upstream sourcing strategies of importing and distributing firms that source products domestically/regionally/internationally, the supply chain structures and
- market access for domestic farms?

The restrictive measures taken to limit the COVID 19 pandemic and the consequences for the functioning of the global market for agricultural products are a reminder of the importance of these issues.

In the microeconomic analysis of supply chain structures, special attention is given to women farmers, and women and young workers. This report provides an update on the progress of the work, establishes the first results and gives the next steps.

2 Methodological approach adopted

The methodological approach adopted in this study is structured around three points, namely the collection and analysis of secondary data, the collection of primary data from the various actors in the agricultural value chain in the field of NTMs, and the analysis by measuring the effect of NTMs in the export and import activities of the actors.

The secondary data collection consists of a synthesis of the literature on NTMs and their effects on foreign trade in general, and in particular on Senegalese companies in the fresh fruit, vegetable and cereal trading sectors. In addition, this part of the methodology will provide a quantitative overview of NTMs and their implications for foreign trade, particularly for Senegalese companies. This includes data on :

- The evolution of trade between Senegal and its trading partners, to assess the vitality of the balance of trade and the balance of payments. This evolution also informs on the effectiveness of public policies instituted to improve the level of competitiveness of "made in Senegal" and exporting companies. In addition, it is also to focus on fresh fruits, vegetables, and cereals as well as the various trading partners of Senegal in order to understand the requirements of the latter in terms of international trade.
- The effects of non-tariff measures on the export and import performance of Senegalese firms: this involves analyzing data on the implications of the application of NTMs by foreign trading partners to different Senegalese exporting firms.
- The effects of non-tariff measures on the sourcing strategy of agricultural exporters/importers.

Primary data collection will be conducted through a field survey. Questionnaires and interview guides will be used to collect information from

- Exporting and importing companies of agricultural products, in particular fresh fruits, vegetables, and cereals.
- Farmers' organizations such as cooperatives, MSEs, associations, etc.
- Technical and institutional partners;

The data to be collected are related to:

- To the size of the organizations.
- To the structuring of organizations.
- To the financial and commercial structure of organizations.
- To the production capacity of organizations.
- To the different products commercialized by the organizations.
- To the export and import capacity of organizations;
- The level of knowledge, understanding and application of NTMs;
- Difficulties encountered in the application of NTMs;

- The different policies and programs implemented by the public support structures (ASEPEX, CICES, ...).

A mapping of companies involved in the import and export of food products is essential to decide on the sample.

Among the organizations a sample of 150 individuals¹ is chosen according to the normal distribution using the following formula:

$$n = \frac{z^2 * p(1 - p)}{m^2}$$

n= sample size

z= confidence level according to the reduced centered normal distribution (for a confidence level of 95 %, z=1,65)

p= estimated proportion of the population with the characteristic (when unknown, p=0.5 is used, which corresponds to the worst case, i.e. the greatest dispersion)

m= acceptable margin of error (7% accuracy)

This sample is defined with a 95% confidence level. The microeconomic analysis of the data will result in measuring the impact of NTMs on the downstream performance of exporting firms and the upstream sourcing strategies of exporting and importing firms (supply chain, suppliers).

The analysis will thus identify the variables that influence the trade performance of fresh fruit, vegetable and cereal exporting firms. It will also answer the following question: How or to what extent do non-tariff measures, private norms and standards, harmonization requirements, and market institutions affect the trade performance and upstream and downstream supply strategies of exporting firms in regional/international markets and market access for exporters? The microeconomic analysis has four key phases :

1. Identification of the problems to be solved;
2. Data preparation,
3. Econometric analysis,
4. Interpretation of the results.

The analysis will result in the estimation of the impact of NTMs at the micro level, supply chain effects, livelihoods, welfare and food security, inclusion, scientific contribution, articles.

A combination of customs data and firm-level survey data will be adopted. Customs data typically include imports and exports of active and inactive firms by origin (imports) or destination (exports), which allows for the capture of all inward and outward trade at the firm level, including dynamic effects. The analysis will also take into account other additional firm-level data (e.g., data on certification, sourcing strategies, buyer/supplier relationships, assets, employment).

We will analyze how market access conditions change and affect different actors along the value chain. Advanced regression techniques will be used to estimate effects; panel data

¹ Ce choix pourra être revu et adapté selon la cartographie des organisations et de la définition de la population globale, pour avoir un nombre assez représentatif.

control for firm heterogeneity and endogeneity to establish causality, e.g., through GMM models (Bernard and Jensen 2004), instrumental variable approaches (Reyes 2011), and difference-in-difference matching methods (e.g., Volpe-Martincus et al. 2010).

After the micro analysis, the approach is to consolidate results on the link between micro and macro levels, investigate cross-cutting issues, collate results and their interpretation for impact, formulate conclusions/recommendations for the respective target groups. Focusing on NTMs, the aim will be to assess regional and international agri-food trade and the role of trade agreements using a gravity model estimation approach combining macro and micro variables from Kalaba et al. (2016) and Gebrehiwet et al. (2007). We will systematically study NTMs in a cross-country and cross-product comparison and examine cross-cutting issues including the role of institutions, infrastructure, and unrecorded trade.

As a result, the analysis will enable the formulation of economic policy implications to facilitate and motivate decision making for public and private actors in the agricultural value chain.

3 A few results

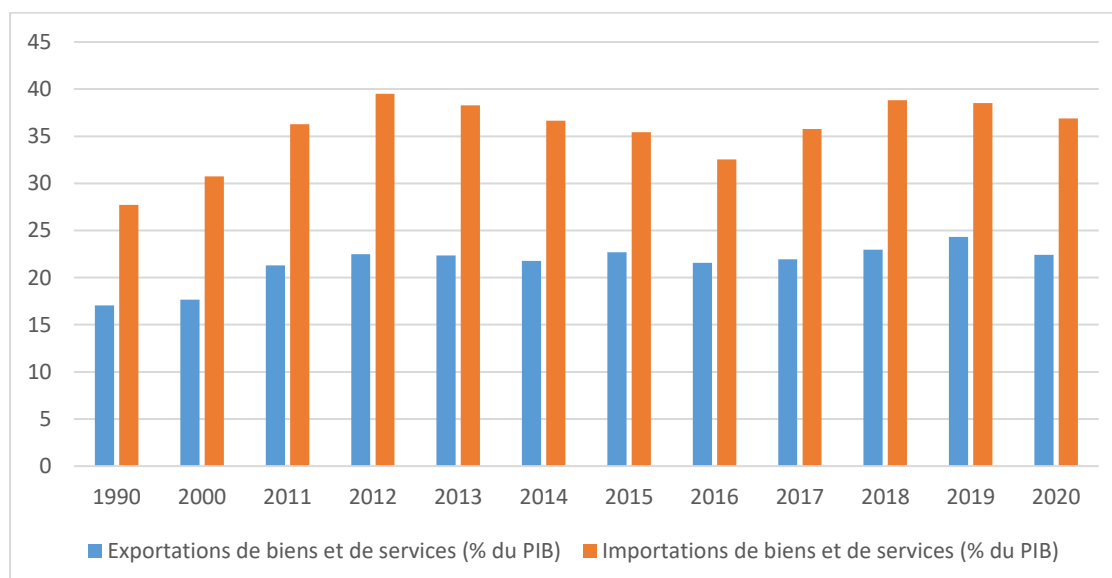
3.1 Context of foreign trade, non-tariff measures and COVID-19 effects

3.1.1 Background of Senegal's trade

Foreign trade in goods and services plays a major role in Senegal's economy. Overall, foreign trade amounted to 59.3% of GDP in 2020, 62.8% in 2019 and 61.7% in 2018. In 1990, its share of GDP was 44.7 percent, compared to 48 percent in 2000 and 57.5 percent in 2011. Thus, from 2011 to 2020, on average, foreign trade represents 59.2% of GDP.

However, it is important to note that a large part of this ratio is devoted to imports of goods and services. In 2020, the latter amounted to 36.8 percent compared to 22.4 percent for exports. Over the period 2011 to 2020, imports average 36.8 percent of GDP and exports 22.3 percent.

Figure 1: Trend of foreign trade of Senegal (% GDP)



Source: World Bank (WDI)

Annual import growth was 9% in 2018 compared to 5.3% in 2019 and 2.6% in 2020. As for exports, annual growth was 8.2% in 2018 compared to 11.2% in 2019 and - 4.6% in 2020. This decline in trade activity is attributable to the health crisis with negative macroeconomic implications for all the world's economies.

Thus, the Senegalese economy is experiencing a structural deficit in its trade balance and, in turn, a structural deficit in its current account. The trade (goods) deficit for 2019 was USD 3,969 million. In 2019, imports of goods reached USD 8.14 billion while exports of goods increased to USD 4.17 billion. The country imported services worth a total of USD 1.94 billion while its services exports amounted to USD 1.21 billion (WTO).

According to the ANSD (2020), in 2019, Europe is the first destination of Senegalese exports of products with a share of 34%, followed by Africa (32%) which until 2018 peaked at the top of the ranking. Then comes as another major destination, the Asian continent which captures nearly a quarter of the country's exports. America and Oceania occupy a marginal place with a share of 4% and 1% respectively. At the intra-African level, 87% of Senegalese exports to Africa are concentrated in West Africa, which represents nearly 30% of the country's global exports. This situation is largely due to the proximity effect, but above all to the existence of a regional trade agreement through ECOWAS, which since 2015 has established a common external tariff (CET). Central Africa comes second after West Africa.

Senegal's main partners in Africa are concentrated in West Africa, with Mali still in first place in Africa and the world, accounting for 32% of African exports and 10% of total exports of FCFA 204 billion in 2019. It is followed by Côte d'Ivoire and Guinea. Other major customers of the country are located in Central Africa namely Congo and Cameroon.

Thus, to reverse the structural trend of trade deficit, Senegal is counting on a trade policy aimed at building a competitive economy through inclusive growth and job creation. The aim is to reduce the trade deficit, ensure regular supply to the domestic market, promote local value chains, strengthen the regional integration process and access to international markets and promote competition.

Already, in 2012, the State of Senegal adopted the Business Environment and Competitiveness Reform Program (PREAC) covering the period 2013-2015 with the following major orientations:

- administrative procedures related to investment and trade;
- the availability of production factors;
- the main texts governing the legal and fiscal environment of business (tax code, customs code, civil procedures code, mining code and local authorities code)

Prior to these policies, important trade liberalization measures were instituted in 1994 with the following strategies:

- reform and simplification of customs tariffs, including the establishment of a Common External Tariff at WAEMU level;
- Simplification of the Value Added Tax (VAT) by adopting a single rate of 18%;
- elimination of export taxes and quantitative restrictions, including quotas;
- simplification, automation and computerization of import and export procedures.

Strategies to strengthen intra-African trade are also part of the dynamics of the African Continental Free Trade Area (AfCFTA), which also aims to contribute to the objective of Africa's structural transformation by stimulating intra-African trade. Specifically, the AfCFTA aims to realize the potential for expanding intra-African trade (50% increase in trade within African countries by 2022). Senegal could rely on four issues to achieve this goal, namely: (i) the elimination of tariffs and non-tariff barriers on the bulk of intra-African trade, so that the continent's 55 countries, with a total population of more than 1 billion, will eventually find themselves in a common market, with an aggregate gross domestic product of more than \$2,500 billion; (ii) increasing Senegal's share of exports from an average of 40% to 46% by 2024; (iii) exploiting the potential of trade in services; and (iv) strengthening the export environment and fostering the conditions for sustainable and inclusive economic development.

3.1.2 Agriculture trade in Senegal: Case of Fresh fruits and vegetables and cereals

The cereal crop is composed mainly of millet, sorghum, corn, paddy rice and fonio. Cereal production for the 2018-2019 crop year was 2,838,938 tons compared to 2,516,466 tons obtained in the previous crop year, an increase of 322,472 tons in absolute value and 13% in relative value.

In 2015, cereal production was 2,152,245 tons; thus, between 2015 and 2019, the change in production is 31.9%. These results can be explained by the increase in planted areas and yields due, in part, to the efforts made by the State in providing quality inputs and agricultural equipment (ANSD, 2020).

The increase in cereal production was driven by strong contributions from rice, corn, and millet production. In general, cereals recorded an increase in production of 15%, compared to the 2017/2018 season and 55% compared to the average of the last five years. In 2018, rice production obtained at the national level is estimated at 1,206,587 tons (735,518 tons for irrigated and 420,789 tons for rainfed). In 2017, rice production was estimated at 1,011,269 tons; a relative increase of 19% compared to 2018 and 56%, compared to the average of the last five (05) years (ANSD, 2020). Millet production is estimated at 897,348 tons in 2018 compared to 875,484 tons in 2017; this production increased by 2% and 40% compared to the average of the last five (05) years (640,190.2 tons). Corn production (485,703 tons) recorded an increase of 18%, compared to the previous year (410,364 tons) and 66% compared to the average of the last five (05) years.

The horticultural sector is one of the key levers for achieving the objectives of the Senegalese Agricultural Acceleration Program (PRACAS) in terms of exports. Through the fruit and vegetable components, it is one of the most successful components of the agricultural sub-sector. Indeed, according to ANSD (2020), fruit and vegetable production was estimated at 1,446,360 tons in 2018-2019, recording an increase of 9.5% compared to 2017, and 29.8% compared to the average of the last five years. In 2018-2019, vegetable production was estimated at 1,212,911 tons and 1,083,339 tons in 2017, an increase of 11% and 34% compared to the average of the last five (05) years (896,700 tons) under the effect of the availability of quality inputs as well as measures to protect against imports of certain products over part of the year (ANSD, 2020).

Onions and potatoes represent a significant share of horticultural production. With a production of 434,112 tons in 2018-2019, onion is the leading horticultural speculation in Senegal; its production was 400,000 tons in 2017, an increase of 8.5% compared to 2017. Potato production increased from 118,783 tons in 2017 to 140,000 tons in 2018, an increase

of 18% compared to 2017 and 116.6% compared to the average of the last five (05) years (64,625 tons). This production allows a coverage of national needs of 07 months in 2018, against 06 months in 2017.

The fruit production knows an up and down evolution. From 246,500 tons in 2015, it went to 253,550 tons in 2015 than 248,518 tons in 2018-2019. Between 2017 and 2019, production is slightly up by 3%. Mangoes and citrus constitute the largest share.

The structure of exports is dominated, during the last five years, by primary products which are valued, on average, at 60.5%. These primary products consist mainly of mining products (gold, phosphate, zircon, and titanium), fishery products and agricultural products, particularly groundnuts and fruit and vegetables (ANSD, 2020). Thus, agricultural products account for a significant share of both imports and exports. In 2015, agricultural products (including fisheries and livestock) accounted for 23 percent of exports, compared with 24 percent in 2017 and 28.1 percent in 2019. The share of agricultural products in imports was 23% in 2015, 21.9% in 2017 and 20% in 2019.

Cereals with mainly rice and corn as well as fruits and vegetables represent a significant share in imports. In volume, 320,995 tons of fruits and vegetables were imported in 2015 against 329,961 tons in 2019, an increase of 2.7%. The weight of cereal products in imports represents 1,786,697 tons in 2015 against 1,995,724 tons in 2019, an increase of 11.7 percent. In value, imports of cereal products amounted to 223.1 billion in 2015 and 357.3 billion in 2019. Those in fruit and vegetable products amounted to 37.3 billion in 2015 against 64.33 billion in 2019.

In 2019, 70% of Senegalese exports in value are concentrated mainly around 10 products, five of which exceed the CFA 100 billion mark: non-monetary gold, phosphoric acid, fish, petroleum products and unroasted peanuts. Consequently, in fruits and vegetables and cereal products, only groundnuts are the product most in demand abroad, with 111 billion CFA francs and 6% of exports.

3.1.3 Context of non-tariff measures in Senegal

Non-tariff measures (NTMs) are defined by the United Nations Conference on Trade and Development (UNCTAD) as policy measures other than ordinary tariffs, which can have an economic impact on international trade in goods, by altering the quantities of goods traded,

the prices of goods or both. The different NTMs applied in international trade are confined in the following table.

Table 1: Classification of different non-tariff measures

	technical measures	Sanitary and phytosanitary measures	
Import		Technical barriers to trade	
		Pre-shipment inspection and other formalities	
	non technical measures		Contingent trade protection measures
			Non-automatic licensing, quotas, prohibitions, quantitative control measures and other restrictions, excluding sanitary and phytosanitary measures or measures related to technical barriers to trade
			Price control measures, including additional taxes and charges
			Financial measures
			Measures affecting competition
			Investment and trade-related measures
			Restrictions on distribution
			Restrictions on after-sales services
			Subsidies and other forms of support
			Restrictions on government procurement
			Intellectual Property
			Rules of Origin
Export		Export-related measures	

According to International Trade Centre research on firms' perceptions of NTMs, the private sector identified five (05) main NTMs that affect agricultural exports, namely: (i) technical requirements (for 62% of NTMs); (ii) conformity assessment (for 28% of NTMs); (iii) fees, taxes and other para-tariff measures (for 4% of NTMs); (iv) pre-shipment inspection (for 3% of NTMs); rules and certificates of origin (for 3% of NTMs).

Technical requirements include:

- Packaging requirements imposed by the European Union countries (France, Italy, the Netherlands and Spain), especially for fruit and vegetables and food preparations;
- storing and transporting conditions: these measures, considered as procedural obstacles, affect more fish, crustaceans and fruit destined for Europe (France, Italy, Spain, Greece);
- requirements relating to the production process and other technical requirements: these measures affect fishery products and are imposed by the European Union countries and Turkey.

The conformity assessment aims to determine whether the product or production process corresponds to the specified technical requirements (identity, quality and performance of the product, hygiene requirements, storage and transport conditions, etc.). These measures relate more to: testing requirements, product certification and inspection requirements, and traceability information.

The fees, taxes and other para-tariff measures consist mainly of storage or handling fees that are imposed by the airport authorities of the Netherlands, Germany and France, on exported fruit.

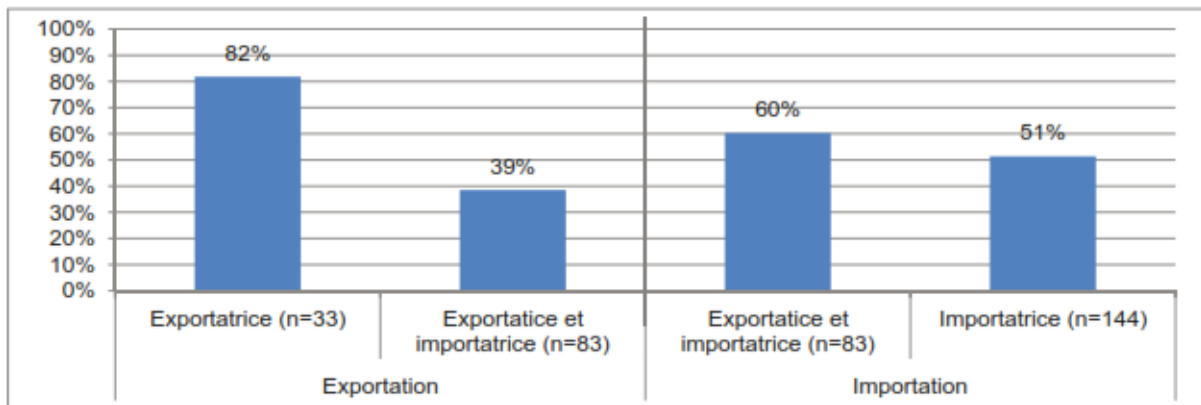
Pre-shipment inspection is a particularly constraining NTM for fishery products, due to the procedures applied by the port authorities of the destination countries, notably in France, Algeria, Germany, etc. The constraint linked to this NTM is related to the numerous inspections, conditions and storage costs.

According to the International Trade Centre's study on business perceptions of NTMs, Senegal applies nearly a quarter of the binding NTMs encountered by agricultural and food exporters. There are four main types of binding national measures. These are mainly certification requirements required by the exporting country (34% of cases) and export inspection requirements (22%). These are followed by quantitative restriction measures (20%) and export levies (14%).

Depending on the destination, EU countries are the most stringent NTMs applied by Senegal's partners. Indeed, according to the ITC study, nearly 75% of agricultural exports are subject to strict NTMs applied by EU countries. In West Africa, Côte d'Ivoire is the only country that applies strict NTMs on agricultural exports from Senegal.

According to the International Trade Centre (ITC) survey on NTMs in Senegal in 2014, exporters are slightly less affected by NTMs than importers (51% of firms affected by exports versus 55% by imports). There is, however, a large disparity depending on whether firms engage in one or both activities. In fact, companies with only an export activity are more affected by binding NTMs than other companies. On the other hand, while many companies that export and import also face binding NTMs, this is generally only true for one of the two activities. Firms that export and import face more non-tariff barriers when importing products than when exporting them. Finally, only half of firms that only import are affected by binding NTMs. These differences in perception can be explained by the fact that conquering foreign markets can be more difficult because of the many barriers to overcome than when bringing goods into the domestic market.

Figure 2: Proportion of companies affected by non-tariff barriers by activity



Source: ITC, 2014

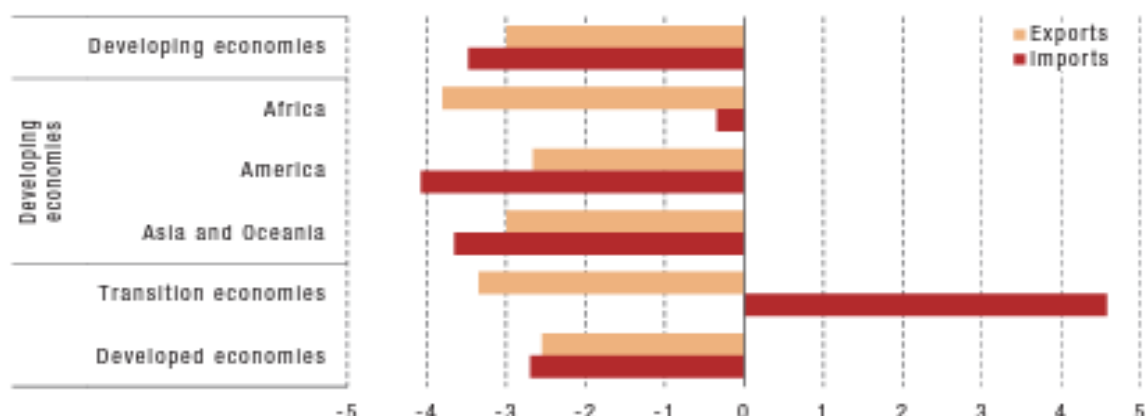
3.1.4 Trade and the Covid-19 context

The covid 19 pandemic has caused an unprecedented disruption of the global economy and consequently of world trade. The severity of the pandemic prompted governments to impose several measures to curb the spread and severity of the virus, such as containment, travel bans and curfews. While necessary from a public health perspective, these measures also caused severe damage to the global economy, including disruptions in production, a collapse in consumption, and adverse stock market reactions.

Covid-19 on a global scale has created distortions in the supply chain of goods and services as well as in transportation. In its October 2020 World Economic Outlook, the International Monetary Fund (IMF) forecast a decline in global activity of 4.4%, compared to an initial forecast of 4.9% in June 2020.

In 2019, merchandise exports declined significantly, between 2.5% and 3.3%, in all groups of economies classified by development status. According to UNCTAD (2020), import trends varied across economies; while developing economies in the Americas saw their imports fall by 4.1 percent (mainly driven by declines in Mexico, Argentina, and Chile), Africa's imports remained almost constant (-0.3 percent), while those of transition economies surged (+4.6 percent). In Africa, the surge in imports to Nigeria (+28 percent) marked a striking departure from the general trend.

Figure 3: Annual growth rates of merchandise trade, 2019



Source : CNUCED, 2020

The value of world merchandise trade fell by 2.8 percent in 2019, after two consecutive years of increases (UNCTAD, 2020). World exports totaled US\$18.9 trillion. In light of Covid-19, the second quarter of 2020 saw a steep decline, before rebounding somewhat in the third quarter. Despite this rebound, a year-on-year decline of 11.9% would be expected in the third quarter of 2020.

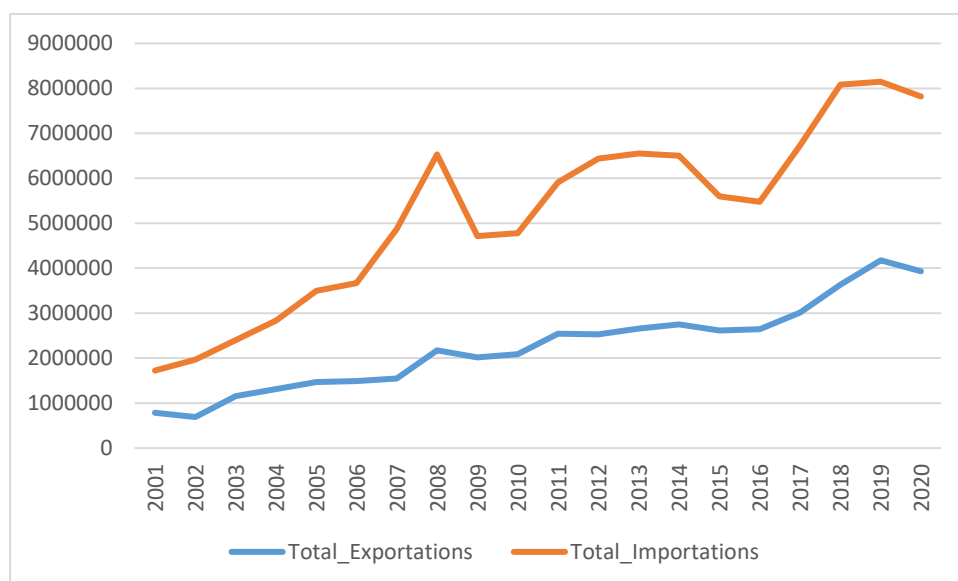
According to UNCTAD, compared to the same month of the previous year, fuel prices fell at an accelerated pace from March to October 2019. They remained stable in December 2019 and January 2020. With the onset of the Covid-19 pandemic, however, prices began to fall and reached a historic 61.6 percent decline in April 2020. Between then and August, the pace of decline slowed to -23.7 percent year-over-year. Prices for other product groups followed more stable trends. Food prices and especially minerals, ores, and metals prices rose continuously from mid-2019, while agricultural commodity prices fell continuously. Starting in December 2019, price growth slowed in all commodity groups for several months. This stagnation lasted for food until July 2020.

3.2 Analysis of foreign trade and non-tariff measures in Senegal

3.2.1 Evolution of trade flows between Senegal and its partners

The graph below shows the global evolution of Senegal's exports and imports over the period 2001-2020. Analysis of the graph shows that Senegalese exports and imports have shown the same increasing trend since 2001. Over the observation period, imports largely dominate exports. This indicates that, like most developing countries in sub-Saharan Africa, Senegal is a net importer.

Figure 4: Senegal's trade volume over the period 2001 - 2020



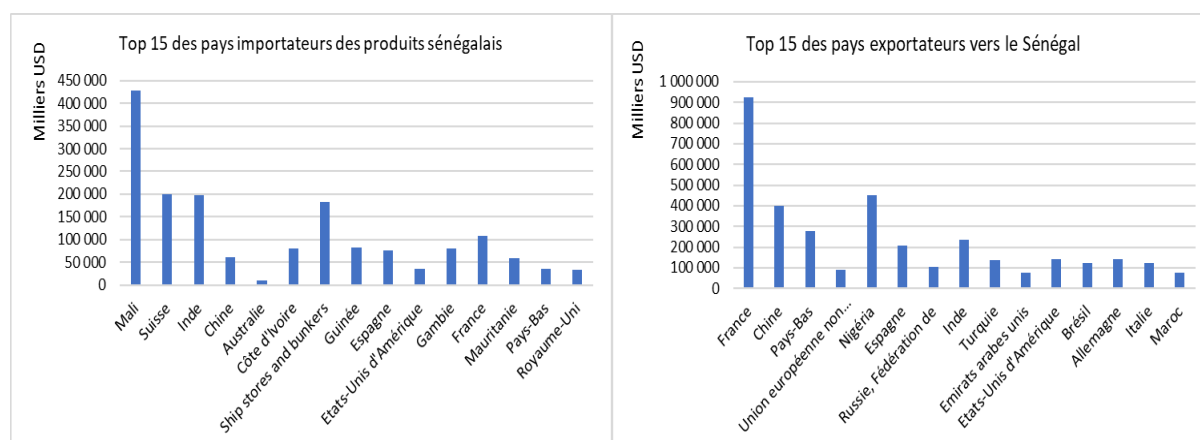
Source : Auteurs à partir des données de Trade map

3.2.2 Main trade partners and evolution of traded volume

On average over the period 2001-2020, Mali is the leading importer of Senegalese products. On average, the value of Mali's imports from Senegal amounts to 428,489 (thousands of USD). Senegal also exports to countries such as Switzerland (199 086), India (197 930), France (108 983 thousand USD), etc. The first ECOWAS countries with which Senegal trades the most in terms of exports are Guinea and Côte d'Ivoire, whose average export values over the period reached USD 83 181 thousand and USD 81 135 thousand.

In terms of imports, Senegal is mainly turned towards the outside world. Indeed, France is the main and first country of import of Senegal. Over the period 2001 - 2020, Senegal's imports from this country have averaged \$923,321 thousand. It is followed by Nigeria (451 374 thousand USD) and China (397 972 thousand USD).

Figure 5: Senegal's main trading partners



Source : Authors from Trade map data

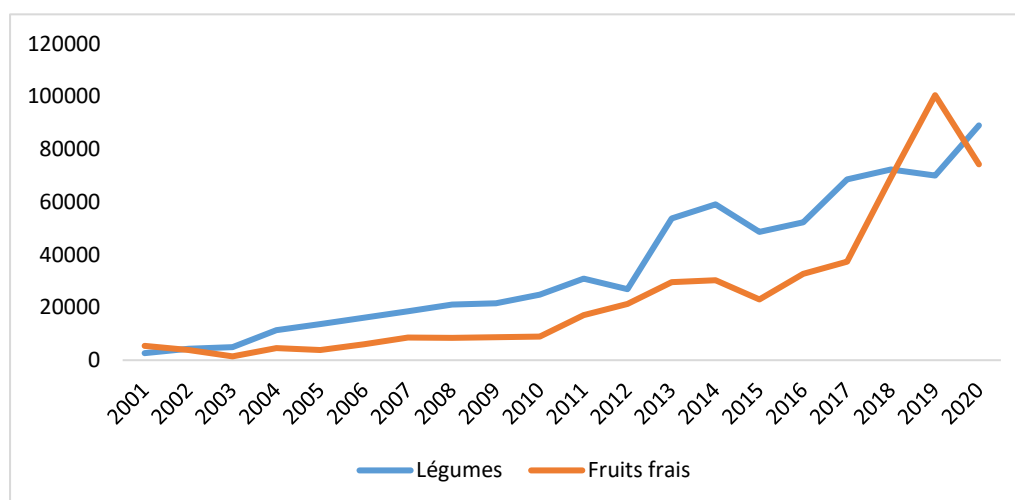
3.2.3 Agricultural trade in Senegal: Case of export of fresh fruits and vegetables and import of cereals

3.2.3.1 Export of fresh fruits and vegetables

According to the nomenclature of products by the International Trade Centre, fruits belong to the product classification N°8: Edible fruits, citrus peels and melons while vegetables belong to the product classification N°7: Vegetables, plants, roots and tubers. The graph below shows the evolution of Senegal's fruit and vegetable exports to its partners over the period 2001 - 2020.

The analysis of the graph shows that Senegal is in an increasing phase of its exports of fruits and vegetables. Over the study period, it is observed that vegetable exports are significantly higher than fruit exports. However, except for the probable impact of the COVID-19 pandemic, a relatively strong growth in fresh fruit exports over vegetable exports was also observed in early 2016, reaching USD 100,479 thousand in 2019. On average over the period 2001 - 2019, exports of vegetables and fruits from Senegal reached 35,528 thousand USD and 24,763 thousand USD.

Figure 6: Evolution of the exported volume of fresh fruits and vegetables over the period 2001-2020



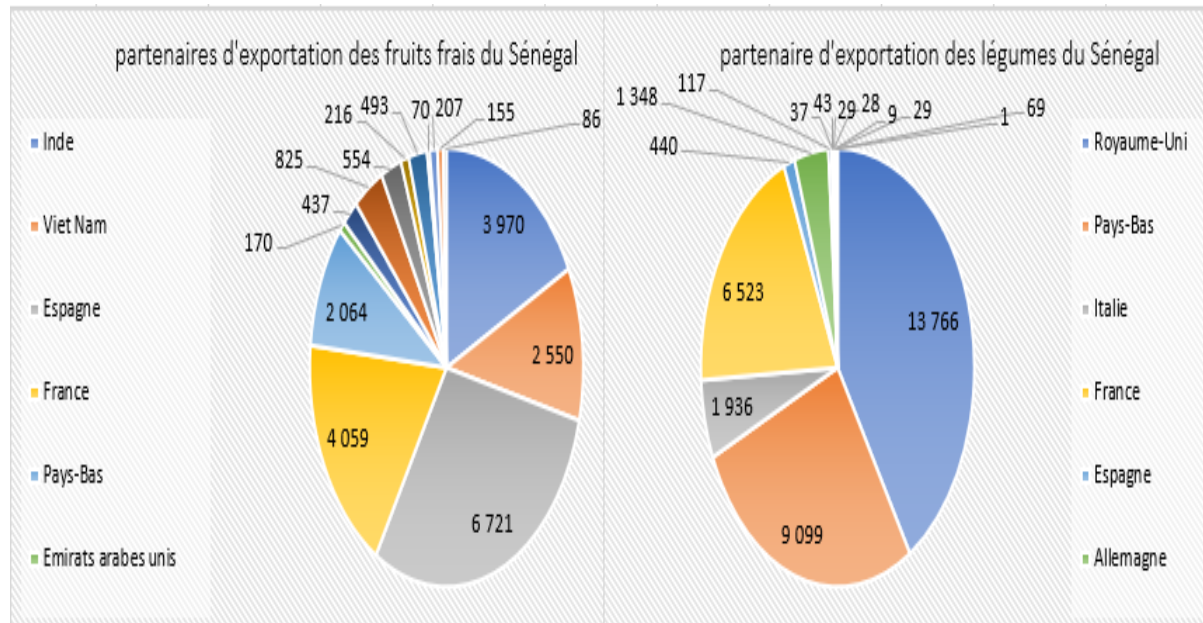
Source : Authors from Trade map data

As shown in the graph below, the main trading partners for Senegalese vegetable exports are the United Kingdom, the Netherlands, France, etc. On average over the period 2001-2020, these countries imported Senegalese vegetables to the tune of US\$13,766 thousand, US\$9,099 thousand and US\$6,523 thousand respectively for the United Kingdom, the Netherlands and France. This shows that Senegalese vegetable exports are essentially oriented towards the ECOWAS zone and the African continent. In this context, Senegalese companies in the production and export of vegetables, in addition to the non-tariff barriers encountered in Senegal, will be very sensitive to the non-tariff measures put in place by these countries.

Similarly, Senegal's main fruit export countries during the study period were India (\$3,970,000), France (\$4,059,000), Spain (\$6,721,000), Vietnam (\$2,550,000), the United Arab Emirates (\$2,064,000), and others. These countries alone imported about 90% of the

fresh fruit exported by Senegal during this period. Thus, the non-tariff measures (NTMs) implemented in these countries are likely to affect companies in the fruit export sector in Senegal.

Figure 7: Export partners of fresh fruits and vegetables from Senegal



Source: Authors from Trade map data

In terms of the nature of the products (vegetables and fruits) exported by Senegal, the table below presents a summary on this subject based on the information available on Trade map. It shows that, over the period 2001-2020, leguminous vegetables (24,228 thousand USD), other vegetables (11,146 thousand USD), tomatoes (3,484 thousand USD), onions (2,593 thousand USD) and carrots (1,418 thousand USD) are the main vegetables exported by Senegal to its partners.

With regard to fruits, three groups of products have reached a relatively high value in terms of exports. These are Coconuts (8,116 thousand USD), Melons (8,541 thousand USD), Dates (7,073 thousand USD). This export performance for these products is remarkable given the climatic context of Senegal, which does not have favorable rainfall throughout the country.

Table 2: Main products (Vegetables and Fruits) exported by Senegal

Export of vegetables	Value (Thousands USD)	Export of fresh fruits	Value (thousand USD)
Leguminous vegetables, shelled or not, fresh or chilled	24 228	Coconuts, Brazil nuts and cashew nuts, fresh or dried, even without their shells or ...	8 116
Vegetables, fresh or chilled (excluding potatoes, tomatoes, vegetables . . .)	11 146	Melons, including watermelons, and papayas, fresh	8 541
Tomatoes, fresh or chilled	3 484	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried	7 073
Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled	2 593	Peel of citrus fruit or melons - including watermelons - fresh, frozen, presented in ...	334
Carrots, turnips, salad beets, salsify, celeriac, radishes and edible roots	1 418	Strawberries, raspberries, blackberries, currants and other edible fruits (except nuts, bananas, ...	158
Dried leguminous vegetables, shelled or broken	705	Nuts, fresh or dried, whether or not shelled or peeled	389
Dried vegetables, whether or not cut in pieces or slices or crushed or ground, but not . .	311	Bananas, including plantains, fresh or dried	6
Lettuce 'Lactuca sativa' and chicory 'Cichorium spp.', fresh or chilled	78	Apricots, prunes, apples, peaches, pears, papayas, tamarinds and other edible fruits, ...	34
Vegetables, uncooked or cooked in water or steam, frozen	116	Citrus fruits, fresh or dry	23
Cassava, arrowroot or salep roots, Jerusalem artichokes, sweet potatoes and roots and tubers ...	44	Grapes, fresh or dried	4
Potatoes, fresh or chilled	21	Fruit, uncooked or cooked in water or steam, frozen, whether or not containing added sugar or other ...	1
Temporarily preserved vegetables [e.g. by means of sulphurous gas or in salty, sulphurous water....	39	Fruit preserved temporarily [e.g. by means of sulphurous gas or in salted, sulphurous water ...	0
Cabbage, cauliflower, kale, kohlrabi and similar edible products of the genus 'Brassica', ...	18	Apples, pears and quinces, fresh	2

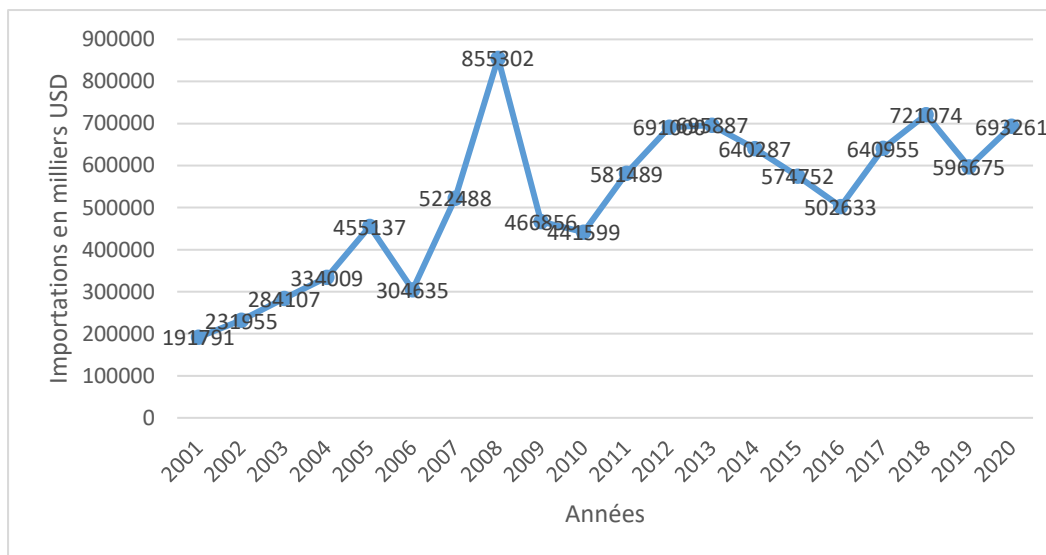
Cucumbers and gherkins, fresh or refrigerated	4	Apricots, cherries, peaches - including nectarines -, plums and sloes, fresh	0
---	---	--	---

Source : Authors from ITC data

3.2.3.2 Import of cereals in Senegal

The graph below shows the evolution of the value of cereal imports into Senegal over the period 2001 - 2020. Although showing a seesaw evolution, cereal imports into Senegal have been growing steadily over the period considered. From an average value of US\$191,791,000 in 2001, Senegal's cereal imports reached US\$693,261,000 in 2020, about five times the value in 2001. The maximum value of US\$855,302,000 in cereal imports into Senegal was reached in 2008.

Figure 8: Evolution of cereal imports in Senegal

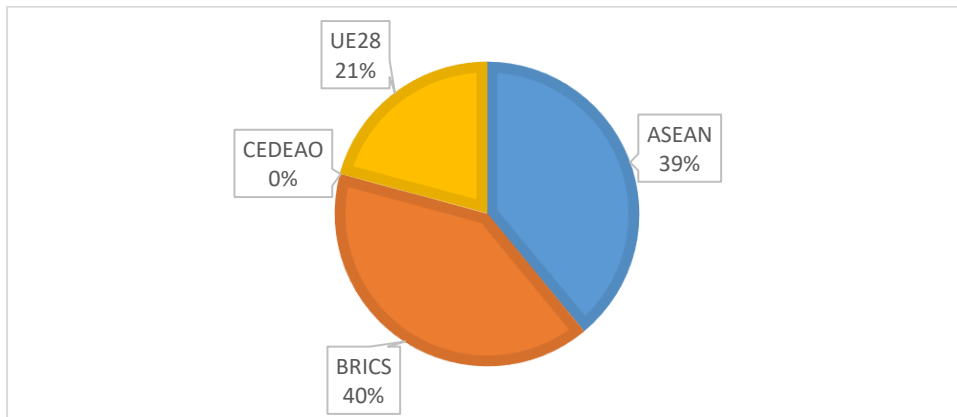


Source : Authors

The graph below illustrates the main regional trade agreement areas favored by Senegal in its cereal import relations over the study period. The BRICS and ASEAN RTAs are the major trading partners that supply cereals to Senegal. Indeed, over the study period, 40% of the

cereals imported by Senegal came from the BRICS region and 39% from the ASEAN zone. The EU28 is one of Senegal's main cereal supplying markets, accounting for 21%.

Figure 9: Groups supplying cereals in Senegal



Source: Authors

On the other hand, it is noted that Senegal, a member of ECOWAS, has very negligible trade relations with this zone. Indeed, over the period 2001-2020, less than 1% of Senegal's cereal imports came from ECOWAS. This reflects the low level of integration of the member countries of this community in terms of intra-community trade, particularly with regard to trade in agricultural products.

As a result, Asian, European, and other non-African countries are the main suppliers of cereals to Senegal, as shown in the table below. During the period under review, Thailand was the leading exporter of cereals to Senegal. Senegal imported cereals from Thailand for an average value of USD 128,136 thousand. This country is followed by India for an average value of 109,293 thousand USD. Beyond these two main countries, we can mention France (82 990 thousand USD), Argentina (40 356 thousand USD), Brazil (33 956 thousand USD), Vietnam

(31 021 thousand USD), etc. Among the Top 15 countries exporting cereals to Senegal, there are no African countries, let alone those belonging to ECOWAS.

Table 3: Main countries supplying cereals to Senegal over the period 2001-2020

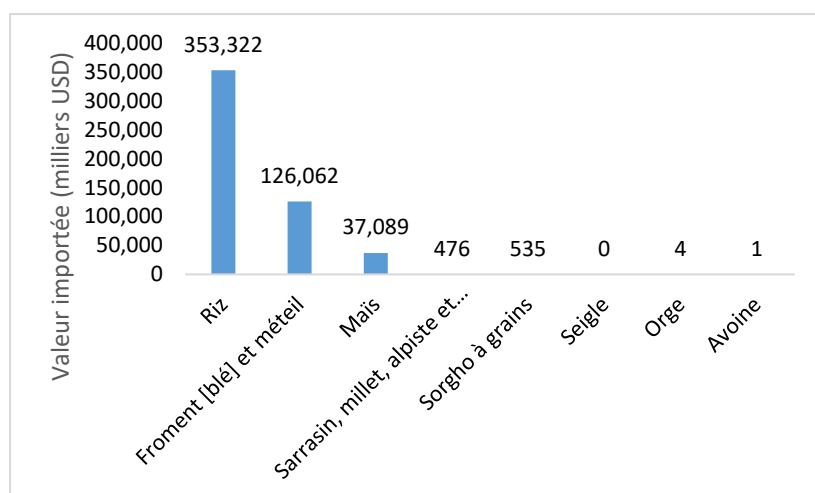
Countries	Value (thousands USD)
India	109 293
Russia, Federation of	23 467
France	82 990
Argentina	40 356
Brazil	33 956
Thailand	128 136
Pakistan	14 144
Viet Nam	31 021
Malaisia	1 960
China	2 490
Myanmar	2 486
Uruguay	13 105
Zones non définies ailleurs	679
US Minor Outlying Islands	520
Canada	7 128

Source : Authors from ITC data

In terms of the type of cereals imported by Senegal, rice, the main component of Senegal's food consumption, is the most important, with an average imported value of USD 353,322 thousand over the 2001-2020 period. As the leading exporter of rice in the ECOWAS zone (according to ITC data), Senegal is a giant importer of this cereal. This justifies the fact that Senegal's trade (especially grain imports) is oriented towards Asian countries (Thailand, India, Vietnam, China, etc.). Indeed, these Asian countries are major rice producers and have good trade relations with Senegal.

After rice, which dominates Senegal's grain imports, come grains such as wheat and corn. These last two products alone totaled an average imported value of US\$163,151 thousand between 2001 and 2020, including US\$123,062 thousand for wheat and US\$37,089 thousand for corn. Secondarily, but not insignificantly, Sorghum (\$535 thousand) and Buckwheat (\$476 thousand) are among the cereals imported by Senegal.

Figure 10: Main cereals imported by Senegal over the period 2001 - 2020



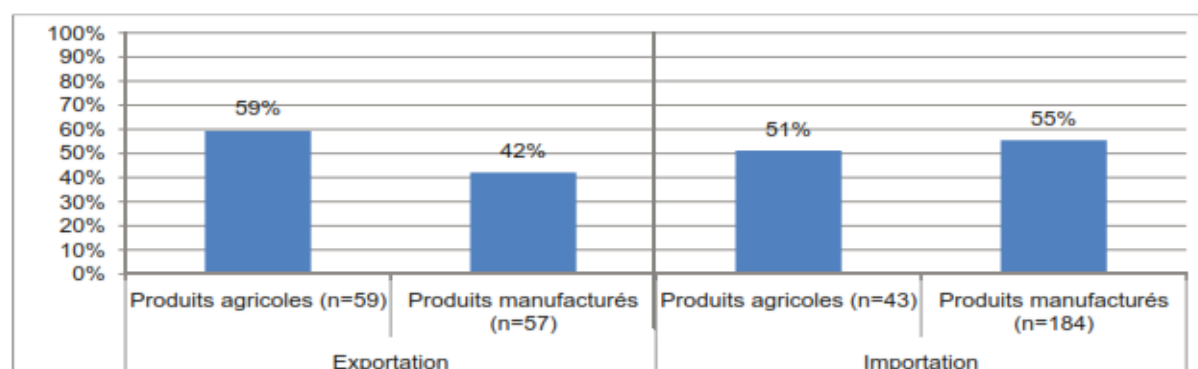
Source: Authors based on ITC data

3.2.4 NTM and Senegal foreign trade

3.2.4.1 Entreprises affectées par non-tariff barriers according to their sector

The perception of NTMs also differs by sector. Exports of agricultural products face more NTMs or other barriers to trade than exports of manufactured goods. The opposite phenomenon is observed for imports. Imports of manufactured goods appear to be more constrained by trade barriers than agricultural goods. There are, however, differences among products in each sector. On the export side, processed agricultural products are affected very little, while unprocessed products are particularly affected. For manufactured products, chemical exports are the most affected. On the import side, the difference between sectors is less marked than on the export side. The chemical products sector is also the most affected sector, along with non-electrical machinery, transport equipment and the wood, wood and paper products sector.

Figure 11: Share of companies affected by non-tariff barriers by company sector



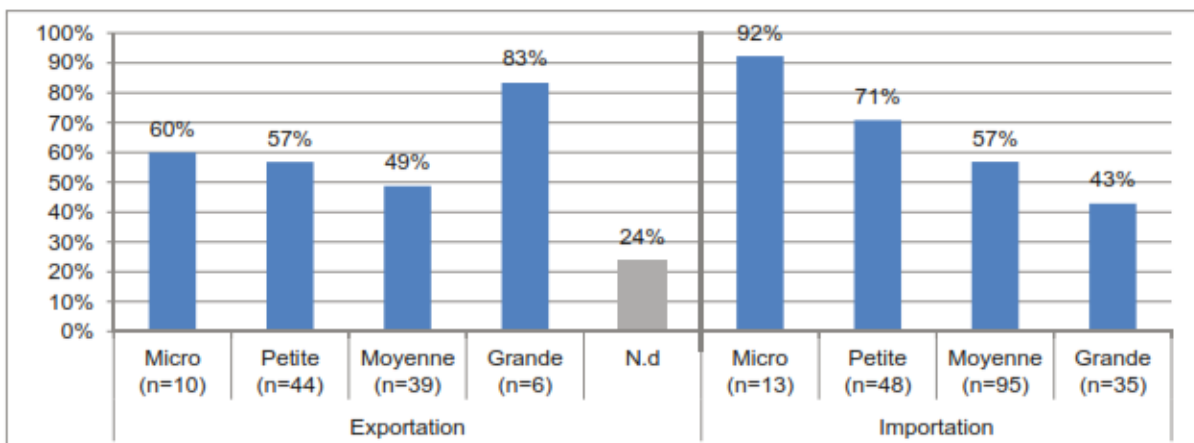
Source : ITC, 2014

3.2.4.2 Size of enterprises and NTM in Senegal

In terms of firm size, the smaller the firm, the more it appears to be affected by binding NTMs (Figure 3.4), with the exception of large exporting firms, whose population does not allow any conclusions to be drawn (fewer than 10 firms interviewed). Small and very small (micro) firms are mostly exporters of unprocessed products (fish, fruit and vegetables, etc.), which are generally more affected by NTMs than medium-sized firms (57% and 60% respectively). Medium-sized firms, on the other hand, concentrate on trade in processed and manufactured goods, and are affected by NTMs to the tune of only 49%.

The same trend can be seen in imports, where the percentage of small and micro enterprises affected by NTMs is higher than that of medium-sized enterprises. These firms tend to operate in manufacturing sectors, which are more affected by NTMs on imports, particularly equipment and tools used in construction and basic manufactured goods. In contrast, medium-sized firms tend to import agricultural products and thus appear to be less vulnerable to NTMs.

Figure 12: Share of firms affected by non-tariff barriers by firm size Senegal



Source: ITC, 2014

The location of firms also affects respondents' perceptions of NTMs and other trade barriers. Importers located in other regions and cities of Senegal are more affected (77%) than those located in the capital, Dakar (53%). On the export side, firms experiencing NTMs or other trade barriers are more likely to be located in Dakar than in other regions. Again, perceptions are reversed depending on whether firms export or import goods. Differences in perception, whether by activity, sector, or firm size, depend on the regulations with which firms must comply and the associated barriers, both for exports and imports.

4 References

- Agence Nationale de la Statistique et de la Démographie (2021), Repères statistiques de février 2021.
- Agence Nationale de la Statistique et de la Démographie (2020), Note d'analyse du commerce extérieur, ISSN 0850 – 1513
- Andrew B. Bernard, J. Bradford Jensen (2004), Why Some Firms Export. *The Review of Economics and Statistics* 2004; 86 (2): 561–569. doi: <https://doi.org/10.1162/003465304323031111>.
- Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO) (2020), « Rapport sur le commerce extérieur de l'UEMOA en 2019
- Banque Mondiale (2021), Indicateurs de développement dans le monde (WDI).
- Centre du commerce international (ITC) (2014), Sénégal : Perspectives des entreprises – Série de l'ITC sur les mesures non tarifaires, enquête 2012 Genève : ITC, xvi, 96 p. Document technique N° MAR-14-247.F
- Conférence des Nations unies sur le commerce et le développement (CNUCED) (2020), « The world by development status », *Handbook of Statistics*
- Gebrehiwet, Y., Ngqangweni, S., & Kirsten, J. F. (2007). Quantifying the trade effect of sanitary and phytosanitary regulations of OECD countries on South African food exports. *Agrekon*, 46(1), 23-39.
- Kalaba, M., Kirsten, J., & Sacolo, T. (2016). Non-tariff measures affecting agricultural trade in SADC. *Agrekon*, 55(4), 377-410.
- Martincus, C. V., Estevadeordal, A., Gallo, A., & Luna, J. (2010). Information barriers, export promotion institutions, and the extensive margin of trade. *Review of World Economics / Weltwirtschaftliches Archiv*, 146(1), 91–111. <http://www.jstor.org/stable/40587847>.
- Ministère du Commerce et des PME du Sénégal (2021), Stratégie nationale de développement des exportations du Sénégal.
- Volpe-Martincus, C., Castresana, S., & Castagnino, T. (2010). ISO Standards: A Certificate to Expand Exports? Firm-Level Evidence from Argentina. *Review of International Economics*. 18:896-912.