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# Economic Partnership Agreements between the European Union and African, Caribbean, and Pacific Countries

## What Is at Stake for Senegal?

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# ABSTRACT

In recent years the European Union has sought to transform its trading regime with the ACP countries by advocating reciprocal free trade agreements with them through Economic Partnership Agreements (EPAs). As a result, the EPA talks were launched in 2002 and were expected be completed by the end of 2007. Nevertheless, many African countries, including Senegal did not reach agreements with the European Union in 2007 amid rising concerns that such agreements do not represent the interests of developing countries. This policy shift from preferential trade to free trade would imply drastic changes for Senegal's economy, which currently enjoys relatively good access to European market (but also to the U.S. through the African Growth Opportunity Act) while applying a high domestic protection on all sources of imports. As a result, this type of reform would result in improved access to foreign markets only for the EU. Furthermore, the EPA implies a loss of tariff revenues from liberalization, which has been a key concern for ACP countries from the beginning of talks because they constitute a high level of public receipts there. Finally this kind of reform could lead to trade diversion in Senegal while creating not enough trade. Using the MIRAGE computable general equilibrium model the study examines the potential impact of Economic Partnership Agreements on ACP countries with a special focus on Senegal.

**Keywords: Senegal, ACP, economic partnership agreements**

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACP | African, Caribbean, and Pacific |
| CARICOM | Caribbean Community |
| CARIFORUM | Caribbean Forum |
| CEMAC | Economic and Monetary Community of Central Africa |
| CEPII | Centre d'Etudes Prospectives et d'Informations Internationales |
| CES | Constant Elasticity of Substitution |
| COMESA | Common Market of Eastern and Southern Africa |
| EBA | Everything But Arms initiative |
| ECDPM | European Centre for Development Policy Management |
| ECOWAS | Economic Community of Western African States |
| EPA | Economic Partnership Agreements |
| ESA | Eastern and Southern Africa |
| GATT | General Agreement on Tariffs and Trade |
| GTAP | Global Trade Analysis Project |
| LDC | Least Developed Country |
| MAcMap | Market Access Map |
| MIRAGE | Modeling International Relationships in Applied General Equilibrium |
| SADC | Southern African Development Community |
| UNCTAD | United Nations Conference on Trade and Development |
| WAEMU | Western African Economic and Monetary Union |
| WECA | Western, Eastern, and Central Africa |
| WTO | World Trade Organization |

# 1. INTRODUCTION

For more than three decades, Senegal has benefited from European preferential trading schemes. Its exports to Europe have enjoyed reduced customs duties extended to the African, Caribbean, and Pacific (ACP) countries since 1975. First the Lomé Conventions and later the Cotonou Agreement have granted duty-free access to roughly 94 percent of the ACP tariff lines exported to the European Union (UNCTAD and the Commonwealth Secretariat 2001).[1] In addition, as a least developed country (LDC), Senegal has been eligible for free market access to the European Union since 2001 under the Everything But Arms initiative (EBA), which provides duty- and quota-free access to all imports (except arms and ammunition) for an unlimited period. However, EBA phased out duty-free access to three sensitive products: fresh bananas (between 2002 and 2006) and sugar and rice (between 2006 and 2009) originating in 50 countries designated as LDCs by the United Nations.

An essential feature of these trading schemes is their non-reciprocity, which means that Senegal and other beneficiary countries enjoy free market access to the European Union without having to open their own markets to European exports in return. In recent years, however, the European Union has sought to transform its trading regime with the ACP countries by advocating free trade with them through Economic Partnership Agreements (EPAs). As a result, in 2000 the European Union and ACP countries signed the Cotonou Agreement, which served two key functions: (1) it extended the preferential market access under the Lomé Conventions until the end of 2007, and (2) it outlined the path toward a new trading regime from 2008, shifting the EU–ACP trade from preferential to reciprocal free trade[2.]

The rationale for this policy shift, according to the European Union, is that trade preferences under the Cotonou Agreement are incompatible with the rules of the World Trade Organization (WTO); the preferences have functioned based on a WTO waiver that expired in December 2007. On the other hand, proponents of preferential trade have argued in favor of extending the Cotonou Agreement beyond 2007 by obtaining a new waiver from the WTO, or even continuing the preferences without one. The first option might be difficult to achieve because it depends on the consensus of all WTO members. However, the second option has already been in practice in the form of the U.S.–Caribbean Basin Initiative; the waiver for that initiative expired in 2005, but the preferences have continued without an extension since then.[3] Similarly, preferences granted by the United States under the African Growth and Opportunity Act are incompatible with the WTO rules and have continued to exist since 2000.[4]

The WTO relies on its dispute settlement mechanism to enforce its rules; therefore, preferential schemes will continue to exist until challenged by a member country. This fact has prompted questions regarding the necessity of using EPAs to replace the ACP preferences under the Cotonou Agreement. The agreement has been a key preferential scheme for ACP countries, but it expired at the end of 2007 and an extension is not expected. Therefore, the ACP countries must either conclude EPAs to establish free trade areas with the European Union or lose their market access under the Cotonou Agreement and export under the much less favorable Generalized System of Preferences.

What does this mean for Senegal? There is a key difference between ACP countries that are LDCs and those that are not. The non-LDCs run the risk of losing their free market access to the European Union on the expiration of the Cotonou Agreement, whereas the LDC countries can retain their

[1] For more on this subject, see Karingi et al. (2005).

[2] Please see partnership agreement between the members of the African, Caribbean and Pacific group of states of the one part, and the European Community and its member states, of the other part, signed in Cotonou, Benin on 23 June 2000.

[3] The preferential schemes falling outside the WTO framework could be vulnerable to disputes. The banana dispute of 1993, in which banana exporters of Latin America challenged the Lomé Convention under which the European Union favored banana imports from ACP countries, serves as a reminder of this. The dispute led the EU to seek a waiver for the Lomé preferences following the ruling of the General Agreement on Tariffs and Trade (GATT) that they were in breach of the most-favored-nation principle.

[4] The United States has formally requested a waiver for the African Growth and Opportunity Act in 2005, which has not yet been approved by the WTO.

free market access to the European Union through EBA.[5] Therefore, for Senegal and most Western African countries currently negotiating an agreement with the European Union, EBA can be a viable alternative to the free trade agreement, except for Nigeria, Ghana, and Ivory Coast which are not LDCs.

Despite these options, the EPA talks were launched in 2002 between European Union and ACP countries, including Senegal, with the aim of concluding them by December 2007. The first phase of negotiations was conducted at the all-ACP–EU level, followed by a second round of talks in 2004 between the European Union and six regional ACP groups: Southern Africa, Eastern and Southern Africa, Western Africa,[6] Central Africa, the Caribbean, and the Pacific group. This configuration was based, more or less, on the existing regional integration initiatives.[7]

Senegal has been negotiating under the umbrella of the Economic Community of Western African States (ECOWAS) and Mauritania[8] and is now in the final stage of the EPA negotiations with the European Union. Since the beginning of these talks, the focus has been on setting the general objectives and principles of the agreements without focusing on specific market access measures. Negotiations with all regional groups have faced difficulties, however, because of the heterogeneous nature of countries belonging to the same negotiating group.

In 2004, the Western African countries, including Senegal, drafted a joint road map with the European Community for the EPA. This road map envisages "progressive establishment, in accordance with the WTO rules, of a free trade zone between ECOWAS and the European Community for a period of twelve years, starting 1st of January 2008" (ECOWAS and European Commission 2004). In addition, the road map also stresses the implementation of a free trade area within ECOWAS and creation of a customs union by January 2008.

Evidently, the December 2007 deadline for completion of EPA negotiations passed without leading to the expected conclusion of these agreements. Concerned with the potential negative impact of EPAs on ACP economies, many African countries, including Senegal, refused to sign the agreements, maintaining that they do not represent the interests of developing countries. Therefore, in early 2008, the European Union initiated a "two-step" EPA process to enable ACP countries to carry on the negotiations while continuing to receive the same preferential treatment, under the expectation that the EPAs will be concluded in the early part of 2008. Meanwhile, some ACP countries—including the Southern African Development Community, Eastern and Southern Africa, Ivory Coast, Ghana, Papua New Guinea, and Fiji—signed interim EPAs with the European Union in December 2007.

An EPA would cause drastic changes for Senegal's economy, the implications of which could be significant on several levels. First, with regard to market access, an EPA under the WTO calls for liberalization of "substantially all trade" between the negotiating parties. Thus, Senegal would have to open its market to most European imports, resulting in increased competition for its domestic producers. This is especially important for agriculture, because Senegalese farmers would face tougher competition from subsidized European farmers. Yet Senegal's market access to Europe would not improve, because its exports already benefit substantially from preferential schemes such as the Cotonou Agreement and EBA.

Second, an EPA would lead to a loss of government revenues from tariff liberalization. Because import duties represent an important portion of public revenues in ACP countries, their loss could mean less government spending on public goods and services. It has been estimated that nearly a quarter of

[5] The EBA scheme is compatible with the WTO rules waiving the most-favored-nation principle in trade arrangements with 50 LDCs designated as such by the United Nations.

[6] Cape Verde opted out of the ECOWAS EPA negotiating group in 2006 (ECDPM 2006b).

[7] For example, the Southern Africa negotiating group consists of seven Southern African Development Community (SADC) countries; Eastern and Southern Africa consists of 16 Common Market of Eastern and Southern Africa (COMESA) countries; Western Africa consists of 14 ECOWAS countries and Mauritania; Central Africa consists of six Economic and Monetary Community of Central Africa (CEMAC) countries, Democratic Republic of Congo, and Sao Tome and Principe; the Caribbean is made up of 15 Caribbean Forum (CARIFORUM) countries and the Dominican Republic; and the Pacific group comprises 14 countries of the Pacific region.

[8] In the remainder of the paper, ECOWAS refers to the negotiating group of Western African countries and Mauritania.

government revenues of ECOWAS depended on import duties in 2001 (Adenikinju and Alaba 2005). For Senegal in 2007, import duties constituted more than 26 percent of total government revenues.

Third, although an EPA implies asymmetrical liberalization that would allow ECOWAS to protect certain products from EU competition, those products would be selected at the ECOWAS level rather than at a country level. Because the terms of the agreement have not yet been finalized, the criteria for selecting sensitive products are unclear at this stage. Product sensitivity could be determined based on factors like food security and budget revenues. In addition, even countries within the same negotiating group can have varying interests that are not fully reflected in the final outcome of the negotiations. Thus, Senegal could enter into an EPA that ignores its specific interests and development objectives.

On the positive side, EPAs promise to deepen regional integration, which would make ACP countries more competitive globally and benefit consumers by adding more choices and lowering prices, and encourage investment and technology transfer. Additionally, EPAs address a wide range of policy issues, such as trade in services, trade facilitation, investment and labor policies, intellectual property rights, and environmental rules. To encourage trade, however, the agreements also need to fully address technical barriers to trade and sanitary and phytosanitary measures, the complex nature of which has been considered a major obstacle to trade. Moreover, ACP countries have voiced concerns over the restrictive nature of the rules of origin in previous trade arrangements with the European Union, which would need to be simplified under EPAs.

The cost of complying with the rules of origin has been widely criticized as a major impediment to the utilization of trade preferences by the beneficiary countries.[9] In practice, assessing these costs is difficult, but the administrative compliance cost of preferential schemes has been estimated to be between 1 percent and 5 percent of the value of exports (Anson et al. 2004, as cited in Bouët et al. 2005a; Herin 1986).[10] Many studies of preferential schemes have argued that their low utilization rates are linked to the strict rules of origin that they impose.[11] A study by Candau and Jean (2005) shows that ACP exporters that benefit from several overlapping schemes choose among them based on the nature of the rules of origin associated with them. Indeed, Candau and Jean found that when due account is taken of these overlapping preferential schemes, preferences appear to have been well utilized in agricultural products, at around 90 percent.

If an EPA between the ECOWAS and the European Union is concluded, all aspects of the reform need to be thoroughly examined because it would represent a major shift in the trade relations between Senegal and its main trading partner, the EU members. As previously mentioned, Senegal currently has very good access to European and U.S. markets, and high protection is applied almost uniformly on all sources of imports. Thus, any improvement in market access through an EPA would not be substantial for Senegal. Further, tariff revenues represent a key issue in EPAs because they constitute a high level of public receipts in Senegal and other ACP countries. Thus, a major objective of this paper is to assess the potential consequences of an EPA on Senegal's trade and public revenues.

The study provides an analysis of the potential implications of an EPA for Senegal using the computable general equilibrium model called Modeling International Relationships in Applied General Equilibrium (MIRAGE). The analysis was undertaken as a part of a larger effort by the International Food Policy Research Institute to enhance the analytical capacities of Senegal on trade policy negotiations and in response to concerns voiced by Senegalese economists on the uncertain impacts of the EPA on the country's economy. Additionally, from a methodological point of view, the study's focus on Senegal is important because it is the only LDC among the ECOWAS for which the Global Trade Analysis Project (GTAP) database provides complete macroeconomic data, making it possible to study the effects of an EPA at the country level. Moreover three elements justify the focus on Senegal: (i) in terms of trade relations, the EU is a key partner of Senegal; (ii) Senegalese exports to the EU today face low average

[9] For more on this subject, see Falvey and Reed (1998, 2002) and Krishna and Krueger (1995).

[10] "Nonadministrative costs, linked in particular to the constraint on sourcing imposed by rules of origin, vary even more across products and countries. They depend in particular on the possibilities for splitting the value-added chain for the product among countries and on whether the agreement includes low-cost input suppliers" (Bouët et al. 2005a, p. 34).

[11] For more on this subject, see Bouët et al (2005a), Brenton (2003), Inama (2003), and Subramanian et al. (2002).

duties while Senegalese imports from Europe are substantially taxed; (iii) in Senegal, custom receipts are a major share of public revenues. Therefore, an analysis of an EPA's effects on Senegal could provide useful insights on the potential impact of EPAs on other LDCs negotiating trade agreements with Europe.

Section 2 of the paper presents the methodology of the study, and Section 3 describes the current state of trade and protection in Senegal. The main focus of the study is presented in Section 4, which examines the impact of the EPA liberalization scenario on Senegal and more generally on Western African and other ACP countries. Finally, conclusions and policy recommendations are provided in Section 5. Supporting data are displayed in the tables in the appendix.

## 2. METHODOLOGICAL OVERVIEW

The EPA analysis in this study employed the multisector, multiregion computable general equilibrium model called MIRAGE, which is specifically designed for trade policy analysis.[12] MIRAGE is a sequential, recursive, dynamic model. It is dynamic because the macroeconomic variables (GDP, prices, investment, capital, etc.) change from year to year throughout the period of reform being studied. It is sequential and recursive because it is solved one period at a time in a sequential manner.

The last version of MIRAGE —the one used in this study—includes the GDP growth expectations from the World Bank which affect total factor productivity.[13] In addition, population growth projections from the World Development Indicators are also incorporated in the model.[14] Macroeconomic data—in particular, social accounting matrixes—come from the latest version of the GTAP database (GTAP6.2), with greater geographic decomposition compared with the previous version.[15] On the other hand, the data on tariffs are from 2001 and come from the Market Access Map (MAcMap) database.[16]

The supply side of the model in this analysis is characterized by the following features: (1) It employs the Leontief function of added value and intermediate consumption;[17] (2) factor endowments are fully employed, and natural resources are the only factor for which the supply is constant; (3) capital supply changes based on depreciation and investment; (4) labor supply is exogenous, whereas the supply of land is endogenous and depends on the real remuneration of land; (5) skilled labor is the only factor perfectly mobile, whereas unskilled labor is imperfectly mobile between agricultural and nonagricultural sectors according to a constant elasticity of transformation function;[18] (6) land is imperfectly mobile across agricultural sectors; and (7) installed capital and natural resources are sector specific. It is assumed that new capital, regardless of its origin, is obtained by assembling intermediate inputs according to a specific combination. The sector allocation of the new capital is based on an investment function that depends on the rate of return and on the sector's stock of capital.

The demand side, on the other hand, is modeled in each region through a representative agent whose propensity to save is constant. The unsaved national income is used to purchase final consumption. Preferences across sectors are represented by a constant elasticity of substitution–linear expenditure system function. This implies constant elasticity of substitution for the excess of consumption above a minimal level, resulting in different income elasticities of demand across products.

Products are differentiated based on country of origin. For example, products coming from the "North" (developed countries) are assumed to belong to a higher quality range than those coming from

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[12] MIRAGE was developed at the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) in Paris. Full description of the model is available at the CEPII Web site (http://www.cepii.fr/) and in Bchir et al. (2002). The description of the technical features of MIRAGE presented here draws heavily from Bouët et al. (2006).

[13] The World Bank's GDP growth forecast extends to 2015. Because the this study looks at the effects of reform across 12 years, from 2008 to 2020, the World Bank's 2015 GDP growth rate is used for the years through 2020. More information on World Bank's GDP projections is available from the "Global Economic Prospects 2005: Trade, Regionalism, and Development", and at http://web.worldbank.org/external/default/main?theSitePK=659149&pagePK=2470434&contentMDK=20370107&menuPK=659160&piPK=2470429

[14] Population projections are available at the World Development Indicators from 2000 to 2090, at five-year intervals. The projections are produced by the World Bank's Human Development Network. For further information on the methodology, see Bos et al. (1994)

[15] The new version (the data are still for the year 2001) includes the following additional countries: Cambodia, Egypt, Paraguay, and Senegal.

[16] MAcMap is a database developed jointly by ITC (UNCTAD-WTO, Geneva) and CEPII (Paris). For a presentation, see Bouët et al. (2005b, 2005c) or the CEPII website (http://www.cepii.fr/).

[17] The intermediate consumption is an aggregate constant elasticity of substitution (CES) function of all goods, and the added value is a Cobb–Douglas function of unskilled labor, land, natural resources, and of a CES bundle of skilled labor and capital. This nesting allows modeling less substitutability between capital and skilled labor than between these two factors and other factors.

[18] This function implies that the sector allocation of unskilled labor depends on the ratio of wages in agricultural and nonagricultural activities.

the "South" (developing countries). As a result, the substitutability between products from the North and products from the South is assumed lower than the substitutability between products from the same quality range. Further, domestic products are less substitutable with foreign products than foreign products are with each other, within the same quality range.[19]

MIRAGE accounts for both perfect and imperfect competition; perfect competition is associated with homogenous goods and imperfect competition with products differentiated horizontally (based on country of origin) and vertically (based on quality). Therefore, this study modeled the agricultural sector under perfect competition and the industrial sector under imperfect competition. Finally, the macroeconomic closure of the model in this analysis was obtained by assuming that the sum of the balance of goods and services and of foreign direct investment is constant.

## Geographical Decomposition

The geographical decomposition in this study focused on Senegal and looked more generally at ACP countries currently negotiating EPAs with the European Union, which consists of 27 members. As mentioned in the introduction, six groups of ACP countries are negotiating EPAs with Europe: Southern Africa, Eastern and Southern Africa, Western Africa, Central Africa, the Caribbean, and the Pacific group. The GTAP database, however, does not allow for a clear-cut geographical decomposition reflecting the exact configuration of these six groups. As a result, in this database, countries belonging to these negotiating groups are found in several zones, and this study selected five such zones.

The first zone is the **Southern African Development Community (SADC)**, which includes all SADC members (except Angola) currently negotiating an EPA as a group.[20] South Africa is not included in this group because it is not negotiating an EPA and it already established a free trade area with the European Union in 2000. The second zone, **Eastern and Southern Africa (ESA),** incorporates 6 of 14 Eastern and Southern African countries that together are negotiating an EPA with the European Union.[21] The third zone is the **Rest of ESA and SADC**, which combines a group of countries in the GTAP6.2 database belonging to those two regional configurations.[22] Because this study focuses on Senegal and other ECOWAS that are jointly negotiating an EPA with the European Union, an ideal GTAP database would allow modeling the impact of the EPA on ECOWAS countries separately from other regional groups. However, this type of geographical dissagregation is not possible in the current GTAP6.2, as mentioned earlier; instead, it combines Western African countries with many Eastern and Central African countries, resulting in the fourth zone called **Western, Eastern, and Central Africa (WECA)**. To the advantage of this study, the GTAP database provides, for the first time, Senegal as a separate category. Therefore, while this report offers insights on the aggregate impact of an EPA on Western, Eastern, and Central African countries, it will be able to provide detailed information on the impact of an EPA on Senegal separately. The same is true for Nigeria, which is a relatively big country in the region and is modeled separately in this study. The fifth zone, the **Caribbean and Pacific,** brings together the two EPA negotiating groups of the Caribbean countries and the Pacific countries (Table 1)

In addition to these five ACP zones, the geographical decomposition focuses on Senegal's main trading partners: the 27 members of the European Union, the United States, China, India, Japan, and Thailand. To illustrate this, in 2001, Senegal exported more than US$373 million to the European Union, which made up more than 53 percent of its total export value for that year. In addition, Senegal's exports

[19] The literature describes two specifications: (1) the consumer compares directly goods coming from all regions, including the domestic good; and (2) the consumer first compares the domestic good and a composite of all foreign goods and then compares foreign goods. The latter way of modeling allows for varying degrees of substitutability and gives the domestic good a specific status. This hypothesis is also adopted in the LINKAGE and GTAP models.

[20] Exception to this is Angola, which is included into a different zone in the GTAP database. SADC category in this geographic decomposition includes the following: Botswana, Lesotho, Mozambique, Namibia, Swaziland, and Tanzania.

[21] These are Madagascar, Malawi, Mauritius, Uganda, Zambia, and Zimbabwe.

[22] These are Angola, Democratic Republic of the Congo, and Seychelles.

to India amounted to more than US$115 million for 2001, which is about 16 percent of Senegal's total exports (see Table A.1 in the appendix).

**Table 1. Geographical decomposition**

| Region | EPA group | North/South | Scarcity of land |
|---|---|---|---|
| European Union (27 countries) | | North | Yes |
| United States | | North | No |
| Rest of North and Central America | | South | Yes |
| South America | | South | Yes |
| China | | South | Yes |
| India | | South | Yes |
| Japan | | North | Yes |
| Thailand | | South | Yes |
| Rest of Asia | | South | Yes |
| South Africa | | South | No |
| Southern African Development Community (SADC) | SADC | South | Yes |
| Eastern and Southern Africa (ESA) | ESA | South | Yes |
| Rest of ESA and SADC | ESA& SADC | South | Yes |
| Nigeria | ECOWAS | South | Yes |
| Senegal | ECOWAS | South | Yes |
| Rest of Western, Eastern, and Central Africa (WECA) | ECOWAS, ESA, & CEMAC | South | Yes |
| Rest of Africa | | South | Yes |
| Caribbean and Pacific | CARIFORUM & PACIFIC | South | Yes |
| Rest of the World | | South | Yes |

Note: The second column describes the correspondence of the GTAP6.2 zone with the EPA negotiating group or groups.

In terms of imports, the European Union remains by far Senegal's main trading partner, representing more than 52 percent of its total import value for 2001. Nigeria, Thailand, the United States, the rest of Sub-Saharan Africa, China, India, Japan, and South Africa are other major sources of Senegal's imports (see Table A.1 in the appendix).

Finally, other countries that are not the primary focus of this study have been grouped into five zones: Rest of North and Central America, Rest of Africa, Rest of Asia, South America, and Rest of the World.

Table 1 lists the 19 zones described earlier; five of those zones represent EPA negotiating groups. The study differentiates product quality based on its origin along the north–south axis. Products coming from the North (developed countries) are generally assumed to belong to a higher quality range than those coming from the South (developing countries). In addition, the study also identifies countries with abundant land and those with land scarcity.

## Sector Decomposition

The sector decomposition includes 23 sectors, over half of which are agricultural (Table 2). This focus on agriculture reflects the important role that this sector plays in ACP countries that are negotiating EPAs. In addition, compared with manufacturing, agriculture remains highly protected worldwide, although many ACP countries have benefited from lower tariffs under the preferential schemes of the European Union.

**Table 2. Sector decomposition**

| Sector | Type of Competition |
|---|---|
| Agrifood | |
| Wheat | Perfect |
| Cereals | Perfect |
| Crops | Perfect |
| Vegetables and fruits | Perfect |
| Other agricultural products | Perfect |
| Meat | Perfect |
| Paddy and processed rice | Perfect |
| Vegetables oils and fats | Perfect |
| Raw milk and dairy products | Perfect |
| Sugar | Perfect |
| Beverages and tobacco products | Perfect |
| Other food products | Perfect |
| Primary and Manufacturing | |
| Fishing | Perfect |
| Primary products | Perfect |
| Textiles and wearing apparel products | Imperfect |
| Petroleum and chemical products | Imperfect |
| Mineral and metal products | Imperfect |
| Vehicle equipment products | Imperfect |
| Electronic and machinery equipment | Imperfect |
| Manufactures nec* | Imperfect |
| Other manufactured products | Imperfect |
| Services | |
| Transport and trade | Perfect |
| Other services | Imperfect |

*nec = not elsewhere classified.

Agriculture is an important sector for Senegal; exports to its main trading partner, the European Union, are predominantly food products; vegetable oils and fats; and vegetables, fruits, and nuts (see Table A.2 in the appendix). Further, agricultural products make up an important part of Senegal's exports to the rest of the world, as do chemical products. Exports to the European Union from all Western African countries, which are members of ECOWAS, include crops, plant fibers, oil and gas, wood, mineral and metal products and transport equipment.

In terms of imports from the European Union and the rest of the world, some of the most important for Senegal are chemicals, machinery and electronic equipment, oil, petroleum, metal, vehicles, transport equipment, textiles, food products, and rice. However, ECOWAS as a group imports similar products from the European Union as does Senegal in addition to paper, mineral products, beverages and tobacco, sugar, and dairy products.

Finally, it is important to note that Senegalese exports to the European Union consist mainly of products that face low tariff barriers there. On the other hand, Senegal imposes high tariff barriers on imports from the European Union (see Table A.2 in the appendix).

The second column in Table 2 indicates that the study accounts for both perfect and imperfect competition; agriculture is modeled under perfect competition, whereas manufacturing and services are modeled under imperfect competition. An exception to this is transportation, which is part of services but it is modeled under perfect competition.

## 3. CURRENT STATE OF TRADE AND PROTECTION IN SENEGAL

Senegal is a member of two important regional economic organizations in Western Africa: ECOWAS, consisting of 16 Western African countries that aim to foster regional integration;[23] and the Western African Economic and Monetary Union (WAEMU), which includes 8 of the 16 members of ECOWAS. Although regional integration through ECOWAS has been slow, WAEMU members, including Senegal, have already established a custom union and have been applying a four-band common external tariff rate since 2000.[24] In addition, Senegal has been a beneficiary of two major European Union preferential schemes conceding free market access to most of its exports: the Cotonou Agreement and EBA. Because these trade arrangements are not reciprocal, the same is not true for European market access to Senegal. In fact, Senegal applies significant protection to its European imports, which means that an EPA would result in improved access to foreign markets only for the European Union.

Tables 3 and 4 provide the structure of tariffs that Senegal imposes on its imports and faces on its exports. In terms of imports, Table 3 reveals that the tariffs Senegal applies are spread rather evenly across partners(less across products). On the other hand, in terms of exports, Table 4 indicates that Senegal faces tariff barriers that vary from quasi-free access to the markets of the European Union and the United States to strong protection in Asia (especially in India) and some African countries, with peaks in some products. Thus, with its exports to the European Union already subject to relatively low tariffs, Senegal would not see significant improvements to its EU market access with the establishment of an EPA.

[23] The ECOWAS EPA negotiating group consists of Benin, Burkina Faso, Cape Verde , Ivory Coast, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo, and Mauritania.

[24] Members of WAEMU are Benin, Burkina Faso, Ivory Coast, Guinea-Bissau, Mali, Niger, Senegal, and Togo.

**Table 3. Tariffs applied on Senegal's imports (2001)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand |
|---|---|---|---|---|---|---|---|---|
| Wheat | 5% | 5% | 5% | 5% | 5% | 5% | 5% | *N/A* |
| Cereals | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Crops | 6% | 7% | 9% | 7% | 11% | 12% | 5% | 10% |
| Vegetables and fruits | 19% | 20% | 20% | 20% | 17% | 20% | 18% | 20% |
| Other agricultural products | 5% | 6% | 8% | 8% | 7% | 8% | 6% | 10% |
| Meat | 20% | 16% | 17% | 17% | 20% | 20% | 17% | 19% |
| Paddy and processed rice | 10% | 9% | 9% | 10% | 10% | 10% | 10% | 10% |
| Vegetables oils and fats | 18% | 14% | 17% | 11% | 11% | 10% | 10% | 11% |
| Raw milk and dairy products | 10% | 8% | 14% | 12% | 5% | 8% | 5% | 16% |
| Sugar | 20% | 19% | 20% | 20% | 20% | 20% | 11% | 19% |
| Beverages and tobacco products | 17% | 17% | 20% | 16% | 19% | 16% | 20% | 20% |
| Other food products | 14% | 15% | 17% | 17% | 15% | 15% | 17% | 15% |
| Fishing | 8% | 18% | 20% | 13% | 6% | 12% | 5% | 11% |
| Primary products | 5% | 5% | 1% | 1% | 3% | 5% | 5% | 4% |
| Textiles and wearing apparel products | 17% | 19% | 18% | 16% | 17% | 15% | 17% | 16% |
| Petroleum and chemical products | 6% | 7% | 9% | 9% | 6% | 6% | 9% | 8% |
| Mineral and metal products | 10% | 11% | 14% | 11% | 13% | 12% | 9% | 14% |
| Vehicle equipment products | 12% | 12% | 12% | 12% | 9% | 11% | 14% | 11% |
| Electronic and machinery equipment | 8% | 8% | 10% | 9% | 9% | 7% | 8% | 10% |
| Manufactures nec | 17% | 16% | 20% | 19% | 19% | 16% | 17% | 16% |
| Other manufactured products | 8% | 6% | 10% | 11% | 12% | 10% | 9% | 11% |

**Table 3. Continued**

| | South Africa | Southern African Development Community (SADC) | Eastern and Southern Africa | Rest of Eastern and Southern Africa and rest of SADC | Nigeria | Rest of Western, Central and Eastern Africa | Rest of Africa | Caribbean and Pacific |
|---|---|---|---|---|---|---|---|---|
| Wheat | 5% | 5% | 5% | *N/A* | *N/A* | 3% | *N/A* | *N/A* |
| Cereals | 5% | 5% | 5% | *N/A* | *N/A* | 5% | 5% | 5% |
| Crops | 7% | 11% | 7% | 17% | 18% | 11% | 9% | 8% |
| Vegetables and fruits | 20% | 20% | 19% | *N/A* | 20% | 4% | 17% | 17% |
| Other agricultural products | 6% | 5% | 5% | *N/A* | 5% | 2% | 5% | 11% |
| Meat | 16% | 9% | 20% | 5% | 5% | 9% | 20% | 20% |
| Paddy and processed rice | 10% | 10% | 10% | *N/A* | 10% | 1% | 10% | 10% |
| Vegetables oils and fats | 14% | 17% | 19% | 9% | 9% | 6% | 19% | 18% |
| Raw milk and dairy products | 12% | 18% | 18% | *N/A* | *N/A* | 1% | 15% | 16% |
| Sugar | 20% | 20% | 19% | *N/A* | 20% | 17% | 20% | 19% |
| Beverages and tobacco products | 20% | 20% | 15% | 20% | 20% | 10% | 20% | 20% |
| Other food products | 15% | 14% | 13% | 10% | 17% | 6% | 17% | 16% |
| Fishing | 11% | 6% | 9% | 10% | *N/A* | 11% | 9% | 11% |
| Primary products | 5% | 5% | 5% | 0% | 0% | 3% | 2% | 5% |
| Textiles and wearing apparel products | 15% | 17% | 18% | 20% | 13% | 6% | 19% | 19% |
| Petroleum and chemical products | 7% | 9% | 9% | 7% | 9% | 5% | 5% | 9% |
| Mineral and metal products | 6% | 6% | 11% | 9% | 7% | 7% | 15% | 10% |
| Vehicle equipment products | 13% | 12% | 14% | 16% | 12% | 6% | 8% | 17% |
| Electronic and machinery equipment | 8% | 7% | 7% | 8% | 8% | 5% | 10% | 12% |
| Manufactures nec | 18% | 17% | 12% | 20% | 19% | 7% | 18% | 18% |
| Other manufactured products | 8% | 6% | 8% | 5% | 10% | 4% | 13% | 11% |

*nec = not elsewhere classified.

N/A = not available

Source: Authors' calculations based on the MAcMap-HS6 database.

**Table 4. Tariffs faced by Senegal's exports (2001)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| Cereals | *N/A* | *N/A* | 6% | 9% | *N/A* | 70% | *N/A* | *N/A* | 11% |
| Crops | 0% | 0% | 10% | 9% | 29% | 35% | 8% | 28% | 7% |
| Vegetables and fruits | 0% | 0% | 4% | 15% | 23% | 35% | 3% | 60% | 17% |
| Other agricultural products | 0% | 5% | 3% | 9% | 2% | 16% | 1% | 8% | 14% |
| Meat | 0% | 0% | 9% | 11% | 40% | 56% | 34% | 60% | 17% |
| Paddy and processed rice | *N/A* | *N/A* | 49% | 13% | | 79% | *N/A* | *N/A* | 17% |
| Vegetables oils and fats | 0% | 0% | 0% | 9% | 5% | 37% | 10% | 10% | 62% |
| Raw milk and dairy products | 0% | 35% | 25% | 8% | 25% | 59% | 297% | 5% | 25% |
| Sugar | 0% | 0% | 4% | 14% | *N/A* | 60% | 109% | *N/A* | 10% |
| Beverages and tobacco products | 0% | 0% | 36% | 19% | 57% | 35% | 5% | 60% | 86% |
| Other food products | 0% | 0% | 2% | 14% | 23% | 35% | 3% | 55% | 11% |
| Fishing | 0% | 0% | 1% | 14% | 18% | 35% | 5% | 60% | 12% |
| Primary products | 0% | 0% | 3% | 9% | 2% | 11% | 0% | 7% | 8% |
| Textiles and wearing apparel products | 0% | 0% | 6% | 10% | 3% | 31% | 0% | 7% | 11% |
| Petroleum and chemical products | 0% | 0% | 3% | 10% | 18% | 33% | 0% | 17% | 13% |
| Mineral and metal products | 0% | 0% | 5% | 10% | 10% | 35% | 0% | 13% | 17% |
| Vehicle equipment products | 0% | 0% | 2% | 18% | 52% | 51% | 0% | 48% | 20% |
| Electronic and machinery equipment | 0% | 0% | 2% | 10% | 16% | 26% | 0% | 15% | 5% |
| Manufactures nec | 0% | 0% | 2% | 14% | 18% | 31% | 0% | 21% | 9% |
| Other manufactured products | 0% | 0% | 4% | 13% | 16% | 33% | 0% | 13% | 12% |

**Table 4. Continued**

| | South Africa | Southern African Development Community (SADC) | Eastern and Southern Africa | Rest of Eastern and Southern Africa and rest of SADC | Nigeria | Rest of Western, Central and Eastern Africa | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|
| Cereals | *N/A* | 15% | 5% | *N/A* | 70% | 18% | *N/A* | 2% | 13% |
| Crops | 8% | 5% | 25% | 30% | 15% | 16% | 32% | 6% | 7% |
| Vegetables and fruits | 3% | 4% | 15% | 6% | *N/A* | 14% | 72% | 43% | 22% |
| Other agricultural products | 9% | 13% | 7% | 11% | 24% | 8% | 8% | 6% | 4% |
| Meat | 40% | 10% | 14% | 25% | 18% | 16% | 88% | 22% | 19% |
| Paddy and processed rice | *N/A* | 0% | 15% | *N/A* | *N/A* | 11% | *N/A* | 0% | 2% |
| Vegetables oils and fats | 10% | 12% | 13% | 0% | 32% | 8% | 17% | 8% | 18% |
| Raw milk and dairy products | 47% | 31% | 25% | 0% | 5% | 15% | 34% | 1% | 13% |
| Sugar | | 43% | 21% | *N/A* | 15% | 12% | *N/A* | 45% | 18% |
| Beverages and tobacco products | *N/A* | 25% | 38% | *N/A* | 148% | 23% | 46% | 335% | 34% |
| Other food products | 5% | 21% | 16% | 81% | 11% | 18% | 33% | 25% | 11% |
| Fishing | 0% | 24% | 18% | 32% | 25% | 17% | 27% | 26% | 7% |
| Primary products | 0% | 7% | 7% | 25% | 15% | 6% | 22% | 1% | 5% |
| Textiles and wearing apparel products | 15% | 17% | 14% | 5% | 44% | 12% | 15% | 2% | 4% |
| Petroleum and chemical products | 8% | 6% | 8% | 26% | 22% | 8% | 26% | 4% | 8% |
| Mineral and metal products | 6% | 17% | 9% | 21% | 20% | 19% | 22% | 7% | 9% |
| Vehicle equipment products | *N/A* | 7% | 14% | *N/A* | 18% | 12% | 36% | 12% | 7% |
| Electronic and machinery equipment | 2% | 9% | 7% | 19% | 20% | 9% | 23% | 7% | 4% |
| Manufactures nec | 0% | 22% | 25% | 5% | 73% | 17% | 19% | 17% | 3% |
| Other manufactured products | 1% | 16% | 18% | 20% | 34% | 20% | 25% | 16% | 7% |

Source: Authors' calculations based on the MAcMap-HS6 database.

**Table 5. Senegal's production in 2007**

| | Production |
|---|---|
| **Agri-Food** | **28%** |
| Wheat | 0% |
| Cereals | 3% |
| Crops | 0% |
| Vegetables and fruits | 2% |
| Other agricultural products | 5% |
| Meat | 3% |
| Paddy and processed rice | 3% |
| Vegetables oils and fats | 1% |
| Raw milk and dairy products | 1% |
| Sugar | 0% |
| Beverages and tobacco products | 2% |
| Other food products | 7% |
| **Primary and Manufacturing** | **17%** |
| Fishing | 2% |
| Primary products | 2% |
| Textiles and wearing apparel products | 1% |
| Petroleum and chemical products | 5% |
| Mineral and metal products | 2% |
| Vehicle equipment products | 1% |
| Electronic and machinery equipments | 1% |
| Manufactures nec | 0% |
| Other manufactured products | 3% |
| **Services** | **55%** |
| Transport and trade | 8% |
| Other services | 47% |
| Total | 100% |

Source: Authors' calculations based on the GTAP6.2 database

In terms of production, agrifood products make up 28 percent of Senegal's total production, excluding services. However, chemicals, fish, and primary products are also important industrial products for the country (Table 5).

Bearing in mind the regional integration dimension of the EPA, it is important to look at Senegal's trading and tariff patterns with other Western African countries. Table 6 shows Senegal's tariffs and trade within ECOWAS. Senegal does not apply any import duties to products from seven WAEMU countries with which it established a customs union in 2000. In this geographic zone its main importing partners are Mali and Ivory Coast, which face no tariffs when exporting to Senegal. In terms of non-WAEMU members, Senegal generally applies relatively high tariffs on Nigeria (22.6 percent) and Ghana (14.2 percent).

**Table 6. Tariffs and trade within ECOWAS (2001)**

| Exporter | Benin | | Burkina Faso | | Ivory Cost | | Guinea-Bissau | | Mali | | Niger | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Importer | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) |
| Benin | | | **0.0%** | 0.441 | **0.0%** | 0.509 | **0.0%** | 0.000 | **0.0%** | 0.035 | **0.0%** | 6.069 |
| Burkina Faso | **0.0%** | 0.004 | | | **0.0%** | 0.063 | **0.0%** | 0.000 | **0.0%** | 0.000 | **0.0%** | 3.982 |
| Ivory Cost | **0.0%** | **26.748** | **0.0%** | **31.452** | | | **0.0%** | 0.121 | **0.0%** | **32.872** | **0.0%** | **23.926** |
| Guinea-Bissau | **0.0%** | 0.019 | **0.0%** | 0.000 | **0.0%** | 0.067 | | | **0.0%** | 0.000 | **0.0%** | 0.000 |
| Mali | **0.0%** | 0.038 | **0.0%** | 0.000 | **0.0%** | 1.018 | **0.0%** | 0.000 | | | **0.0%** | 0.582 |
| Niger | **0.0%** | **24.849** | **0.0%** | 1.016 | **0.0%** | 2.355 | **0.0%** | 0.000 | **0.0%** | 0.141 | | |
| Senegal | **0.0%** | 14.142 | **0.0%** | 3.916 | **0.0%** | **22.728** | **0.0%** | 3.809 | **0.0%** | **44.200** | **0.0%** | 0.565 |
| Togo | **0.0%** | **29.540** | **0.0%** | 19.259 | **0.0%** | 1.387 | **0.0%** | 0.000 | **0.0%** | 1.962 | **0.0%** | 9.086 |
| Gambia | 8.5% | 0.057 | 8.5% | 0.000 | 12.6% | 0.004 | 8.5% | 0.630 | 8.5% | 0.000 | 8.5% | 0.000 |
| Ghana | 11.1% | **20.655** | 11.1% | 2.075 | 10.6% | 5.460 | 11.1% | 0.000 | 11.1% | 0.238 | 11.1% | 5.542 |
| Guinea | 8.3% | 0.030 | 8.3% | 0.046 | 4.2% | 3.256 | 8.3% | 0.236 | 8.3% | 1.205 | 8.3% | 0.020 |
| Liberia | 14.5% | 0.086 | 14.5% | 0.000 | 5.4% | 0.767 | 14.5% | 0.000 | 14.5% | 0.000 | 14.5% | 0.000 |
| Mauritania | 10.0% | 2.975 | 10.0% | 0.000 | 9.9% | 5.983 | 10.1% | 0.000 | 10.1% | 0.000 | 10.0% | 0.030 |
| Nigeria | 11.0% | 14.214 | 11.0% | 0.151 | 0.3% | **191.765** | 11.1% | 0.000 | 11.1% | 1.558 | 11.0% | 15.239 |
| Sierra Leone | 12.0% | 0.000 | 12.0% | 0.000 | 9.3% | 0.007 | 12.0% | 0.000 | 12.0% | 0.000 | 12.0% | 0.000 |

**Table 6. Continued**

| Exporter | Senegal | | Togo | | Ghana | | Mauritania | | Nigeria | |
|---|---|---|---|---|---|---|---|---|---|---|
| Importer | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) | Average tariffs applied by the importer | Imports (US$ million) |
| Benin | **0.0%** | 0.991 | **0.0%** | 2.378 | 17.5% | 7.567 | 9.0% | 0.000 | 45.4% | 15.479 |
| Burkina Faso | **0.0%** | 0.045 | **0.0%** | 1.384 | 11.0% | 12.679 | 10.4% | 0.000 | 89.1% | 0.029 |
| Ivory Cost | **0.0%** | **54.813** | **0.0%** | **28.119** | 37.2% | **112.192** | 10.8% | 1.189 | 43.3% | 6.752 |
| Guinea-Bissau | **0.0%** | 0.000 | **0.0%** | 0.000 | 19.6% | 0.000 | 19.4% | 0.000 | 12.6% | 0.246 |
| Mali | **0.0%** | 0.000 | **0.0%** | 0.000 | 12.5% | 0.935 | 6.1% | 0.000 | 34.2% | 0.062 |
| Niger | **0.0%** | 0.013 | **0.0%** | 0.061 | 16.4% | 8.870 | 10.2% | 0.032 | 28.0% | **41.503** |
| Senegal | | | **0.0%** | 6.807 | 14.2% | 5.456 | 6.2% | 25.000 | 22.6% | 2.991 |
| Togo | **0.0%** | 0.734 | | | 19.2% | **58.910** | 10.3% | 0.036 | 32.5% | 7.357 |
| Gambia | 12.6% | 2.204 | 12.6% | 0.000 | 14.5% | 0.245 | 18.9% | 0.000 | 34.3% | 0.163 |
| Ghana | 10.6% | 4.488 | 10.6% | **25.839** | | | 11.7% | 0.000 | 46.3% | 10.897 |
| Guinea | 4.2% | 0.540 | 4.2% | 0.008 | 7.9% | 0.131 | 5.6% | 0.093 | 24.9% | 1.803 |
| Liberia | 5.4% | 2.108 | 5.4% | 0.244 | 6.4% | 0.196 | 4.2% | 0.000 | 29.1% | 0.150 |
| Mauritania | 9.9% | 0.090 | 9.9% | 6.446 | 0.9% | 0.000 | | | 7.1% | 14.989 |
| Nigeria | 0.3% | **174.034** | 0.3% | 4.404 | 0.7% | **93.491** | 5.0% | 0.000 | | |
| Sierra Leone | 9.3% | 0.029 | 9.3% | 0.000 | 36.0% | 0.028 | 9.7% | 0.000 | 27.9% | 0.003 |

Source: Authors' calculations based on the MAcMap-HS6 database.

Note: WAEMU countries are shown in italics.

On the other hand, Senegal's exports enjoy duty-free access to all WAEMU members; however, its exports to these countries are marginal, except in the case of Ivory Coast. Its access to other ECOWAS countries, which are not members of WAEMU, varies from an average tariff of 0.3 percent in Nigeria to 12.6 percent in Gambia. Hence, Senegal's main exporting partner in ECOWAS is Nigeria, where it exports primarily agrifood products (Table 7).

When looking at Senegal's bilateral exports at the world level, it is clear that its main export destination continues to be the European Union, representing 45.4 percent of its total exports, followed by WECA (17.1 percent) and to a lesser extent India (9.4 percent) and the United States (8.9 percent; see Table A.6 in the appendix). Similarly, Senegal's imports come mostly from the European Union (48.7 percent of Senegal's total imports), the United States (8.2 percent), and Thailand (7.2 percent) but also from ECOWAS countries such as WECA (5.1 percent) and Nigeria (4.9 percent; see Table A.7 in the appendix).

In terms of products, Senegal exports mostly "other food products" to its main trading partners (the European Union, China, Nigeria, and WECA). Petroleum and chemical products also constitute an important share of Senegal's exports to India and WECA (see Table 7).

Senegal's imports, on the other hand, are mainly rice from Asia (especially Thailand) and crops from the SADC and ESA. In addition, it also imports a high share of industrial products, which are widely distributed (Table 8). As shown in Table 8, 99 percent of Senegal's imports from Nigeria are primary products, a reflection of Nigeria's membership in OPEC (Organization of the Petroleum Exporting Countries) and one of the greatest producers of petroleum (mainly oil).

**Table 7. Senegal's bilateral exports in 2007 (volume in %)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | 53% | 10% | 17% | 17% | 72% | 7% | 17% | 23% | 28% |
| Wheat | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Cereals | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Crops | 1% | 0% | 3% | 0% | 0% | 0% | 1% | 0% | 0% |
| Vegetables and fruits | 3% | 0% | 2% | 0% | 0% | 6% | 0% | 0% | 1% |
| Other agricultural products | 2% | 0% | 2% | 14% | 0% | 0% | 0% | 3% | 5% |
| Meat | 0% | 0% | 0% | 0% | 5% | 0% | 0% | 0% | 0% |
| Paddy and processed rice | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Vegetables oils and fats | 11% | 7% | 1% | 0% | 0% | 0% | 0% | 0% | 0% |
| Raw milk and dairy products | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Sugar | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Beverages and tobacco products | 0% | 1% | 1% | 1% | 1% | 0% | 1% | 1% | 1% |
| Other food products | 35% | 1% | 8% | 1% | 65% | 0% | 14% | 17% | 21% |
| **Primary and Manufacturing** | 20% | 10% | 11% | 12% | 5% | 90% | 5% | 9% | 5% |
| Fishing | 10% | 1% | 3% | 0% | 0% | 0% | 0% | 0% | 0% |
| Primary products | 1% | 1% | 1% | 1% | 1% | 31% | 1% | 1% | 1% |
| Textiles and wearing apparel products | 0% | 1% | 1% | 8% | 1% | 1% | 1% | 1% | 2% |
| Petroleum and chemical products | 1% | 1% | 0% | 0% | 0% | 58% | 0% | 0% | 0% |
| Mineral and metal products | 3% | 0% | 1% | 0% | 0% | 0% | 0% | 1% | 0% |
| Vehicle equipment products | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Electronic and machinery equipment | 2% | 3% | 3% | 1% | 0% | 0% | 1% | 3% | 0% |
| Manufactures nec | 1% | 2% | 1% | 0% | 0% | 0% | 0% | 0% | 0% |
| Other manufactured products | 2% | 1% | 1% | 0% | 3% | 0% | 1% | 3% | 0% |
| **Services** | 27% | 80% | 72% | 71% | 23% | 3% | 77% | 68% | 67% |
| Transport and trade | 10% | 25% | 25% | 32% | 11% | 1% | 35% | 29% | 26% |
| Other services | 17% | 55% | 47% | 38% | 11% | 1% | 42% | 39% | 41% |
| **Total** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

**Table 7. Continued**

| | South Africa | Southern African Development Community (SADC) | Eastern and Southern Africa | Rest of Eastern and Southern Africa and rest of SADC | Nigeria | Rest of Western, Central and Eastern Africa | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | 5% | 16% | 2% | 1% | 76% | 29% | 46% | 17% | 16% |
| Wheat | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Cereals | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Crops | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% |
| Vegetables and fruits | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 0% | 0% |
| Other agricultural products | 0% | 0% | 0% | 0% | 0% | 0% | 25% | 0% | 1% |
| Meat | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Paddy and processed rice | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Vegetables oils and fats | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 14% | 8% |
| Raw milk and dairy products | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 0% | 0% |
| Sugar | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Beverages and tobacco products | 1% | 1% | 0% | 0% | 0% | 1% | 0% | 1% | 1% |
| Other food products | 1% | 10% | 1% | 0% | 75% | 26% | 18% | 1% | 5% |
| **Primary and Manufacturing** | 21% | 18% | 37% | 32% | 11% | 70% | 0% | 0% | 0% |
| Fishing | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 4% |
| Primary products | 2% | 2% | 1% | 7% | 0% | 13% | 0% | 1% | 1% |
| Textiles and wearing apparel products | 1% | 2% | 0% | 0% | 0% | 1% | 15% | 0% | 0% |
| Petroleum and chemical products | 7% | 11% | 8% | 13% | 8% | 32% | 0% | 0% | 0% |
| Mineral and metal products | 8% | 1% | 6% | 3% | 1% | 11% | 1% | 1% | 1% |
| Vehicle equipment products | 0% | 0% | 4% | 0% | 0% | 1% | 1% | 0% | 0% |
| Electronic and machinery equipment | 1% | 0% | 14% | 0% | 1% | 5% | 2% | 1% | 0% |
| Manufactures nec | 1% | 1% | 1% | 1% | 0% | 1% | 1% | 1% | 2% |
| Other manufactured products | 1% | 1% | 2% | 7% | 1% | 5% | 2% | 1% | 0% |
| **Services** | 74% | 66% | 61% | 67% | 13% | 1% | 0% | 0% | 0% |
| Transport and trade | 41% | 26% | 28% | 9% | 4% | 0% | 10% | 24% | 29% |
| Other services | 33% | 40% | 32% | 59% | 9% | 1% | 22% | 53% | 45% |
| **Total** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Source: Authors' calculations based on GTAP6.2 database.

Note: This calculation includes GTAP 2001 data. It accounts for major changes in the global trade scene between 2001 and 2007, such as accession of new WTO members, EBA, the African Growth and Opportunity Act, the U.S. Farm Bill, enlargement of the EU, and the phasing out of the Multi-fiber Agreement.

**Table 8. Senegal's bilateral imports in 2007 (volume in %)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | 21% | 17% | 3% | 62% | 20% | 3% | 5% | 88% | 30% |
| Wheat | 3% | 1% | 1% | 2% | 0% | 0% | 0% | 0% | 0% |
| Cereals | 0% | 0% | 0% | 15% | 0% | 0% | 0% | 0% | 0% |
| Crops | 1% | 9% | 1% | 3% | 15% | 0% | 0% | 0% | 0% |
| Vegetables and fruits | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Other agricultural products | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% |
| Meat | 1% | 3% | 0% | 2% | 0% | 2% | 0% | 0% | 2% |
| Paddy and processed rice | 0% | 0% | 0% | 2% | 4% | 0% | 5% | 88% | 23% |
| Vegetables oils and fats | 2% | 1% | 0% | 25% | 0% | 0% | 0% | 0% | 4% |
| Raw milk and dairy products | 4% | 0% | 0% | 6% | 0% | 0% | 0% | 0% | 0% |
| Sugar | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Beverages and tobacco products | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Other food products | 7% | 0% | 0% | 5% | 0% | 0% | 0% | 0% | 0% |
| **Primary and Manufacturing** | 67% | 49% | 72% | 30% | 74% | 91% | 74% | 10% | 42% |
| Fishing | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Primary products | 0% | 9% | 18% | 0% | 0% | 0% | 0% | 0% | 0% |
| Textiles and wearing apparel products | 3% | 2% | 1% | 0% | 33% | 18% | 28% | 3% | 18% |
| Petroleum and chemical products | 19% | 11% | 2% | 15% | 8% | 26% | 7% | 2% | 7% |
| Mineral and metal products | 9% | 3% | 8% | 7% | 10% | 30% | 6% | 4% | 1% |
| Vehicle equipment products | 5% | 1% | 1% | 0% | 2% | 2% | 6% | 0% | 1% |
| Electronic and machinery equipment | 23% | 19% | 8% | 4% | 12% | 10% | 20% | 1% | 11% |
| Manufactures nec | 1% | 2% | 0% | 0% | 2% | 1% | 0% | 0% | 1% |
| Other manufactured products | 7% | 2% | 33% | 4% | 7% | 4% | 5% | 0% | 3% |
| **Services** | 11% | 34% | 24% | 8% | 6% | 6% | 22% | 2% | 28% |
| Transport and trade | 4% | 14% | 9% | 3% | 2% | 1% | 10% | 1% | 8% |
| Other services | 7% | 19% | 15% | 5% | 3% | 5% | 11% | 0% | 20% |
| **Total** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

**Table 8. Continued**

| | South Africa | Southern African Development Community (SADC) | Eastern and Southern Africa | Rest of Eastern and Southern Africa and rest of SADC | Nigeria | Rest of Western, Central and Eastern Africa | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | 11% | 40% | 65% | 1% | 0% | 34% | 24% | 5% | 10% |
| Wheat | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% |
| Cereals | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Crops | 0% | 37% | 64% | 0% | 0% | 0% | 0% | 2% | 2% |
| Vegetables and fruits | 7% | 0% | 0% | 0% | 0% | 4% | 3% | 0% | 0% |
| Other agricultural products | 0% | 0% | 0% | 0% | 0% | 15% | 0% | 0% | 0% |
| Meat | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% |
| Paddy and processed rice | 0% | 0% | 0% | 0% | 0% | 0% | 7% | 0% | 0% |
| Vegetables oils and fats | 0% | 0% | 0% | 0% | 0% | 3% | 0% | 0% | 0% |
| Raw milk and dairy products | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 0% | 2% |
| Sugar | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Beverages and tobacco products | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% |
| Other food products | 3% | 2% | 0% | 0% | 0% | 11% | 11% | 0% | 4% |
| **Primary and Manufacturing** | 85% | 38% | 13% | 44% | 100% | 65% | 69% | 53% | 73% |
| Fishing | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Primary products | 2% | 2% | 2% | 2% | 99% | 3% | 0% | 2% | 7% |
| Textiles and wearing apparel products | 1% | 1% | 1% | 0% | 0% | 5% | 15% | 2% | 4% |
| Petroleum and chemical products | 35% | 33% | 3% | 41% | 0% | 19% | 12% | 7% | 27% |
| Mineral and metal products | 17% | 1% | 1% | 0% | 0% | 9% | 21% | 34% | 19% |
| Vehicle equipment products | 8% | 0% | 1% | 0% | 0% | 0% | 2% | 1% | 3% |
| Electronic and machinery equipment | 6% | 1% | 0% | 0% | 0% | 2% | 14% | 5% | 9% |
| Manufactures nec | 0% | 0% | 2% | 0% | 0% | 1% | 1% | 1% | 0% |
| Other manufactured products | 17% | 0% | 3% | 0% | 0% | 26% | 4% | 1% | 3% |
| **Services** | 4% | 22% | 22% | 55% | 0% | 1% | 6% | 43% | 17% |
| Transport and trade | 2% | 9% | 12% | 27% | 0% | 1% | 3% | 18% | 7% |
| Other services | 2% | 13% | 10% | 28% | 0% | 0% | 3% | 24% | 9% |
| **Total** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Source: Authors' calculations based on GTAP6.2 database

# 4. LIBERALIZATION SCENARIOS AND RESULTS

## Description of Scenarios

For this study, two scenarios of trade liberalization were designed using MIRAGE, a computable general equilibrium model with technical specifications described in Section 2.1. The first scenario is full trade liberalization, a hypothetical benchmark that entails a multilateral elimination of all trade distortions in all sectors by all countries. The purpose of this scenario was to use the results as a point of reference for the second scenario—use of EPAs—the focus of this study. Although the analysis focuses on Western Africa, especially Senegal, the study modeled six EPAs currently being negotiated between the European Union and ACP countries. In this section, the results of the two scenarios are compared with the baseline, which depicts ACP economies in 2023 when no trade agreement is implemented with the European Union.[25]

Although EPA negotiations began in 2002, they are ongoing, with no decisions yet reached on the exact market access measures and other modalities of the agreements. However, the Cotonou Agreement, which lays out the foundations for the EPAs, and a series of other official EU–ACP meetings and documents can provide important assumptions on the final outcome of the negotiations.

One of the main objectives of EPAs, as stated in Article 35 of the Cotonou Agreement, is regional integration. As a result, regional integration initiatives were taken into account in drawing the EPA scenario in this study. Another important aspect of EPAs is that they represent reciprocal free trade agreements. In this regard, WTO requires that "substantially all trade" between the negotiating parties has to be liberalized. Richardson (2007) notes that the European Union has interpreted "substantially all trade" as meaning that 80 percent of its trade with an ACP negotiating party must be liberalized. This allows the EPA negotiating groups to exclude numerous sensitive products from liberalization.[26]

Analysis for this study was carried out before the December 2007 deadline for completion of EPA negotiations. Therefore, the study assumed that the following features of the EPA scenario would be implemented in January 2008:

- Each EPA negotiating group implements a free trade zone or creates a customs union by January 2008. Therefore, the ECOWAS and other ACP regional groups implement a free trade zone by January 2008.
- The European Union grants duty-free access to each negotiating group within six years (reform implemented in 2008). In other words, the EU liberalizes 100 percent of its trade with ACP countries.
- Each EPA negotiating group gives partial access to the European Union in 12 years (reform implemented in 2008); thus, each EPA negotiating group liberalizes 80 percent of its trade with the EU and excludes several sensitive or special products from liberalization.

In other words, under the EU scenario, the European Union liberalizes 100 percent of its trade within a period of six years, whereas ACP countries liberalize 80 percent of their trade with the EU within 12 years. These features of the scenario are based on the implication in the EPAs of asymmetrical liberalization with regard to both the extent and the pace of trade liberalization.

This study assumed 100 percent access to the EU market for ACP countries for two reasons. First, ACP countries already enjoy substantial preferential market access to the European Union; thus, for an EPA to have any positive impact on ACP countries, it must increase their market access, which is what the Cotonou Agreement explicitly requires. The second reason for our assumption is closely related to the first one but is more political in nature: any exemption of sensitive or special products by the European

[25] The baseline scenario also incorporates GDP and population growth projections.

[26] Sensitive products are decided at the regional rather than the country level, which means that each negotiating group drafts a list of sensitive products to be excluded from liberalization.

Union would limit the potential benefits an ACP country might derive from an EPA and thus reduce that country's motivation to conclude the agreement. As a result, 100 percent access to the EU market represents a stronger incentive for ACP countries to conclude the EPAs.

To select the sensitive products that the EPAs allow ACP countries to exclude from trade, the study used a method adopted from Jean et al. (2005), computing an index based on the level of tariffs and trade.[27] This study added another criterion for the selection of sensitive products: the share of trade. Finally, the study method selected as sensitive the product lines with the highest sensitivity index level, as long as they did not exceed 20 percent of the share of trade for each negotiating group. It is important to mention that tariff reforms have been modeled at the most disaggregated level, including product lines at the HS6 level, (5, 011 products), 150 importing countries, and 230 exporting countries.

With regard to regional integration, ACP countries have made efforts to adopt the measures necessary to implement free trade agreements or create customs unions by the beginning of 2008.[28] For example, ECOWAS, which is particularly important in this study because it includes Senegal, has been officially a free trade area since January 2000 (ECDPM 2006b), and CEMAC has been a free trade zone since December 2000 (ECDPM 2006a). In 2000, nine COMESA members established a free trade area, and other COMESA members expect to launch a customs union by January 2008 (ECDPM 2006e). The Pacific countries signed a free trade agreement in 2001 called the Pacific Island Countries Trade Agreement (ECDPM 2006d). Furthermore, Caribbean countries in the CARICOM plan to establish a single economy by January 2008, which will essentially be a free trade area (ECDPM 2006c). Although these agreements do indicate some progress, most face major political and administrative obstacles, and even those that have been officially signed have not been fully implemented.

### Description of Results

The results of simulating six EPAs reveal important implications for Senegal and other ACP countries in terms of bilateral trade, budget revenues, and other macroeconomic factors. Indeed, according to the results, EPA negotiating countries can be classified into three groups based on the impact of reform on their export variations and real income gains.

The first group consists of EPA negotiators such as SADC, ESA, and the Caribbean and Pacific, which represent countries reaping the greatest benefits in terms of real income (Table 9). Under the EPA reform, the SADC, ESA, and the Caribbean and Pacific import more from all world regions (except Thailand). They also import more from all sectors, especially from the agrifood sector, the world prices of which decline globally as a result of the reform. In addition, exports from these countries increase and the real exchange rate appreciates to keep the current account constant (Table 10).

In terms of exports to the European Union and to their own negotiating areas, all these countries experience a huge increase. Members of the SADC export more within the SADC; ESA exports more to the rest of ESA and SADC, and the Caribbean and Pacific export more to other countries in the Caribbean and Pacific. As shown in Table 11, comparing this information with export changes by sectors reveals that, in most sectors, the exports of the SADC, ESA, and the Caribbean and Pacific decrease, except for meat exports (which increase by 1,702.5 percent for SADC, 2,641.7 percent for ESA, and 12.4 percent for the Caribbean and Pacific) and sugar exports (which increase by 316.7 percent for the SADC, 356.2 percent for ESA, and 1,930.9% for the Caribbean and Pacific). All these countries face high initial tariffs on meat and sugar exports to the European Union compared with other EPA countries, like Senegal, that face no initial tariffs on EU exports of both these products (see Tables A.4 and A.5 in the appendix). For example, meat exports from the SADC, ESA, and the Caribbean and Pacific to the European Union face initial tariffs of 81.4 percent, 81.3 percent, and 23 percent, respectively; whereas sugar exports from the same groups of countries face initial tariffs of 121.2 percent, 99.9 percent, and 165.5 percent, respectively

[27] This methodology is based on the Grossman-Helpman political economy model.
[28] See ECDPM (2006a–e) for specific information on these initiatives.

(see Tables A.4 and A.5). As a result, it appears that for the first group of countries, the EPA reform is mainly trade creating.

**Table 9. Welfare gains in 2023**

| | Full trade liberalization | | | EU-ACP EPA | | |
|---|---|---|---|---|---|---|
| | **Real Income gains (%)** | **Allocation efficiency gains (%)** | **Terms of trade gains (%)** | **Real Income gains (%)** | **Allocation efficiency gains (i%)** | **Terms of trade gains (%)** |
| European Union – 27 | 0.8 | 0.6 | 0.1 | 0.1 | 0.1 | 0.0 |
| United States | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| Rest of North and Central America | -0.3 | 0.5 | -0.5 | 0.0 | 0.0 | 0.0 |
| South America | 1.0 | -0.6 | 1.0 | 0.0 | 0.0 | 0.0 |
| China | 1.0 | 2.7 | -0.8 | 0.0 | 0.0 | 0.0 |
| India | 1.3 | 2.8 | -0.9 | 0.0 | 0.0 | 0.0 |
| Japan | 1.9 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| Thailand | 3.7 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Rest of Asia | 1.2 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 |
| South Africa | 1.3 | 0.8 | 0.3 | 0.2 | 0.1 | 0.0 |
| Southern African Development Community | -0.4 | -0.4 | 0.3 | 2.1 | -0.4 | 1.9 |
| Eastern and rest of Southern Africa | 1.7 | -0.9 | 1.2 | 1.2 | -0.5 | 0.9 |
| Rest of Eastern and Southern Africa and rest of Southern African Development Community | -0.6 | -0.2 | -0.3 | -0.5 | 1.0 | -0.6 |
| Nigeria | 0.3 | 2.3 | 0.1 | -0.6 | 0.2 | 0.0 |
| Senegal | -0.5 | 0.3 | -1.6 | -0.3 | 0.0 | -0.8 |
| Rest of Western, Central and Eastern Africa | -0.4 | -0.1 | -0.8 | -0.4 | 0.1 | -0.5 |
| Rest of Africa | 0.5 | 3.0 | -1.8 | 0.0 | 0.0 | 0.0 |
| Caribbean and Pacific | 0.0 | 0.0 | -0.1 | 0.4 | -0.3 | 0.4 |
| Rest of the World | 0.0 | 0.2 | -0.2 | 0.0 | 0.0 | 0.0 |

Source: Authors' calculations based on GTAP6.2 database

**Table 10. Real effective exchange rate variations from EPA in 2023**

| Region | Real effective exchange rate (in %) |
|---|---|
| European Union – 27 | -0.03 |
| United States | -0.02 |
| Rest of North and Central America | 0.01 |
| South America | -0.03 |
| China | 0.02 |
| India | -0.02 |
| Japan | -0.03 |
| Thailand | 0.01 |
| Rest of Asia | 0.01 |
| South Africa | -0.22 |
| SADC | 5.69 |
| ESA | 3.12 |
| Rest of ESA and SADC | -2.92 |
| Nigeria | -1.81 |
| Senegal | -1.54 |
| WECA | -1.58 |
| Rest of Africa | -0.01 |
| Caribbean and Pacific | 1.67 |
| Rest of the World | -0.01 |

Source: Authors' calculations based on GTAP6.2 database

**Table 11. Export changes by sector from EPA in 2023 (volume in %)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | **1.1** | **0.0** | **-0.2** | **-0.4** | **-0.5** | **-0.5** | **-0.1** | **-0.3** | **-0.3** |
| Wheat | 1.5 | 0.4 | -0.3 | 0.0 | -0.6 | -0.4 | -1.7 | 0.0 | -0.2 |
| Cereals | 0.0 | 0.5 | 0.0 | -0.2 | -0.1 | -0.3 | -0.3 | 0.0 | -0.1 |
| Crops | 2.7 | 1.7 | 0.4 | 0.7 | -0.7 | 0.7 | 1.7 | 1.1 | 0.2 |
| Vegetables and fruits | 0.4 | 0.0 | -0.1 | -0.3 | -0.1 | -0.2 | 0.1 | 0.0 | 0.0 |
| Other agricultural products | 0.2 | 0.1 | -0.1 | -0.3 | -0.7 | -0.5 | 0.1 | 0.0 | -0.3 |
| Meat | -1.3 | -0.5 | -0.4 | -2.6 | -0.7 | -2.2 | -1.1 | -3.1 | -0.7 |
| Paddy and processed rice | 10.2 | 0.4 | -3.7 | 3.5 | -3.8 | -1.3 | 0.1 | -1.2 | -0.2 |
| Vegetables oils and fats | 6.2 | -0.6 | -0.3 | 0.5 | -0.4 | -2.4 | -0.1 | -0.2 | -0.3 |
| Raw milk and dairy products | 2.6 | -0.6 | -1.0 | -1.2 | -0.4 | -0.5 | -0.5 | -0.1 | -1.2 |
| Sugar | -43.1 | -3.5 | -1.3 | -4.2 | -0.7 | -4.7 | -3.1 | -0.2 | -17.6 |
| Beverages and tobacco products | 2.5 | -0.8 | -0.2 | -0.2 | -0.1 | -0.1 | -0.3 | -0.1 | -0.1 |
| Other food products | 1.8 | -0.6 | -0.1 | -0.3 | -0.2 | -0.1 | -0.4 | -0.2 | -0.2 |
| **Primary and Manufacturing** | **0.6** | **-0.2** | **0.0** | **0.2** | **0.1** | **-0.1** | **-0.1** | **0.0** | **0.0** |
| Fishing | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.6 | 0.0 | 0.0 |
| Primary products | 1.2 | 0.1 | -0.3 | 0.0 | -0.1 | -0.2 | -0.2 | -0.4 | -0.1 |
| Textiles and wearing apparel products | 1.4 | -0.3 | 1.5 | 0.5 | 0.5 | 0.4 | -0.2 | 0.3 | 0.5 |
| Petroleum and chemical products | 0.6 | -0.2 | 0.0 | 0.1 | -0.2 | -0.3 | -0.1 | -0.1 | -0.1 |
| Mineral and metal products | 0.8 | -0.3 | 0.0 | 0.4 | 0.0 | -0.3 | -0.1 | 0.0 | 0.1 |
| Vehicle equipment products | 0.4 | -0.1 | -0.1 | 0.2 | -0.2 | -0.3 | -0.2 | 0.2 | 0.0 |
| Electronic and machinery equipment | 0.4 | -0.1 | 0.0 | 0.1 | -0.1 | -0.3 | 0.0 | 0.0 | -0.1 |
| Manufactures nec | 0.8 | -0.5 | 0.0 | 0.2 | 0.1 | 0.3 | 0.0 | 0.2 | 0.1 |
| Other manufactured products | 1.0 | -0.4 | 0.0 | 0.3 | -0.1 | -0.1 | -1.0 | 0.0 | -0.4 |
| **Services** | **0.0** | **0.1** | **0.0** | **0.2** | **0.0** | **0.2** | **0.1** | **0.0** | **0.0** |
| Transport and trade | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 |
| Other services | -0.1 | 0.1 | 0.0 | 0.2 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 |

**Table 11. Continued**

| | South Africa | Southern African Development Community (SADC) | Eastern and Southern Africa | Rest of Eastern and Southern Africa and rest of SADC | Nigeria | Senegal | Rest of Western, Central and Eastern Africa | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | **3.9** | **205.3** | **41.4** | **23.2** | **23.0** | **6.0** | **12.9** | **-1.8** | **181.1** | **-0.4** |
| Wheat | 5.6 | -37.4 | -14.1 | 63.5 | 1.9 | 32.7 | 8.4 | -0.1 | -30.8 | 0.2 |
| Cereals | 7.3 | -23.3 | -4.4 | 16.0 | 11.7 | 6.2 | 3.1 | -0.2 | -12.2 | -0.1 |
| Crops | 6.3 | -45.7 | -17.6 | 40.9 | 20.8 | 8.4 | 8.3 | 0.1 | -28.5 | 0.6 |
| Vegetables and fruits | -0.5 | -28.3 | -13.7 | 38.0 | 25.0 | 9.1 | 40.9 | -0.9 | 20.5 | -0.2 |
| Other agricultural products | 2.1 | -32.0 | -23.6 | 34.5 | 26.2 | 8.7 | 5.7 | -0.8 | -30.1 | -0.4 |
| Meat | 52.7 | 1702.5 | 2641.7 | 122.6 | 2717.9 | 18.7 | 30.6 | -3.7 | 12.4 | -0.6 |
| Paddy and processed rice | 24.3 | -32.8 | 34.0 | 29.5 | 26.2 | 27.0 | 49.9 | -2.2 | 53.7 | 0.4 |
| Vegetables oils and fats | 5.4 | 29.0 | -9.7 | 48.9 | 7.3 | 12.3 | -3.7 | -1.6 | -22.7 | -0.9 |
| Raw milk and dairy products | -5.1 | 18.8 | -13.7 | 333.3 | 32.4 | 66.4 | 102.1 | -2.4 | 243.7 | -0.6 |
| Sugar | -2.5 | 316.7 | 356.2 | 46.4 | 11.1 | -56.4 | 214.6 | -27.5 | 1930.9 | -3.3 |
| Beverages and tobacco products | -0.9 | -13.4 | 13.2 | 10.5 | 22.7 | 3.2 | 3.3 | -0.7 | 6.9 | -0.3 |
| Other food products | 3.0 | -15.6 | -1.9 | 16.7 | 17.0 | 5.1 | 6.6 | -1.3 | -2.5 | -0.3 |
| **Primary and Manufacturing** | **-1.2** | **-37.7** | **-18.6** | **8.9** | **2.2** | **6.1** | **10.0** | **0.1** | **-8.4** | **0.0** |
| Fishing | 0.3 | -13.8 | -9.4 | 8.2 | 1.7 | 3.3 | 5.1 | -0.1 | -2.5 | -0.1 |
| Primary products | -1.7 | -29.7 | -12.2 | 5.5 | 2.0 | 5.3 | 9.8 | 0.1 | -2.8 | 0.0 |
| Textiles and wearing apparel products | 2.7 | -49.7 | -27.1 | 26.2 | 25.9 | 17.9 | 16.3 | 0.4 | -12.7 | 0.5 |
| Petroleum and chemical products | 0.1 | -24.2 | -7.7 | 3.0 | 4.4 | 5.9 | 9.8 | -0.1 | -3.7 | 0.0 |
| Mineral and metal products | -2.1 | -32.3 | -13.2 | 10.7 | 18.0 | 7.5 | 10.2 | 0.0 | -9.5 | 0.2 |
| Vehicle equipment products | -1.8 | -26.6 | 15.8 | 30.0 | 26.9 | 6.7 | 14.4 | 0.0 | -9.3 | 0.0 |
| Electronic and machinery equipment | -1.8 | -27.2 | -13.2 | 12.6 | 15.3 | 9.2 | 9.7 | 0.0 | -8.2 | 0.0 |
| Manufactures nec | -0.5 | -37.2 | -10.0 | 20.1 | 16.7 | 17.5 | 9.8 | 0.2 | -7.2 | 0.2 |
| Other manufactured products | 1.1 | -24.2 | -9.4 | 24.1 | 9.7 | 11.4 | 9.4 | 0.1 | -8.4 | -0.1 |
| **Services** | **-1.5** | **-13.5** | **-7.8** | **10.8** | **7.4** | **6.0** | **6.3** | **0.2** | **-4.8** | **0.1** |
| Transport and trade | -1.4 | -13.3 | -7.2 | 12.1 | 10.3 | 6.3 | 6.8 | 0.2 | -4.7 | 0.1 |
| Other services | -1.5 | -13.7 | -8.2 | 10.2 | 6.4 | 5.8 | 6.0 | 0.2 | -4.9 | 0.1 |

Source: Authors' calculations based on GTAP6.2 database.

The second group consists of countries or zones such as Nigeria, Senegal, and WECA, all of which experience a decrease in real income by 2023 (see Table 9). Unlike the first group of countries, for which the EPA was trade creating, Western Africa is likely to experience this reform as trade diverting. In terms of imports, the EPA causes WECA to import less from most regions except the European Union and WECA itself and to import more from the EU. Thus, as far as these countries are concerned, the EPA is clearly trade-diverting.

In addition, the exchange rates of Nigeria, Senegal, and WECA depreciate as a result of the EPA to keep the current account constant. Exports from this group increase to almost all destinations, thanks to real depreciation. Under the EPA, trade between Nigeria and Senegal does not improve; in fact, Nigeria exports less to ECOWAS despite the customs union. This could be a result of Nigeria exporting mainly products that were initially not taxed, such as oil, and of decrease of real incomes in WECA countries. For example, 99 percent of Senegal's imports from Nigeria are primary products (see Table 8). Looking across sectors, Nigeria, Senegal, and WECA export more in almost all categories of products (except sugar for Senegal and vegetable oils and fats for WECA), whereas variations in their imports are much less comparable (see Tables 11 and 12).

**Table 12. Import changes by sector from EPA in 2023 (volume in %)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | **5.8** | **0.1** | **0.1** | **0.0** | **0.1** | **-0.2** | **0.0** | **-0.2** | **0.1** |
| Wheat | -0.9 | 0.3 | -0.1 | -0.2 | 0.0 | 0.1 | -0.1 | -0.1 | -0.1 |
| Cereals | -1.0 | 0.0 | -0.1 | -0.2 | 0.1 | -0.9 | -0.1 | -0.5 | -0.1 |
| Crops | -1.0 | -0.1 | -0.1 | -0.3 | -0.6 | -0.6 | -0.8 | 0.5 | -0.3 |
| Vegetables and fruits | 0.8 | -0.1 | -0.1 | -0.1 | 0.0 | -1.2 | -0.2 | -0.1 | 0.0 |
| Other agricultural products | -4.2 | -0.2 | -0.1 | 0.0 | 0.1 | 0.2 | -0.2 | -0.8 | -0.1 |
| Meat | 13.4 | 0.3 | 0.1 | 0.1 | 0.4 | 0.1 | 0.2 | 0.5 | 0.3 |
| Paddy and processed rice | 1.1 | 0.6 | 0.0 | 0.0 | 0.6 | 0.1 | 0.0 | -0.1 | 0.1 |
| Vegetables oils and fats | -0.8 | 0.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.5 | 0.2 | 0.0 |
| Raw milk and dairy products | 0.9 | 1.1 | 0.5 | 0.3 | 0.4 | 0.8 | 0.6 | 0.2 | 0.4 |
| Sugar | 404.9 | -1.8 | 0.3 | 1.0 | 0.0 | 2.8 | -0.1 | 5.0 | 0.2 |
| Beverages and tobacco products | 0.1 | 0.5 | 0.4 | 0.4 | 0.5 | 0.4 | 0.3 | 0.4 | 0.3 |
| Other food products | -0.5 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | -0.2 | 0.1 |
| **Primary and Manufacturing** | **0.0** | **-0.1** | **0.0** | **-0.1** | **0.1** | **-0.1** | **-0.1** | **0.0** | **0.0** |
| Fishing | -0.2 | -0.2 | 0.0 | -0.1 | 0.0 | -0.1 | -0.2 | 0.0 | 0.0 |
| Primary products | 0.4 | 0.1 | -0.1 | 0.4 | 0.3 | -0.1 | 0.0 | 0.0 | 0.0 |
| Textiles and wearing apparel products | 0.1 | -0.6 | -0.1 | -0.1 | 0.1 | -0.2 | 0.0 | 0.0 | 0.0 |
| Petroleum and chemical products | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Mineral and metal products | 0.0 | -0.1 | -0.1 | -0.2 | 0.0 | -0.4 | -0.2 | -0.1 | 0.0 |
| Vehicle equipment products | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 |
| Electronic and machinery equipment | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 |
| Manufactures nec | -0.2 | 0.0 | 0.0 | -0.1 | 0.0 | -0.1 | -0.1 | 0.1 | 0.0 |
| Other manufactured products | 0.0 | -0.1 | 0.0 | -0.2 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 |
| **Services** | **0.0** | **-0.1** | **0.0** | **-0.1** | **0.0** | **-0.1** | **-0.1** | **0.0** | **0.0** |
| Transport and trade | 0.0 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 |
| Other services | 0.0 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 |

**Table 12. Continued**

| | South Africa | Southern African Development Community (SADC) | Eastern and Southern Africa | Rest of Eastern and Southern Africa and rest of SADC | Nigeria | Senegal | Rest of Western, Central and Eastern Africa | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| **Agrifood** | **-3.1** | **40.6** | **33.8** | **51.5** | **13.4** | **3.8** | **20.7** | **0.2** | **37.6** | **0.3** |
| Wheat | 4.9 | 31.2 | 18.4 | -33.5 | -1.6 | 3.7 | -3.0 | 0.0 | 46.5 | -0.1 |
| Cereals | 1.7 | 22.6 | 9.5 | 1.7 | -1.1 | -4.4 | 0.6 | -0.2 | 24.2 | 0.0 |
| Crops | -3.2 | 51.0 | 53.4 | 1027.8 | 0.5 | 1.8 | 17.4 | -0.4 | 49.9 | -0.3 |
| Vegetables and fruits | -4.9 | 30.5 | 24.5 | -6.9 | 245.5 | 22.0 | 35.2 | 0.1 | 24.1 | 0.1 |
| Other agricultural products | -6.9 | 58.5 | 68.0 | 82.3 | 75.5 | -1.9 | 7.7 | 0.9 | 87.7 | 0.3 |
| Meat | -14.9 | 184.8 | 109.3 | 71.1 | 30.8 | 15.2 | 117.5 | 0.1 | 47.2 | 0.6 |
| Paddy and processed rice | 1.8 | 35.4 | 34.1 | -18.2 | -3.4 | -4.7 | 1.2 | 0.5 | 27.9 | 0.1 |
| Vegetables oils and fats | 2.7 | 24.8 | 22.4 | 16.8 | 3.8 | 3.6 | 35.4 | 0.0 | 58.6 | 0.3 |
| Raw milk and dairy products | 2.8 | 49.4 | 31.5 | 33.6 | 4.5 | 7.2 | 22.1 | 0.9 | 50.3 | 0.9 |
| Sugar | -17.3 | 15.7 | 30.1 | -21.8 | -2.1 | 5.0 | -5.1 | 0.2 | 86.6 | 0.7 |
| Beverages and tobacco products | -0.7 | 16.5 | 25.6 | 59.2 | 55.6 | 16.9 | 27.1 | 0.3 | 50.7 | 0.3 |
| Other food products | -0.3 | 25.6 | 21.6 | 36.8 | 5.8 | 8.8 | 13.8 | 0.4 | 16.1 | 0.4 |
| **Primary and Manufacturing** | **-0.3** | **12.2** | **9.7** | **6.8** | **4.1** | **1.5** | **4.6** | **0.0** | **9.2** | **0.0** |
| Fishing | -4.0 | 30.9 | 23.7 | 36.0 | 7.8 | 9.0 | 19.7 | -0.1 | 5.9 | 0.0 |
| Primary products | 2.5 | 22.0 | 20.3 | 117.7 | 204.5 | -2.0 | 36.3 | -0.1 | 4.1 | 0.0 |
| Textiles and wearing apparel products | -8.2 | 23.9 | 17.2 | 24.0 | 5.7 | 1.9 | 4.4 | 0.0 | 9.8 | 0.0 |
| Petroleum and chemical products | -0.2 | 9.7 | 5.4 | 17.3 | 4.8 | 1.4 | 3.8 | 0.0 | 9.3 | 0.0 |
| Mineral and metal products | 1.4 | 15.1 | 12.4 | 25.6 | 7.8 | 2.2 | 7.1 | -0.1 | 12.6 | -0.1 |
| Vehicle equipment products | 0.3 | 11.8 | 6.7 | -2.4 | 0.9 | 3.7 | 0.2 | -0.1 | 10.1 | 0.0 |
| Electronic and machinery equipment | 0.8 | 5.5 | 4.9 | 2.3 | 1.0 | 1.3 | 1.2 | 0.0 | 5.7 | 0.0 |
| Manufactures nec | 0.3 | 44.4 | 19.5 | 6.3 | -0.5 | 1.9 | 8.8 | 0.0 | 15.4 | 0.0 |
| Other manufactured products | -4.0 | 17.1 | 15.1 | -2.1 | 1.7 | 2.9 | 5.5 | 0.0 | 12.4 | 0.0 |
| **Services** | **1.1** | **10.8** | **6.6** | **-7.4** | **-4.8** | **-3.8** | **-4.3** | **-0.1** | **3.6** | **0.0** |
| Transport and trade | 1.1 | 12.0 | 6.1 | -8.1 | -7.0 | -3.5 | -4.5 | -0.1 | 3.4 | 0.0 |
| Other services | 1.1 | 10.4 | 6.8 | -7.3 | -4.6 | -3.9 | -4.3 | -0.1 | 3.7 | 0.0 |

Source: Authors' calculations based on GTAP6.2 database.

Finally, the terms of trade of these countries deteriorate as a result of the EPA reform (less for Nigeria, which exports mostly primary products) and their real incomes are negatively affected. In other words, these regions, and in particular Senegal and WECA, export more products in which they have a comparative advantage but which are cheaper internationally (such as food products or petroleum and chemicals) and import products from more expensive sources (such as crops, meat, textiles, and wearing apparel products, and sugar for Senegal).

The third group consists of the European Union, for which the EPAs yield a slight gain in terms of real income. Its trade (exports as well as imports) is strongly stimulated by the agreements with the SADC, ESA, and the Caribbean and Pacific, whereas trade variations resulting from agreements with other EPA-negotiating countries are insignificant (Table 13). Despite strong export variations in the sugar sector for European Union, its terms of trade remain unaffected, reflecting a low level of initial trade between the European Union and EPA-negotiating countries relative to European trade with the rest of the world. Indeed, the share of EU exports to all EPA countries is only 0.8 percent of its total exports. Similarly, the share of EU imports from EPA countries represents just 1 percent of all EU imports. Nevertheless, EU trade creation in terms of exports is still significant, because a mere 0.8 percent of the initial total EU export volume equals one-quarter of all EPA-negotiating countries' initial total exports.

**Table 13. Bilateral trade changes from EPA in 2023 (volume in %)**

| | | Importers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **European Union – 27** | **United States** | **Rest of North and Central America** | **South America** | **China** | **India** | **Japan** | **Thailand** | **Rest of Asia** |
| **Exporters** | European Union – 27 | -0.2 | 0.1 | 0.2 | 0.1 | 0.3 | 0.1 | 0.1 | 0.1 | 0.2 |
| | United States | -0.1 | | 0.0 | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 |
| | Rest of North and Central America | -0.2 | 0.0 | 0.1 | -0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | South America | -1.0 | 0.2 | 0.3 | 0.0 | 0.3 | 0.2 | 0.2 | 0.4 | 0.3 |
| | China | 0.1 | 0.2 | 0.1 | -0.1 | | -0.1 | 0.0 | 0.0 | 0.0 |
| | India | 0.2 | 0.2 | 0.2 | 0.0 | 0.1 | | 0.1 | 0.2 | 0.1 |
| | Japan | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | | 0.1 | 0.1 |
| | Thailand | -0.1 | 0.1 | 0.1 | -0.1 | 0.3 | -0.2 | -0.1 | | 0.0 |
| | Rest of Asia | 0.0 | 0.1 | 0.1 | -0.1 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 |
| | South Africa | -2.4 | -2.2 | -1.9 | -2.3 | -2.3 | -2.4 | -2.5 | -2.3 | -2.4 |
| | Southern African Development Community (SADC) | 91.4 | -44.6 | -28.9 | -21.8 | -25.5 | -31.5 | -22.2 | -27.8 | -26.9 |
| | Eastern and Southern Africa | 55.2 | -19.9 | -13.1 | -12.3 | -17.1 | -17.6 | -13.4 | -18.5 | -18.6 |
| | Rest of Eastern and Southern Africa and rest of SADC | 15.7 | 6.2 | 10.5 | 6.4 | 5.8 | 9.0 | 11.9 | 11.5 | 7.1 |
| | Nigeria | 5.1 | 2.4 | 5.1 | 2.2 | 2.9 | 5.8 | 5.7 | 6.8 | 4.3 |
| | Senegal | 5.7 | 6.6 | 6.5 | 6.7 | 7.4 | 8.9 | 6.3 | 6.7 | 6.8 |
| | Rest of Western, Central and Eastern Africa | 12.9 | 7.9 | 7.4 | 7.1 | 9.3 | 6.4 | 7.2 | 7.3 | 8.2 |
| | Rest of Africa | 0.0 | 0.2 | 0.1 | -0.1 | 0.1 | -0.1 | 0.1 | 0.2 | 0.1 |
| | Caribbean and Pacific | 74.1 | -10.1 | -9.1 | -7.7 | -8.0 | -8.2 | -7.1 | -7.0 | -8.8 |
| | Rest of the World | 0.0 | 0.0 | 0.1 | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 |

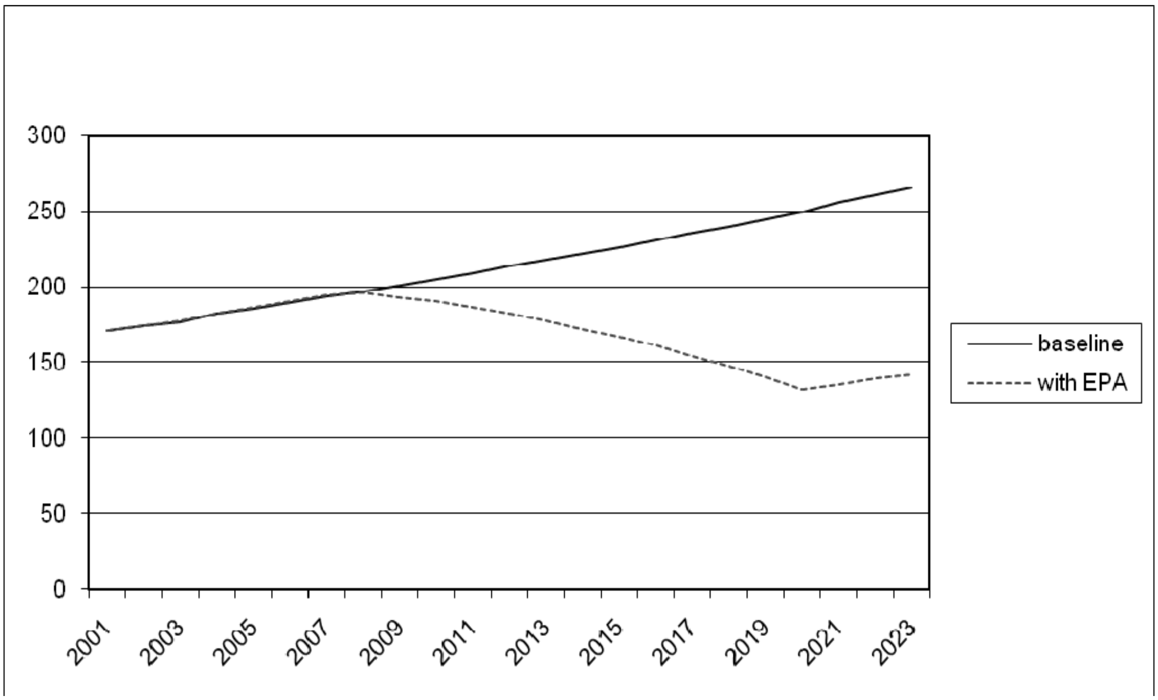
**Table 13. Continued**

| Exporters | Importers: South Africa | Southern African Development Community (SADC) | Eastern and Southern Africa | Rest of Eastern and Southern Africa and rest of SADC | Nigeria | Senegal | Rest of Western, Central and Eastern Africa | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| European Union – 27 | 1.3 | 38.3 | 39.4 | 39.5 | 28.1 | 14.3 | 31.3 | 0.2 | 48.2 | 0.2 |
| United States | 1.3 | 2.7 | 1.3 | -17.8 | -15.4 | -12.3 | -15.4 | -0.2 | 0.5 | 0.0 |
| Rest of North and Central America | 2.3 | 14.2 | 6.6 | -10.1 | -7.0 | -9.8 | -8.9 | -0.3 | 2.1 | -0.1 |
| South America | 3.8 | 16.8 | 12.9 | -21.5 | -13.4 | -14.2 | -10.4 | -0.1 | 2.6 | 0.0 |
| China | 3.5 | 11.3 | 2.4 | -12.0 | -13.0 | -12.0 | -10.2 | -0.1 | 1.7 | 0.0 |
| India | 2.9 | 11.7 | 4.1 | -12.1 | -13.8 | -11.3 | -10.6 | 0.0 | 2.3 | 0.1 |
| Japan | 1.2 | 0.8 | -5.9 | -11.7 | -25.8 | -19.5 | -19.9 | 0.0 | -8.0 | 0.0 |
| Thailand | 2.5 | 14.5 | 6.2 | -12.3 | -8.8 | -6.7 | -10.1 | -0.2 | 2.8 | 0.0 |
| Rest of Asia | 2.8 | 14.0 | 5.5 | -11.0 | -11.7 | -9.6 | -10.6 | -0.2 | 2.2 | 0.0 |
| South Africa | | 13.0 | 2.9 | -19.6 | -15.3 | -13.8 | -12.5 | -2.1 | 1.3 | -2.3 |
| Southern African Development Community (SADC) | -28.7 | 52.4 | -25.5 | -38.2 | -32.9 | -32.7 | -38.7 | -24.1 | -28.5 | -28.5 |
| Eastern and Southern Africa | -14.0 | 5.9 | -9.8 | 626.6 | -22.4 | -22.2 | -14.7 | -19.6 | -4.9 | -15.6 |
| Rest of Eastern and Southern Africa and rest of SADC | 17.3 | 90.1 | 26.2 | 1.0 | 3.9 | 2.3 | 21.5 | 11.4 | 3.1 | 12.1 |
| Nigeria | 3.9 | 25.9 | 13.6 | -2.2 | | -2.6 | -9.2 | 7.6 | -3.8 | 6.2 |
| Senegal | 8.5 | 22.7 | 14.4 | -5.9 | 37.8 | | 2.6 | 7.7 | 13.3 | 6.5 |
| Rest of Western, Central and Eastern Africa | 12.3 | 35.5 | 24.3 | 4.9 | 70.6 | -0.6 | 8.0 | 7.3 | 10.0 | 7.9 |
| Rest of Africa | 2.6 | 16.0 | 6.7 | -16.7 | -11.1 | -11.7 | -10.4 | 0.0 | 4.1 | 0.1 |
| Caribbean and Pacific | -4.7 | 4.6 | -0.2 | -16.1 | -15.1 | -15.2 | -16.9 | -9.0 | 30.0 | -8.1 |
| Rest of the World | 2.2 | 14.0 | 9.0 | -12.4 | -13.4 | -10.1 | -10.2 | -0.1 | 3.1 | 0.0 |

Source: Authors' calculations based on GTAP6.2 database.

Not surprisingly, one of the major negative consequences of the EPA on Senegal and other Western African countries is the loss of public revenues. It is well known that for most developing countries, import duties constitute an important share of their public revenues. By dismantling trade barriers on imports coming from their main trading partner, these countries lose this revenue source. For example, in 2007, tariff revenues for Senegal amounted to US$194 million, or 26.3 percent of Senegal's total public revenues. Under the EPA reform, Senegal experiences a loss of 46.6 percent (US$124 million) in tariff revenues. In other words, in 2023, tariff revenues for Senegal are expected to reach US$266 million in the baseline (without implementation of EPAs), whereas following the EPA reform they are estimated at US$142 million (Figure 1). Nigeria experiences a 31 percent decline in tariff revenues, and revenues for the rest of ECOWAS decline more than 37 percent. This is an extremely important policy conclusion because it has been a key concern for developing countries throughout the debate of trade reform, and its effects could have far-reaching consequences.[29]

**Figure 1. Evolution of Senegal's tariff revenues (US$ million)**




In terms of welfare, the EPA scenario implies a world real income gain of $11.505 billion. This type of reform yields great benefits for the SADC, ESA, and the Caribbean and Pacific, and to a lesser extent for the European Union. Other EPA-negotiating countries including Senegal, Nigeria, and the rest of ECOWAS countries (WECA) lose from this reform. Indeed, Senegal's real income is reduced by 0.3 percent mainly because of a significant deterioration in its terms of trade (down 0.8 percent). For all other countries not engaged in EPA talks, real income is unaffected (see Table 9)

The impact on welfare is stronger under the scenario of full trade liberalization set up by this study. Full trade liberalization increases world real income by US$337.091 billion in 2023 (a 0.67 percent increase from the baseline economy). Most African countries engaged in talks with the European Union lose from full trade liberalization—except for ESA and Nigeria—mainly because of deterioration in the terms of trade (see Table 9). This type of liberalization is expected to increase world agricultural prices

[29] In the MIRAGE model, as in other similar models such as LINKAGE and GTAP, the loss of tariff revenue coming from trade liberalization is supposed to be entirely compensated for by a lump-sum tax.

and thus negatively affect food-importing countries such as Senegal and the rest of ESA and SADC. Among agricultural products, cereals, wheat, other agricultural products, raw milk, and dairy experience the highest increases in world prices. Moreover, liberalization increases competition for countries initially benefiting from preferential schemes by eroding them for most African countries that have been primary beneficiaries of such arrangements.

**Table 14. Returns to factors in 2023 (%)**

| Region | Real return to capital | Real return to land | Real return to natural resources | Skilled real wages | Unskilled real wages |
|---|---|---|---|---|---|
| China | 0.01 | -0.01 | -0.05 | 0.01 | 0.01 |
| Eastern and Southern Africa | -2.19 | 5.39 | 0.61 | 0.91 | 3.09 |
| Rest of Western, Central and Eastern Africa | -0.69 | 0.20 | -0.62 | -1.04 | -0.48 |
| European Union – 27 | 0.03 | -0.47 | 0.20 | 0.16 | 0.10 |
| India | -0.01 | 0.00 | -0.01 | -0.02 | -0.01 |
| Japan | 0.00 | 0.03 | 0.02 | -0.01 | 0.00 |
| Rest of North and Central America | 0.00 | -0.03 | -0.14 | 0.01 | 0.01 |
| Nigeria | 0.78 | -4.84 | -0.81 | -1.72 | -4.89 |
| Caribbean and Pacific | 0.18 | 10.03 | -5.49 | -0.17 | 0.58 |
| Rest of Africa | 0.02 | -0.11 | 0.06 | 0.03 | -0.01 |
| Rest of Asia | 0.00 | 0.00 | -0.07 | 0.01 | 0.01 |
| Rest of the World | 0.01 | -0.10 | -0.02 | 0.03 | 0.01 |
| Rest of Eastern and Southern Africa and rest of SADC | 1.28 | -9.17 | 1.25 | -1.34 | -2.62 |
| Southern African Development Community (SADC) | -0.61 | 12.95 | 0.99 | -2.19 | 2.50 |
| South America | 0.00 | -0.11 | -0.06 | 0.00 | 0.00 |
| **Senegal** | **-0.72** | **-2.34** | **-1.82** | **-0.50** | **-1.61** |
| South Africa | 0.02 | 0.98 | -1.13 | 0.12 | 0.16 |
| Thailand | 0.01 | -0.02 | -0.06 | 0.00 | 0.00 |
| United States | 0.00 | 0.05 | -0.10 | -0.01 | 0.00 |

Finally, Table 14 illustrates the return to factors following the EPA reform. It gives percentage changes in 2023 of return to capital, land, natural resources, and wages for skilled and unskilled labor. Evidently, the EPA has a negative effect in each of these areas in Senegal. An important implication of these results is that an EPA implies a negative impact on poverty as reflected by a negative impact on real wages for unskilled labor, which is primarily associated with the rural sector.

How do these findings compare with those of other EPA studies? Using the MIRAGE model, Bouët et al. (2007) show that the main beneficiaries of EPAs would be European exporters, whereas ACP countries would experience fewer benefits in terms of exports. Most importantly, non-ACP countries not engaged in EPA negotiations stand to lose because of the trade diversions that the agreements imply. For Senegal, Bouët et al. found that an EPA would not lead to substantial increases in its exports because it already benefits from excellent access to the European market; its tariff revenues would decline by more than 45 percent as a result of the reform. Further, the authors concluded that the implementation of EPAs would damage the geographic diversification of imports for ACP countries, suggesting the need to introduce multilateralism into the agreements.

The United Nations Economic Commission for Africa, in another study of EPAs using the computable general equilibrium approach, forecasts negative effects for ACP countries if they apply to the European Union the same preferential treatment from which they currently benefit (Karingi et al.

2006). Specifically, Sub-Saharan African countries would experience a decline in revenues, their terms of trade would deteriorate, and their imports would rise more steadily than their exports. On the other hand, the analysis shows that the impact on ACP countries could be more favorable if a free trade zone between the European Union and SSA is established. Nevertheless, the study concludes that the benefits from such a scenario would only be realized at the cost of extensive macroeconomic adjustments.

Several EPA studies used the partial equilibrium (PE) approach, which allows for a more detailed analysis of the EPA effects at the sector and country level. Generally, those studies affirm the conclusion that the main beneficiaries of the EPAs would be European exporters, because the agreements would lead to declining prices of imports from Europe, thus reducing imports from non-EU countries. The United Nations Economic Commission for Africa forecasts an increase of more than 20 percent in European exports; consumer welfare would increase by US$509 million, accompanied by US$1.972 billion in fiscal losses (Karingi et al. 2006). Other studies reveal similar results and affirm the potential negative impact of EPAs on ACP public revenues (Busse et al. 2004; COMESA Secretariat 2003; Scollay 2002; and Tekere and Ndlela 2003).

Similarly, in a recent study, Fontagne et al. (2007) predict a 10.7 percent increase in the volume of ACP exports to the European Union by 2022, with the livestock sector experiencing the largest increase. In addition, the study assesses an average loss of tariff revenues on EU imports for all ACP countries of 71 percent by 2022, whereas ECOWAS stands to be the region most affected. The authors attribute most of the losses to trade diversion effects, whereby untaxed imports from the European Union replace taxed imports from the rest of the world.  ECOWAS would face a tariff revenue decline of less than 38 percent, whereas the average decline for all ACPs in 2022 would be 26 percent.

It should be noted, however, that comparing findings of various EPA studies is not a straightforward task. There are important differences in these analyses both in terms of their methodological approach and the specific parameters that they employ in designing trade scenarios. Therefore, although the trends may be similar, the magnitude of the impacts of EPAs varies from one study to the other. Further, some aspects of economics are not captured by these analyses—most notably, adjustment costs of ACP economies that entail reallocation of various economic factors across sectors.

## 5. CONCLUSIONS AND POLICY IMPLICATIONS

This study analyzed the potential impact of Economic Partnership Agreements between the European Union and six groups of African, Caribbean, and Pacific countries. First, the reform involves dismantling trade barriers within each negotiating group of ACP countries to promote the regional integration envisioned in the Cotonou Agreement and in their own institutional platforms. Second, EPAs impose asymmetrical trade reform with regard to both length and scope of liberalization, allowing ACP countries longer periods to implement the reform and exempt certain sensitive products from liberalization.

For Senegal, the EPA reform would not significantly improve its market access to the European Union. The country's current trade structure is characterized by good access to EU market as a result of preferential schemes such as Cotonou Agreement and the Everything But Arms initiative. This raises the question of whether the EPA aligns with Senegal's development objectives and whether the country has other alternatives it could pursue.

Several important conclusions can be drawn from this study. First, the results show that EPAs can be trade creating for some developing countries and trade diverting for others. Thus, based on the outcome of the reform, developing countries can be divided into two groups. The first group includes countries for which the reform is trade creating, such as the SADC, ESA, and the Caribbean and Pacific. For those countries, EPAs would increase their exports to both the European Union and their own negotiating areas. In addition, after the reform, countries in the first group would import more from all regions. The second group, on the other hand, comprises countries for which the reform is trade diverting, such as Nigeria, Senegal, and WECA. After the reform, imports to those countries would come primarily from the European Union and much less from most of other regions. Real income gains resulting from EPAs also distinguish the two classifications of developing countries: the first group would see increases in its real income whereas the second group of countries would experience real income decreases.

The second main conclusion of this study has to do with public revenues. It is well known that for most developing countries, import duties constitute an important share of their national revenues. In case of Senegal, import duties constitute more than 26 percent of its public revenues. Under the EPA reform, Senegal would experience a loss of more than 46 percent in its public revenues, Nigeria's public revenue would decline 31 percent, and the rest of ECOWAS would see declines exceeding 37 percent. This is an extremely important policy conclusion, reaffirming the concerns of developing countries that fear EPAs threaten their fiscal stability.

In addition, the unique trading features of some African countries, including Senegal, could lead to negative consequences from EPAs. Indeed, although EPAs would not change world agricultural prices overall, many key agricultural sectors for certain ACP countries would see significant decreases in world prices (e.g., wheat, paddy and processed rice, raw milk and dairy products, and other food products).

The study results also show that EPA reform would deteriorate the terms of trade of many negotiating countries and would not offer them a substantial increase in market access. As a result, if the aim of reform is not only to ensure WTO compatibility but also to promote development in the ACP countries, alternatives that do not hurt these countries should be explored.

Although the Cotonou Agreement is not WTO compatible, EBA does comply with WTO rules, enabling developed countries to extend trade preferences to least developed countries. As an LDC, Senegal enjoys EU market access not threatened by the expiration of the Cotonou Agreement, because it can retain trade preferences through EBA. Consequently, the necessity of the EPA reform for Senegal and other Western African countries, most of which are LDCs (except Nigeria, Ghana, and Ivory Coast), becomes hard to justify in light of the losses they could incur from it.

Multilateral trade liberalization would produce a potentially better outcome than economic partnership agreements. However, many issues need to be addressed before any type of liberalization can occur among main trading partners. For example, fiscal reform in developing countries must address the problem of revenue loss. In addition, supply-side constraints have to be mitigated through improvements in public infrastructure and institutions that enhance developing countries' global competitiveness. Finally, mechanisms, such as aid for trade, are needed to compensate possible losers from liberalization.

## APPENDIX: SUPPLEMENTARY TABLES

**Table A.1. Initial trade and average applied and faced protection for Senegal at the most available detailed level of GTAP6.2 regions (2001)**

| | Average tariffs faced by Senegal on its exports | Senegal exports in value ($ mios) | Average tariffs applied by Senegal on its imports | Senegal imports in value ($ mios) |
|---|---|---|---|---|
| Albania | 12.58% | 0.000 | **17.88%** | 0.006 |
| Argentina | 10.42% | 0.005 | 10.35% | 13.358 |
| Australia | 1.55% | 0.116 | 7.37% | 5.455 |
| Bangladesh | **18.34%** | 0.175 | 9.93% | 0.068 |
| Bolivia | 9.67% | 0.045 | 5.45% | 0.000 |
| Brazil | 11.88% | 2.496 | 10.08% | 22.068 |
| Botswana | 7.49% | 0.000 | 7.46% | 0.011 |
| Canada | 0.13% | 2.995 | 8.67% | 23.164 |
| Switzerland | 7.95% | 5.253 | 5.95% | 10.833 |
| Chile | 6.97% | 0.000 | 9.79% | 0.550 |
| China | **15.97%** | 7.664 | 11.12% | **54.355** |
| Colombia | **16.08%** | 0.000 | 13.14% | 0.763 |
| Ecuador | **15.12%** | 0.003 | 9.42% | 0.139 |
| Egypt | **24.04%** | 0.017 | 5.96% | 6.003 |
| European Union | 0.01% | **373.100** | 8.29% | **973.974** |
| Hong Kong | 0.00% | 5.490 | 10.61% | 3.736 |
| Croatia | 4.22% | 0.000 | 6.28% | 0.014 |
| Indonesia | 4.88% | 0.196 | 11.02% | 16.616 |
| India | **30.39%** | **114.952** | 10.24% | **44.433** |
| Iran, Islamic Republic of | 5.96% | 0.000 | 12.35% | 3.283 |
| Japan | 4.81% | 5.853 | 10.20% | **42.492** |
| Cambodia | 11.67% | 0.000 | 7.13% | 0.000 |
| Korea | 11.21% | 1.320 | 11.44% | 12.290 |
| Sri Lanka | 11.47% | 0.015 | 10.29% | 0.097 |
| Morocco | **35.39%** | 2.645 | 7.25% | 16.890 |
| Madagascar | 2.40% | 0.122 | **17.65%** | 0.050 |
| Mexico | **15.86%** | 1.610 | 9.19% | 0.146 |
| Mozambique | 8.22% | 0.076 | 9.12% | 0.000 |
| Mauritius | **17.03%** | 0.006 | 11.20% | 0.045 |
| Malawi | 7.43% | 0.035 | 11.68% | 0.101 |
| Malaysia | 2.01% | 0.708 | 10.81% | 3.023 |
| Nigeria | **22.56%** | 2.991 | 0.29% | **174.034** |
| New Zealand | 0.05% | 0.000 | 8.18% | 1.301 |
| Pakistan | 14.44% | 0.241 | 10.21% | 0.556 |
| Peru | 12.17% | 0.063 | 12.77% | 0.253 |
| Philippines | 5.84% | 0.258 | 9.09% | 0.198 |
| Paraguay | 11.27% | 0.017 | 8.96% | 0.131 |
| Russian Federation | 6.70% | 0.056 | 7.94% | 22.164 |
| Singapore | 0.01% | 0.169 | 9.40% | 4.972 |

**Table A.1. Continued**

| | Average tariffs faced by Senegal on its exports | Senegal exports in value ($ mios) | Average tariffs applied by Senegal on its imports | Senegal imports in value ($ mios) |
|---|---|---|---|---|
| Thailand | **34.20%** | 1.172 | 11.43% | **106.178** |
| Tunisia | **30.86%** | 3.675 | 7.90% | 11.279 |
| Turkey | **30.28%** | 0.264 | 13.24% | 14.943 |
| Taiwan | **84.00%** | 0.424 | 9.83% | 2.608 |
| Tanzania | 11.69% | 0.101 | 14.53% | 0.387 |
| Uganda | 8.56% | 0.039 | 12.19% | 0.022 |
| Uruguay | 9.83% | 0.000 | 10.18% | 1.528 |
| United States of America | 0.29% | 7.327 | 9.98% | **105.946** |
| Venezuela | 16.16% | 0.008 | 1.35% | 0.676 |
| Viet Nam | 14.06% | 0.026 | 11.04% | 19.900 |
| Central America | 5.05% | 0.010 | 14.39% | 0.013 |
| Rest of the Caribbean | 6.25% | 0.057 | 11.52% | 0.092 |
| Rest of East Asia | N/A | N/A | 12.92% | 0.142 |
| Rest of EFTA | 12.92% | 0.086 | 7.29% | 1.740 |
| Rest of Europe | 8.53% | 0.008 | 8.19% | 0.505 |
| Rest of Free Trade Area of the Americas | **18.75%** | 0.015 | 12.85% | 1.484 |
| Rest of Middle East | 12.64% | 3.014 | 7.01% | 19.247 |
| Rest of North America | 9.02% | 0.000 | 9.29% | 0.000 |
| Rest of North Africa | **17.33%** | 0.217 | 5.27% | 0.770 |
| Rest of Oceania | 10.55% | 0.000 | 7.71% | 0.000 |
| Rest of South Asia | **26.36%** | 0.000 | 14.66% | 0.044 |
| Rest of South African Customs Union | 8.26% | 0.443 | 10.70% | 0.557 |
| Rest of Southern African Development Community | **33.07%** | 0.000 | 5.23% | 2.852 |
| Rest of Southeast Asia | 8.03% | 0.049 | 13.79% | 0.006 |
| Rest of South America | 10.03% | 0.000 | 10.03% | 0.000 |
| Rest of Sub-Saharan Africa | 10.54% | **148.641** | 5.07% | **82.475** |
| Rest of Former Soviet Union | 8.68% | 0.000 | 9.04% | 7.270 |
| South Africa | 7.44% | 0.486 | 7.28% | **21.854** |
| Zambia | 10.04% | 0.151 | 10.08% | 0.048 |
| Zimbabwe | 14.94% | 0.012 | 6.17% | 0.643 |

Source: Authors' calculations based on the MAcMap-HS6 database.

**Table A.2. Initial trade and average applied and faced protection for Senegal at the most available detailed level of GTAP6.2 sectors (2001)**

| | **Average tariffs faced by Senegal on its exports toward European Union** | **Senegal exports to European Union in value ($ mios)** | **Average tariff faced by Senegal countries on its exports toward the Rest of the World** | **Senegal countries exports to the Rest of the World in value ($ mios)** | **Average tariffs applied by Senegal on its imports from European Union** | **Senegal imports from European Union in value ($ mios)** | **Average tariffs applied by Senegal countries on its imports from the Rest of the World** | **Senegal countries imports from the Rest of the World in value ($ mios)** |
|---|---|---|---|---|---|---|---|---|
| Beverages and tobacco products | **18.84%** | 0.012 | **55.9%** | 3.967 | **17.37%** | **10.341** | **18.4%** | 17.603 |
| Sugar cane. sugar beet | *N/A* | *N/A* | *N/A* | *N/A* | *N/A* | *N/A* | 5.0% | 0.000 |
| Meat: cattle.sheep.goats.horse | 0.14% | 0.021 | 12.2% | 0.089 | **19.45%** | 0.335 | **15.8%** | 3.629 |
| Coal | *N/A* | *N/A* | *N/A* | *N/A* | 5.00% | 0.011 | 5.0% | 0.011 |
| Chemical.rubber.plastic prods | 0.08% | 5.137 | **19.4%** | **151.297** | 6.15% | **164.936** | 7.0% | **256.415** |
| Cattle.sheep.goats.horses | N/A | N/A | *N/A* | *N/A* | 7.30% | 0.104 | 11.9% | 0.214 |
| Electronic equipment | 0.00% | 5.948 | 1.9% | 8.825 | 8.02% | **55.266** | 8.1% | **75.025** |
| Electricity | *N/A* | *N/A* | *N/A* | *N/A* | 5.00% | 0.000 | 4.2% | 0.000 |
| Metal products | 0.01% | 2.201 | **16.6%** | 5.879 | **14.97%** | **35.999** | **15.2%** | **51.958** |
| Forestry | 0.00% | 1.917 | 0.3% | 1.926 | 5.11% | 0.178 | 4.7% | 3.101 |
| Fishing | 0.00% | **38.378** | 3.1% | 41.751 | 8.28% | 0.019 | 13.1% | 0.227 |
| Gas | *N/A* | *N/A* | *N/A* | *N/A* | 5.00% | 0.000 | 5.0% | 0.000 |
| Gas manufacture. distribution | *N/A* | *N/A* | *N/A* | *N/A* | 5.00% | 0.000 | 5.0% | 0.000 |
| Cereal grains nec | *N/A* | *N/A* | **37.2%** | 0.008 | 5.00% | 0.088 | 5.0% | 5.502 |
| Ferrous metals | 0.02% | 2.472 | **16.9%** | 4.491 | 8.56% | **28.626** | 8.8% | **58.255** |
| Leather products | 0.02% | 6.854 | 1.9% | 7.251 | **12.27%** | 2.956 | 13.6% | 8.281 |
| Wood products | 0.00% | 1.210 | **21.4%** | 3.205 | **15.55%** | **10.395** | 13.1% | 44.423 |
| Dairy products | **9.14%** | 0.010 | **41.3%** | 0.237 | 9.57% | **30.604** | 9.1% | 36.901 |
| Motor vehicles and parts | 0.00% | 4.863 | 11.0% | 7.133 | **12.18%** | **75.331** | 12.1% | **106.206** |
| Metals nec | 0.00% | 1.886 | 7.2% | 3.251 | 6.50% | 9.990 | 5.9% | 13.444 |
| Mineral products nec | 1.10% | 0.047 | **19.5%** | 9.432 | **16.79%** | **25.322** | **16.0%** | 41.709 |
| Animal products nec | 0.00% | 4.635 | 1.1% | 6.617 | 6.78% | 1.539 | 7.5% | 2.039 |
| Crops nec | 0.39% | 0.368 | 10.6% | 1.378 | 6.01% | 7.003 | 10.8% | 32.893 |
| Food products nec | 0.00% | **162.773** | 5.3% | **209.563** | **13.91%** | **59.342** | 14.7% | **85.725** |

**Table A.2. Continued**

| | Average tariffs faced by Senegal on its exports toward European Union | Senegal exports to European Union in value ($ mios) | Average tariff faced by Senegal countries on its exports toward the Rest of the World | Senegal countries exports to the Rest of the World in value ($ mios) | Average tariffs applied by Senegal on its imports from European Union | Senegal imports from European Union in value ($ mios) | Average tariffs applied by Senegal countries on its imports from the Rest of the World | Senegal countries imports from the Rest of the World in value ($ mios) |
|---|---|---|---|---|---|---|---|---|
| Oil | 1.07% | 0.000 | 9.8% | 6.485 | 0.00% | 0.000 | 0.0% | **177.599** |
| Machinery and equipment nec | 0.00% | 9.222 | 7.6% | 18.204 | 7.41% | **201.348** | 8.1% | **271.274** |
| Manufactures nec | 0.01% | 4.402 | 5.4% | 6.325 | **16.70%** | **10.342** | **16.2%** | 16.641 |
| Minerals nec | 0.00% | **11.787** | 6.8% | 42.810 | 5.00% | 3.169 | 5.0% | 18.345 |
| Meat products nec | 0.00% | 0.039 | **26.0%** | 0.109 | **19.65%** | 4.769 | **18.2%** | 6.225 |
| Oil seeds | 0.00% | 1.529 | **24.5%** | 2.280 | 5.01% | 0.146 | 6.6% | 2.253 |
| Transport equipment nec | 0.07% | 4.665 | 2.4% | 5.634 | 5.41% | **31.295** | 7.1% | **56.099** |
| Petroleum. coal products | 0.26% | 0.001 | **17.4%** | 11.163 | 7.51% | **75.239** | 6.9% | **90.302** |
| Processed rice | *N/A* | *N/A* | **51.5%** | 0.049 | **10.00%** | 0.511 | 10.0% | **132.915** |
| Paddy rice | *N/A* | *N/A* | **47.6%** | 0.000 | 8.41% | 0.000 | 6.2% | 0.145 |
| Plant-based fibers | 0.00% | 3.294 | 2.0% | 8.206 | 5.00% | 0.005 | 4.5% | 0.054 |
| Paper products. publishing | 0.33% | 0.470 | **20.7%** | 5.727 | 7.54% | **32.715** | 7.5% | 48.096 |
| Sugar | 0.00% | 1.986 | 13.5% | 2.181 | **19.96%** | **11.279** | **19.8%** | 11.507 |
| Textiles | 0.03% | 4.410 | 11.0% | 12.189 | **16.91%** | **17.429** | **16.7%** | **75.677** |
| Vegetables, fruit, nuts | 0.00% | **12.564** | 8.4% | 16.492 | **18.88%** | **13.512** | **17.7%** | 19.652 |
| Vegetable oils and fats | 0.00% | **79.766** | 10.5% | **90.449** | **17.53%** | **21.240** | **14.7%** | 44.241 |
| Wearing apparel | 0.26% | 0.233 | 17.0% | 0.312 | **19.73%** | 3.012 | **19.8%** | 12.811 |
| Wheat | *N/A* | *N/A* | *N/A* | *N/A* | 5.00% | **29.576** | 5.0% | 33.383 |
| Wool. silk-worm cocoons | *N/A* | *N/A* | *N/A* | *N/A* | 5.00% | 0.000 | 5.0% | 0.000 |

Source: Authors' calculations based on the MAcMap-HS6 database

**Table A.3. Initial trade and average applied and faced protection for ECOWAS at the most available detailed level of GTAP6.2 sectors (2001)**

| | Average tariffs faced by ECOWAS countries on its exports toward European Union | ECOWAS countries exports to European Union in value ($ mios) | Average tariffs applied by ECOWAS countries on its imports from European Union | ECOWAS countries imports from European Union in value ($ mios) |
|---|---|---|---|---|
| Beverages and tobacco products | 0.48% | 6.720 | **80.97%** | **254.300** |
| Sugar cane. sugar beet | 6.72% | 0.080 | 12.75% | 0.000 |
| Meat: cattle.sheep.goats.horse | 4.98% | 0.117 | **17.43%** | 10.143 |
| Coal | 0.00% | 0.232 | 6.83% | 3.852 |
| Chemical.rubber.plastic prods | 0.02% | **215.286** | **15.10%** | **1520.629** |
| Cattle.sheep.goats.horses | 0.00% | 0.038 | 12.67% | 0.212 |
| Electronic equipment | 0.00% | 28.299 | 10.25% | 612.610 |
| Electricity | *N/A* | *N/A* | 10.09% | 0.000 |
| Metal products | 0.04% | 11.010 | 24.11% | **266.381** |
| Forestry | 0.00% | 64.915 | 11.41% | 1.009 |
| Fishing | 0.00% | 65.036 | 8.43% | 1.163 |
| Gas | 0.00% | **281.043** | **19.94%** | 0.360 |
| Gas manufacture. distribution | *N/A* | *N/A* | 12.46% | 0.012 |
| Cereal grains nec | 2.85% | 0.057 | **46.28%** | 0.554 |
| Ferrous metals | 0.22% | 6.279 | **17.05%** | **308.388** |
| Leather products | 0.01% | **146.241** | **28.39%** | 45.537 |
| Wood products | 0.00% | **400.007** | **36.84%** | 63.361 |
| Dairy products | **27.40%** | 1.243 | **15.76%** | **260.596** |
| Motor vehicles and parts | 0.02% | 32.332 | **16.99%** | **930.915** |
| Metals nec | 0.00% | **338.323** | 10.79% | 87.310 |
| Mineral products nec | 0.08% | 1.306 | **23.38%** | **193.341** |
| Animal products nec | 0.01% | 13.870 | **29.01%** | 8.587 |
| Crops nec | 0.00% | **1284.443** | 14.70% | 34.824 |
| Food products nec | 0.31% | **857.313** | **30.10%** | **679.965** |
| Oil | 0.00% | **3622.469** | 2.56% | 1.096 |
| Machinery and equipment nec | 0.05% | 66.663 | 11.40% | **1990.801** |
| Manufactures nec | 0.01% | 16.251 | **32.54%** | **189.303** |
| Minerals nec | 0.00% | **741.562** | 10.94% | 20.665 |
| Meat products nec | **12.32%** | 4.021 | **58.15%** | **107.076** |
| Oil seeds | 0.00% | 34.595 | 6.69% | 0.525 |
| Transport equipment nec | 0.06% | **377.138** | 8.98% | **301.617** |
| Petroleum. coal products | 0.00% | 65.356 | **24.73%** | **356.011** |
| Processed rice | **34.59%** | 0.066 | **54.71%** | 7.711 |
| Paddy rice | *N/A* | *N/A* | **41.29%** | 0.044 |
| Plant-based fibers | 0.00% | **110.453** | 6.40% | 0.098 |
| Paper products. publishing | 0.01% | 29.452 | 11.65% | **329.245** |
| Sugar | **115.76%** | 14.861 | **16.05%** | **134.151** |
| Textiles | 0.02% | 55.065 | **38.22%** | **222.649** |
| Vegetables. fruit. nuts | **11.08%** | **328.164** | **56.00%** | 33.471 |
| Vegetable oils and fats | 0.05% | **114.073** | **46.54%** | 67.772 |
| Wearing apparel | 0.03% | 6.972 | **39.83%** | 29.245 |
| Wheat | **22.11%** | 0.000 | 5.57% | 111.482 |
| Wool. silk-worm cocoons | 0.00% | 0.097 | 9.54% | 0.000 |

Source: Authors' calculations based on the MAcMap-HS6 database

**Table A.4. Initial protection faced on meat (2001)**

| | Importer | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Exporter** | **European Union – 27** | **United States** | **Rest of North and Central America** | **South America** | **China** | **India** | **Japan** | **Thailand** | **Rest of Asia** |
| European Union – 27 | | 3.0% | 36.4% | 11.9% | 20.0% | 62.7% | 58.3% | 41.6% | 13.5% |
| United States | 32.3% | | 15.3% | 11.3% | 12.9% | 59.2% | 45.9% | 45.5% | 9.6% |
| Rest of North and Central America | 37.8% | 0.0% | 9.3% | 12.2% | 20.5% | 46.5% | 65.8% | 44.7% | 11.5% |
| South America | 49.0% | 5.6% | 76.2% | 6.3% | 28.9% | 50.7% | 35.2% | 52.8% | 13.3% |
| China | 24.7% | 6.9% | 90.5% | 12.0% | | 42.1% | 34.2% | 47.5% | 14.4% |
| India | 183.0% | 4.9% | 22.7% | 14.9% | 38.7% | | 41.0% | 59.6% | 7.8% |
| Japan | 13.9% | 2.9% | 13.3% | 14.1% | 20.4% | 43.9% | | 33.1% | 8.0% |
| Thailand | 25.8% | 5.7% | 104.2% | 12.9% | 12.5% | 91.9% | 20.4% | | 30.1% |
| Rest of Asia | 17.1% | 3.1% | 25.2% | 11.0% | 16.6% | 38.6% | 41.5% | 31.7% | 9.3% |
| South Africa | 23.0% | 0.7% | 15.8% | 12.4% | 20.7% | 55.8% | 12.7% | 42.6% | 18.4% |
| SADC | **81.4%** | 3.8% | 15.2% | 7.7% | 25.7% | 33.6% | 48.2% | 38.0% | 8.6% |
| ESA | **81.3%** | 4.3% | 22.2% | 11.4% | 24.9% | 35.0% | 37.3% | 60.0% | 12.5% |
| Rest of ESA and SADC | 0.0% | 0.7% | 18.3% | 7.9% | 12.8% | 35.0% | 11.8% | 12.0% | 6.3% |
| Nigeria | 78.2% | 0.0% | 2.2% | 12.4% | 23.0% | N/A | 28.0% | 10.0% | 8.1% |
| Senegal | **0.0%** | 0.0% | 9.0% | 11.1% | 40.0% | 55.7% | 33.7% | 60.0% | 17.1% |
| WECA | 3.9% | 0.4% | 9.9% | 6.8% | 30.4% | 66.0% | 30.5% | 58.0% | 1.7% |
| Rest of Africa | 28.0% | 2.0% | 19.1% | 10.0% | 9.6% | 86.9% | 14.8% | 25.5% | 6.8% |
| Caribbean and Pacific | **23.6%** | 2.1% | 20.0% | 15.5% | 23.2% | 48.9% | 25.8% | 34.1% | 20.8% |
| Rest of the World | 58.1% | 3.1% | 15.2% | 9.7% | 16.6% | 31.3% | 31.0% | 30.5% | 10.5% |

**Table A.4. Continued**

| Exporter | Importer: South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| European Union – 27 | 14.3% | 22.0% | 23.1% | 29.4% | 70.2% | 19.5% | 28.1% | 63.4% | 16.3% | 61.7% |
| United States | 12.6% | 16.3% | 29.1% | 26.1% | 29.3% | 15.6% | 21.2% | 53.6% | 19.1% | 43.5% |
| Rest of North and Central America | 13.8% | 21.1% | 17.3% | 24.5% | 73.6% | 16.7% | 21.1% | 59.8% | 14.6% | 59.0% |
| South America | 16.6% | 24.0% | 32.5% | 25.6% | 73.9% | 17.5% | 28.9% | 69.3% | 24.3% | 48.3% |
| China | 10.5% | 14.2% | 49.3% | 25.7% | 97.2% | 19.7% | 26.1% | 65.6% | 25.8% | 64.1% |
| India | 20.2% | 32.4% | 8.5% | 25.1% | 22.9% | 19.6% | 26.0% | 82.2% | 21.2% | 61.4% |
| Japan | 20.1% | 18.4% | 18.5% | 37.7% | 75.0% | 16.9% | 21.2% | 46.8% | 15.2% | 33.6% |
| Thailand | 10.9% | 10.3% | 46.6% | 29.7% | 75.0% | 18.9% | 23.8% | 64.2% | 19.4% | 85.8% |
| Rest of Asia | 14.4% | 10.1% | 8.8% | 27.1% | 5.6% | 12.3% | 12.0% | 55.7% | 20.1% | 34.2% |
| South Africa | | 19.8% | 14.2% | 27.0% | 58.0% | 15.7% | 26.9% | 64.8% | 18.6% | 40.4% |
| SADC | 0.0% | **11.8%** | 7.3% | **21.8%** | 38.9% | 9.1% | 26.2% | 52.5% | 17.9% | 38.6% |
| ESA | 10.3% | 20.6% | **0.0%** | **23.9%** | 43.6% | 20.0% | **8.8%** | 44.7% | 22.8% | 43.1% |
| Rest of ESA and SADC | 0.0% | 0.5% | 7.5% | | N/A | 5.0% | 15.3% | 54.9% | 8.6% | 33.7% |
| Nigeria | N/A | 18.7% | 4.5% | N/A | | N/A | 17.6% | 20.3% | 2.0% | 17.6% |
| Senegal | 40.0% | 9.9% | 13.9% | 25.0% | 18.3% | | 15.9% | 87.8% | 22.0% | 18.6% |
| WECA | 10.7% | 17.8% | 5.0% | 17.8% | 23.0% | 9.0% | 14.0% | 39.0% | 24.1% | 12.9% |
| Rest of Africa | 10.9% | 12.8% | 6.6% | 23.7% | 27.6% | 20.0% | 14.6% | 20.4% | 18.2% | 25.5% |
| Caribbean and Pacific | 18.8% | 21.8% | 29.9% | 52.2% | 43.6% | 19.9% | 23.1% | 58.4% | **16.4%** | 46.5% |
| Rest of the World | 16.8% | 18.2% | 9.2% | 23.8% | 16.4% | 14.6% | 19.2% | 55.9% | 14.7% | 51.4% |

Source: Authors' calculations based on the MAcMap-HS6 database

**Table A.5. Initial protection faced on sugar (2001)**

| | Importer | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Exporter | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
| European Union – 27 | | 36.9% | 17.5% | 17.7% | 19.9% | 59.9% | 274.8% | 29.3% | 40.4% |
| United States | 42.4% | | 14.1% | 17.0% | 19.8% | 58.9% | 129.5% | 31.3% | 18.2% |
| Rest of North and Central America | 115.1% | 26.3% | 21.9% | 15.1% | 19.9% | 59.4% | 223.7% | 45.2% | 15.5% |
| South America | 174.6% | 45.8% | 26.4% | 14.1% | 20.0% | 60.0% | 328.2% | 44.1% | 20.5% |
| China | 175.9% | 50.2% | 25.3% | 16.3% | | 59.9% | 364.1% | 43.9% | 29.2% |
| India | 96.2% | 27.2% | 25.9% | 16.9% | 19.2% | | 240.0% | 34.9% | 26.2% |
| Japan | 93.9% | 28.7% | 23.8% | 17.8% | 18.3% | 39.6% | | 29.8% | 33.0% |
| Thailand | 154.0% | 37.9% | 26.9% | 16.9% | 19.6% | 57.6% | 287.3% | | 25.3% |
| Rest of Asia | 83.3% | 22.5% | 18.6% | 18.0% | 19.6% | 54.2% | 214.8% | 33.4% | 26.6% |
| South Africa | 93.3% | 23.3% | 19.1% | 16.6% | 20.0% | 60.0% | 170.8% | 27.4% | 24.3% |
| SADC | 121.2% | 30.9% | 23.4% | 14.3% | 19.8% | 59.7% | 219.4% | 38.2% | 11.6% |
| ESA | 99.8% | 24.6% | 7.2% | 17.0% | 20.0% | 58.6% | 175.2% | 46.5% | 34.9% |
| Rest of ESA and SADC | 39.3% | N/A | 86.7% | 18.4% | 20.0% | N/A | N/A | 47.0% | 36.3% |
| Nigeria | N/A | N/A | 27.4% | 12.4% | N/A | 60.0% | N/A | N/A | 29.9% |
| Senegal | 0.0% | 0.0% | 4.1% | 14.0% | N/A | 60.0% | 108.6% | N/A | 10.0% |
| WECA | 87.8% | 19.4% | 16.4% | 17.2% | 18.8% | 59.2% | 193.0% | 25.8% | 30.2% |
| Rest of Africa | 5.7% | 0.2% | 11.2% | 16.1% | 8.1% | 59.2% | 104.4% | 33.9% | 5.6% |
| Caribbean and Pacific | 165.5% | 36.9% | 2.5% | 16.8% | 16.0% | 57.6% | 288.9% | 41.9% | 35.4% |
| Rest of the World | 139.9% | 43.8% | 22.3% | 16.3% | 19.7% | 58.6% | 314.8% | 39.5% | 22.2% |

**Table A.5. Continued**

| Exporter | Importer<br>South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| European Union – 27 | 71.2% | 29.7% | 23.1% | 48.4% | 15.0% | 20.0% | 29.1% | 20.7% | 24.2% | 33.4% |
| United States | 71.3% | 43.1% | 39.5% | 45.3% | 15.0% | 19.4% | 29.6% | 20.5% | 25.5% | 43.7% |
| Rest of North and Central America | 117.0% | 105.2% | 69.4% | 26.0% | 15.0% | 19.8% | 25.9% | 15.5% | 32.2% | 31.7% |
| South America | 118.5% | 32.3% | 28.7% | 27.9% | 15.0% | 20.0% | 31.6% | 17.6% | 30.1% | 36.7% |
| China | 104.7% | 50.5% | 24.1% | 49.7% | 15.0% | 20.0% | 21.9% | 21.0% | 36.4% | 36.1% |
| India | 86.3% | 27.8% | 23.6% | 44.3% | 15.0% | 19.9% | 26.1% | 20.1% | 34.0% | 40.8% |
| Japan | 64.7% | 53.8% | 28.7% | 44.7% | 15.0% | 11.2% | 25.2% | 21.4% | 21.2% | 43.6% |
| Thailand | 118.6% | 44.5% | 28.9% | 27.9% | 15.0% | 19.0% | 28.7% | 17.6% | 27.7% | 44.7% |
| Rest of Asia | 80.8% | 67.2% | 30.0% | 43.3% | 15.0% | 18.1% | 23.7% | 22.3% | 22.7% | 58.1% |
| South Africa | | 16.3% | 22.4% | 33.0% | 15.0% | 20.0% | 29.8% | 16.7% | 30.1% | 31.7% |
| SADC | 0.7% | **14.3%** | 30.7% | **27.9%** | 15.1% | 19.9% | 26.8% | 15.1% | 35.2% | 26.4% |
| ESA | 73.2% | 19.4% | **0.2%** | **38.8%** | 15.0% | 19.4% | **8.7%** | 29.8% | 22.5% | 14.7% |
| Rest of ESA and SADC | N/A | 21.5% | 21.1% | | 15.0% | N/A | 26.3% | 14.9% | 23.5% | 58.0% |
| Nigeria | N/A | 17.4% | 21.1% | N/A | | 20.0% | 32.6% | N/A | 60.8% | 5.0% |
| Senegal | N/A | 42.8% | 21.4% | N/A | 15.0% | | 11.9% | N/A | 44.7% | 18.5% |
| WECA | 43.5% | 18.2% | 8.3% | N/A | 15.0% | 17.3% | 16.5% | 14.2% | 39.4% | 18.5% |
| Rest of Africa | 86.7% | 16.3% | 0.7% | 25.0% | 15.1% | 19.5% | 9.6% | 11.3% | 13.6% | 57.6% |
| Caribbean and Pacific | 79.3% | 78.6% | 43.9% | 25.4% | 15.0% | 19.0% | 20.3% | 17.8% | **9.7%** | 10.6% |
| Rest of the World | 105.7% | 73.7% | 50.9% | 34.9% | 15.0% | 19.4% | 25.5% | 17.8% | 28.0% | 33.2% |

Source: Authors' calculations based on the MAcMap-HS6 database

**Table A.6. Initial geographical structure of exports to main destinations in 2007**

| | | Importers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **European Union – 27** | **United States** | **Rest of North and Central America** | **South America** | **China** | **India** | **Japan** | **Thailand** | **Rest of Asia** |
| **Exporters** | European Union – 27 | 59.4% | 11.3% | 2.6% | 1.8% | 2.1% | 0.7% | 3.0% | 0.4% | 4.8% |
| | United States | 29.7% | 0.0% | 27.3% | 4.6% | 4.1% | 0.7% | 7.9% | 0.8% | 13.0% |
| | Rest of North and Central America | 9.9% | 73.1% | 3.5% | 1.8% | 1.7% | 0.7% | 2.4% | 0.2% | 2.7% |
| | South America | 22.6% | 23.4% | 5.9% | 19.1% | 5.6% | 3.4% | 3.9% | 0.6% | 5.6% |
| | China | 21.9% | 32.0% | 3.5% | 1.4% | 0.0% | 0.6% | 12.7% | 0.8% | 19.7% |
| | India | 27.7% | 20.7% | 2.6% | 2.6% | 4.4% | 0.0% | 4.5% | 1.6% | 15.9% |
| | Japan | 18.4% | 27.1% | 4.4% | 1.6% | 11.5% | 0.6% | 0.0% | 2.8% | 25.2% |
| | Thailand | 20.1% | 21.1% | 2.6% | 1.1% | 6.7% | 0.7% | 13.7% | 0.0% | 24.8% |
| | Rest of Asia | 19.3% | 20.8% | 3.3% | 1.5% | 12.9% | 1.5% | 9.6% | 2.3% | 20.9% |
| | South Africa | 31.4% | 13.5% | 1.8% | 1.9% | 4.2% | 3.4% | 7.4% | 0.7% | 6.8% |
| | SADC | 50.5% | 12.9% | 1.2% | 0.7% | 1.2% | 1.8% | 2.1% | 0.3% | 3.3% |
| | ESA | 41.6% | 16.6% | 1.4% | 1.0% | 4.4% | 1.5% | 4.9% | 1.7% | 6.7% |
| | Rest of ESA and SADC | 35.8% | 39.1% | 0.7% | 2.4% | 10.8% | 0.3% | 1.5% | 0.7% | 5.8% |
| | Nigeria | 26.6% | 45.3% | 0.6% | 9.0% | 1.9% | 1.0% | 1.3% | 0.2% | 3.5% |
| | **Senegal** | **45.4%** | **8.9%** | **1.6%** | **1.2%** | **2.4%** | **9.4%** | **2.2%** | **0.3%** | **4.5%** |
| | WECA | 41.3% | 14.9% | 1.8% | 1.6% | 8.3% | 2.3% | 2.9% | 1.0% | 7.9% |
| | Rest of Africa | 57.8% | 14.1% | 2.0% | 2.2% | 1.6% | 2.9% | 2.9% | 0.3% | 4.2% |
| | Caribbean and Pacific | 28.1% | 28.5% | 10.2% | 2.9% | 2.5% | 0.4% | 6.3% | 1.1% | 6.6% |
| | Rest of the World | 36.1% | 13.2% | 2.3% | 1.4% | 5.7% | 1.4% | 8.7% | 1.3% | 12.1% |

**Table A.6. Continued**

| | | Importers | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **South Africa** | **SADC** | **ESA** | **Rest of ESA and SADC** | **Nigeria** | **Senegal** | **WECA** | **Rest of Africa** | **Caribbean and Pacific** | **Rest of the World** | **Total** |
| **Exporters** | European Union – 27 | 0.4% | 0.1% | 0.1% | 0.1% | 0.2% | 0.0% | 0.6% | 1.2% | 0.3% | 10.8% | 100.0% |
| | United States | 0.4% | 0.1% | 0.1% | 0.1% | 0.2% | 0.0% | 0.4% | 0.9% | 1.1% | 8.7% | 100.0% |
| | Rest of North and Central America | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.3% | 0.9% | 2.6% | 100.0% |
| | South America | 0.5% | 0.1% | 0.1% | 0.1% | 0.2% | 0.0% | 0.3% | 1.0% | 1.4% | 6.2% | 100.0% |
| | China | 0.3% | 0.1% | 0.1% | 0.0% | 0.2% | 0.0% | 0.5% | 0.4% | 0.3% | 5.5% | 100.0% |
| | India | 0.6% | 0.3% | 0.6% | 0.1% | 1.0% | 0.0% | 1.7% | 1.1% | 0.4% | 14.1% | 100.0% |
| | Japan | 0.3% | 0.0% | 0.1% | 0.0% | 0.1% | 0.0% | 0.3% | 0.3% | 0.5% | 6.7% | 100.0% |
| | Thailand | 0.4% | 0.1% | 0.1% | 0.0% | 0.5% | 0.2% | 0.5% | 0.4% | 0.4% | 6.5% | 100.0% |
| | Rest of Asia | 0.3% | 0.1% | 0.1% | 0.1% | 0.2% | 0.0% | 0.4% | 0.4% | 0.5% | 5.9% | 100.0% |
| | South Africa | 0.0% | 11.3% | 5.2% | 1.4% | 0.6% | 0.1% | 1.7% | 0.7% | 0.2% | 7.7% | 100.0% |
| | SADC | 15.1% | 0.8% | 2.5% | 1.4% | 0.1% | 0.0% | 1.3% | 0.2% | 0.2% | 4.5% | 100.0% |
| | ESA | 4.6% | 1.5% | 3.5% | 0.2% | 0.1% | 0.0% | 2.6% | 1.3% | 0.2% | 6.0% | 100.0% |
| | Rest of ESA and SADC | 0.2% | 0.0% | 1.3% | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% | 0.2% | 1.0% | 100.0% |
| | Nigeria | 6.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.6% | 1.9% | 0.1% | 0.3% | 1.6% | 100.0% |
| | **Senegal** | **0.1%** | **0.1%** | **0.1%** | **0.1%** | **0.5%** | 0.0% | **17.1%** | **0.8%** | **0.2%** | **5.1%** | **100.0%** |
| | WECA | 1.8% | 0.4% | 0.7% | 0.1% | 0.5% | 0.4% | 5.4% | 1.5% | 0.3% | 7.0% | 100.0% |
| | Rest of Africa | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.7% | 2.1% | 0.2% | 8.5% | 100.0% |
| | Caribbean and Pacific | 0.2% | 0.1% | 0.1% | 0.1% | 0.1% | 0.0% | 0.4% | 0.4% | 3.6% | 8.3% | 100.0% |
| | Rest of the World | 0.4% | 0.1% | 0.1% | 0.1% | 0.1% | 0.0% | 0.4% | 1.1% | 0.4% | 15.2% | 100.0% |

Source: Authors' calculations based on GTAP6.2 database

**Table A.7. Initial geographical structure of imports from main origins in 2007**

| | | Importers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
| Exporters | European Union – 27 | 59.1% | 22.9% | 15.6% | 27.0% | 16.6% | 26.0% | 19.9% | 16.6% | 16.2% |
| | United States | 10.1% | 0.0% | 57.1% | 23.4% | 11.0% | 9.6% | 18.0% | 10.3% | 15.0% |
| | Rest of North and Central America | 1.7% | 26.2% | 3.8% | 4.8% | 2.4% | 4.7% | 2.8% | 1.3% | 1.6% |
| | South America | 1.6% | 3.3% | 2.5% | 20.0% | 3.1% | 9.3% | 1.8% | 1.5% | 1.3% |
| | China | 3.8% | 11.2% | 3.7% | 3.6% | 0.0% | 3.8% | 14.7% | 5.3% | 11.4% |
| | India | 0.7% | 1.1% | 0.4% | 1.0% | 0.9% | 0.0% | 0.8% | 1.6% | 1.4% |
| | Japan | 3.2% | 9.5% | 4.6% | 4.0% | 15.8% | 3.8% | 0.0% | 18.8% | 14.6% |
| | Thailand | 0.7% | 1.4% | 0.5% | 0.6% | 1.8% | 1.0% | 3.1% | 0.0% | 2.8% |
| | Rest of Asia | 6.4% | 14.1% | 6.6% | 7.3% | 34.2% | 20.4% | 21.3% | 29.3% | 23.4% |
| | South Africa | 0.5% | 0.4% | 0.2% | 0.4% | 0.5% | 2.1% | 0.8% | 0.4% | 0.3% |
| | SADC | 0.2% | 0.1% | 0.0% | 0.0% | 0.0% | 0.3% | 0.1% | 0.0% | 0.0% |
| | ESA | 0.1% | 0.1% | 0.0% | 0.1% | 0.1% | 0.2% | 0.1% | 0.2% | 0.1% |
| | Rest of ESA and SADC | 0.1% | 0.2% | 0.0% | 0.1% | 0.3% | 0.0% | 0.0% | 0.1% | 0.1% |
| | Nigeria | 0.2% | 0.5% | 0.0% | 0.8% | 0.1% | 0.2% | 0.1% | 0.1% | 0.1% |
| | Senegal | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| | WECA | 0.4% | 0.3% | 0.1% | 0.2% | 0.7% | 0.9% | 0.2% | 0.4% | 0.3% |
| | Rest of Africa | 1.3% | 0.7% | 0.3% | 0.8% | 0.3% | 2.6% | 0.4% | 0.3% | 0.3% |
| | Caribbean and Pacific | 0.4% | 0.7% | 0.8% | 0.6% | 0.3% | 0.2% | 0.5% | 0.5% | 0.3% |
| | Rest of the World | 9.6% | 7.2% | 3.7% | 5.4% | 12.1% | 14.6% | 15.4% | 13.2% | 10.9% |
| | Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

**Table A.7. Continued**

| | | Importers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
| Exporters | European Union – 27 | 39.5% | 18.6% | 27.3% | 39.7% | 40.6% | **48.7%** | 42.6% | 52.4% | 23.3% | 45.2% |
| | United States | 12.6% | 8.7% | 7.5% | 16.1% | 12.0% | **8.2%** | 10.8% | 13.8% | 25.0% | 12.4% |
| | Rest of North and Central America | 1.4% | 1.3% | 1.2% | 1.5% | 1.5% | **2.5%** | 1.8% | 2.0% | 10.7% | 1.9% |
| | South America | 3.2% | 1.4% | 1.5% | 3.0% | 2.8% | **2.5%** | 1.4% | 3.0% | 6.5% | 1.8% |
| | China | 4.6% | 2.3% | 4.3% | 1.8% | 8.0% | **2.4%** | 6.5% | 2.8% | 3.7% | 4.0% |
| | India | 1.4% | 2.1% | 4.4% | 1.3% | 5.3% | **1.6%** | 3.4% | 1.2% | 0.6% | 1.5% |
| | Japan | 5.6% | 1.8% | 3.2% | 2.6% | 3.9% | **1.7%** | 4.4% | 2.5% | 6.0% | 4.8% |
| | Thailand | 1.4% | 0.9% | 0.9% | 0.6% | 3.2% | **7.2%** | 1.3% | 0.6% | 0.9% | 0.9% |
| | Rest of Asia | 8.3% | 5.8% | 9.4% | 17.3% | 12.6% | **5.1%** | 9.0% | 5.4% | 11.1% | 8.3% |
| | South Africa | 0.0% | 46.5% | 22.7% | 7.5% | 1.7% | **1.2%** | 2.0% | 0.5% | 0.3% | 0.5% |
| | SADC | 5.2% | 0.8% | 2.7% | 1.9% | 0.1% | **0.0%** | 0.4% | 0.0% | 0.0% | 0.1% |
| | ESA | 1.5% | 1.4% | 3.4% | 0.3% | 0.1% | **0.1%** | 0.7% | 0.2% | 0.1% | 0.1% |
| | Rest of ESA and SADC | 0.0% | 0.0% | 1.1% | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | 0.1% | 0.0% |
| | Nigeria | 3.3% | 0.0% | 0.1% | 0.1% | 0.0% | **4.9%** | 0.9% | 0.0% | 0.1% | 0.0% |
| | Senegal | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | **0.0%** | 0.5% | 0.0% | 0.0% | 0.0% |
| | WECA | 1.7% | 1.1% | 1.9% | 0.3% | 1.1% | **5.1%** | 4.2% | 0.7% | 0.2% | 0.3% |
| | Rest of Africa | 0.3% | 0.4% | 0.6% | 0.5% | 0.5% | **2.2%** | 1.2% | 2.1% | 0.3% | 0.8% |
| | Caribbean and Pacific | 0.3% | 0.3% | 0.3% | 0.2% | 0.4% | **0.2%** | 0.4% | 0.2% | 3.1% | 0.4% |
| | Rest of the World | 9.9% | 6.6% | 7.5% | 5.4% | 6.3% | **6.3%** | 8.5% | 12.6% | 8.0% | 17.0% |
| | Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | **100.0%** | 100.0% | 100.0% | 100.0% | 100.0% |

Source: Authors' calculations based on GTAP6.2 database

**Table A.8. Initial structure of exports by sector in 2007**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | **7.3%** | **8.1%** | **8.3%** | **27.4%** | **2.4%** | **9.1%** | **1.1%** | **15.3%** | **3.8%** |
| Wheat | 0.2% | 0.5% | 0.7% | 1.0% | 0.0% | 0.5% | 0.0% | 0.0% | 0.0% |
| Cereals | 0.1% | 0.7% | 0.1% | 1.3% | 0.2% | 0.0% | 0.0% | 0.1% | 0.0% |
| Crops | 0.4% | 0.4% | 0.6% | 2.9% | 0.2% | 1.3% | 0.0% | 2.6% | 0.6% |
| Vegetables and fruits | 0.7% | 0.7% | 1.5% | 2.8% | 0.3% | 1.0% | 0.0% | 0.7% | 0.3% |
| Other agricultural products | 0.3% | 1.9% | 0.7% | 4.6% | 0.3% | 0.5% | 0.1% | 0.2% | 0.2% |
| Meat | 1.1% | 1.2% | 1.3% | 2.4% | 0.1% | 0.4% | 0.0% | 1.3% | 0.2% |
| Paddy and processed rice | 0.0% | 0.1% | 0.0% | 0.2% | 0.1% | 1.0% | 0.4% | 2.4% | 0.1% |
| Vegetables oils and fats | 0.2% | 0.1% | 0.1% | 1.6% | 0.0% | 0.2% | 0.0% | 0.1% | 0.7% |
| Raw milk and dairy products | 0.9% | 0.1% | 0.1% | 0.3% | 0.0% | 0.1% | 0.0% | 0.1% | 0.0% |
| Sugar | 0.1% | 0.0% | 0.3% | 1.1% | 0.0% | 0.3% | 0.0% | 0.7% | 0.0% |
| Beverages and tobacco products | 1.3% | 0.5% | 0.7% | 0.7% | 0.2% | 0.1% | 0.2% | 0.2% | 0.3% |
| Other food products | 2.0% | 1.8% | 2.1% | 8.5% | 0.9% | 3.6% | 0.4% | 6.7% | 1.3% |
| **Primary and Manufacturing** | **72.2%** | **67.4%** | **80.3%** | **60.6%** | **93.0%** | **71.7%** | **90.2%** | **72.5%** | **76.7%** |
| Fishing | 0.1% | 0.0% | 0.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.2% | 0.1% |
| Primary products | 0.9% | 0.7% | 6.6% | 16.1% | 0.7% | 2.2% | 0.1% | 0.1% | 2.7% |
| Textiles and wearing apparel products | 3.6% | 1.9% | 3.6% | 1.8% | 22.8% | 16.8% | 2.4% | 9.1% | 9.1% |
| Petroleum and chemical products | 14.1% | 11.7% | 7.3% | 10.1% | 6.4% | 14.1% | 9.6% | 9.3% | 8.3% |
| Mineral and metal products | 8.5% | 5.1% | 7.0% | 11.9% | 5.9% | 10.3% | 7.8% | 4.8% | 4.8% |
| Vehicle equipment products | 10.1% | 6.4% | 16.5% | 4.1% | 0.8% | 1.3% | 18.1% | 2.4% | 2.4% |
| Electronic and machinery equipments | 23.4% | 30.5% | 25.5% | 5.5% | 33.0% | 8.4% | 45.7% | 37.1% | 41.5% |
| Manufactures nec | 2.3% | 1.6% | 1.1% | 0.7% | 10.8% | 13.6% | 1.9% | 4.1% | 1.6% |
| Other manufactured products | 9.3% | 9.5% | 12.5% | 10.2% | 12.3% | 4.9% | 4.6% | 5.6% | 6.0% |
| **Services** | **20.5%** | **24.6%** | **11.5%** | **12.0%** | **4.6%** | **19.3%** | **8.7%** | **12.2%** | **19.6%** |
| Transport and trade | 5.2% | 5.5% | 4.5% | 4.5% | 1.3% | 3.6% | 2.4% | 6.3% | 3.8% |
| Other services | 15.3% | 19.1% | 7.0% | 7.5% | 3.3% | 15.7% | 6.3% | 5.9% | 15.7% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

**Table A.8. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | **11.0%** | **18.2%** | **38.0%** | **4.0%** | **2.1%** | **36.1%** | **29.8%** | **6.4%** | **10.4%** | **8.8%** |
| Wheat | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% | 0.4% |
| Cereals | 0.5% | 0.2% | 0.4% | 0.0% | 0.0% | 0.1% | 0.2% | 0.1% | 0.1% | 0.2% |
| Crops | 0.7% | 2.5% | 21.3% | 0.5% | 0.7% | 0.4% | 13.7% | 0.3% | 1.1% | 0.3% |
| Vegetables and fruits | 3.2% | 1.5% | 1.5% | 0.0% | 0.0% | 2.0% | 3.4% | 1.6% | 0.9% | 0.9% |
| Other agricultural products | 0.7% | 1.8% | 3.7% | 0.0% | 0.3% | 1.5% | 5.5% | 0.9% | 0.6% | 1.5% |
| Meat | 0.5% | 2.3% | 0.5% | 0.0% | 0.0% | 0.3% | 0.6% | 0.2% | 0.4% | 1.4% |
| Paddy and processed rice | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.2% | 0.1% | 0.3% | 0.1% | 0.1% |
| Vegetables oils and fats | 0.2% | 0.1% | 0.1% | 0.0% | 0.0% | 5.9% | 0.3% | 0.3% | 0.5% | 0.1% |
| Raw milk and dairy products | 0.2% | 0.1% | 0.1% | 0.0% | 0.0% | 0.2% | 0.1% | 0.1% | 0.2% | 1.0% |
| Sugar | 1.0% | 2.0% | 5.0% | 0.0% | 0.0% | 0.3% | 0.2% | 0.2% | 1.1% | 0.2% |
| Beverages and tobacco products | 1.5% | 1.2% | 0.5% | 0.1% | 0.2% | 0.5% | 0.5% | 0.1% | 2.3% | 0.7% |
| Other food products | 2.3% | 6.3% | 4.9% | 3.4% | 0.8% | 24.6% | 5.1% | 2.2% | 3.0% | 2.0% |
| **Primary and Manufacturing** | **79.1%** | **67.8%** | **42.5%** | **86.3%** | **92.4%** | **31.0%** | **51.9%** | **65.5%** | **56.2%** | **75.5%** |
| Fishing | 0.2% | 0.4% | 0.1% | 0.0% | 0.0% | 4.4% | 0.1% | 0.2% | 0.6% | 0.2% |
| Primary products | 13.1% | 2.6% | 3.1% | 64.5% | 88.7% | 5.2% | 26.0% | 29.2% | 6.2% | 28.8% |
| Textiles and wearing apparel products | 2.4% | 11.8% | 17.3% | 0.1% | 0.1% | 0.9% | 1.3% | 9.4% | 9.7% | 2.7% |
| Petroleum and chemical products | 9.9% | 3.4% | 1.3% | 0.7% | 1.0% | 11.6% | 4.1% | 13.3% | 8.9% | 13.0% |
| Mineral and metal products | 28.3% | 10.5% | 14.5% | 1.0% | 0.2% | 3.1% | 7.2% | 3.0% | 9.2% | 11.7% |
| Vehicle equipment products | 5.9% | 1.2% | 0.1% | 0.0% | 0.0% | 0.2% | 0.5% | 0.5% | 1.8% | 1.4% |
| Electronic and machinery equipments | 9.2% | 1.6% | 1.3% | 0.5% | 0.3% | 2.2% | 1.9% | 4.9% | 9.4% | 10.0% |
| Manufactures nec | 3.8% | 27.7% | 2.0% | 17.9% | 0.1% | 1.0% | 1.8% | 0.5% | 1.7% | 2.8% |
| Other manufactured products | 6.4% | 8.6% | 2.8% | 1.6% | 2.0% | 2.2% | 8.8% | 4.6% | 8.7% | 4.9% |
| **Services** | **9.8%** | **14.0%** | **19.5%** | **9.7%** | **5.4%** | **32.9%** | **18.3%** | **28.1%** | **33.4%** | **15.7%** |
| Transport and trade | 4.6% | 5.7% | 8.0% | 3.2% | 0.9% | 12.4% | 7.6% | 12.4% | 12.2% | 5.6% |
| Other services | 5.2% | 8.3% | 11.6% | 6.4% | 4.5% | 20.6% | 10.7% | 15.7% | 21.2% | 10.1% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

Source: Authors' calculations based on GTAP6.2 database

**Table A.9. Initial structure of imports by sector in 2007**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | **7.6%** | **4.1%** | **7.1%** | **7.9%** | **9.4%** | **10.2%** | **10.3%** | **6.7%** | **7.7%** |
| Wheat | 0.1% | 0.0% | 0.2% | 1.1% | 0.2% | 0.0% | 0.3% | 0.2% | 0.4% |
| Cereals | 0.1% | 0.0% | 0.5% | 0.5% | 0.2% | 0.0% | 0.5% | 0.0% | 0.3% |
| Crops | 0.7% | 0.5% | 0.4% | 0.5% | 0.5% | 0.5% | 0.9% | 0.2% | 0.5% |
| Vegetables and fruits | 1.0% | 0.6% | 0.9% | 0.6% | 0.4% | 2.4% | 0.7% | 0.1% | 0.7% |
| Other agricultural products | 0.6% | 0.1% | 0.8% | 0.7% | 4.4% | 2.6% | 0.8% | 1.9% | 1.2% |
| Meat | 1.0% | 0.6% | 1.0% | 0.5% | 1.1% | 0.4% | 1.9% | 0.2% | 0.7% |
| Paddy and processed rice | 0.0% | 0.0% | 0.1% | 0.2% | 0.1% | 0.0% | 0.1% | 0.0% | 0.4% |
| Vegetables oils and fats | 0.2% | 0.1% | 0.1% | 0.3% | 0.4% | 3.6% | 0.1% | 0.1% | 0.3% |
| Raw milk and dairy products | 0.6% | 0.1% | 0.4% | 0.5% | 0.3% | 0.1% | 0.2% | 0.6% | 0.5% |
| Sugar | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.0% | 0.1% | 0.0% | 0.2% |
| Beverages and tobacco products | 0.9% | 0.7% | 0.5% | 0.6% | 0.2% | 0.1% | 0.8% | 0.4% | 0.7% |
| Other food products | 2.2% | 1.3% | 2.1% | 2.4% | 1.4% | 0.5% | 3.9% | 2.9% | 1.7% |
| **Primary and Manufacturing** | **73.1%** | **82.6%** | **81.0%** | **73.3%** | **74.8%** | **70.6%** | **69.0%** | **80.8%** | **76.3%** |
| Fishing | 0.2% | 0.1% | 0.1% | 0.1% | 0.1% | 0.0% | 0.4% | 0.0% | 0.1% |
| Primary products | 4.6% | 5.7% | 2.2% | 4.2% | 7.6% | 23.5% | 11.9% | 8.9% | 6.5% |
| Textiles and wearing apparel products | 5.1% | 7.0% | 4.8% | 3.3% | 7.7% | 2.0% | 6.2% | 2.7% | 4.5% |
| Petroleum and chemical products | 12.4% | 8.7% | 13.2% | 17.9% | 13.2% | 11.5% | 8.7% | 10.9% | 10.6% |
| Mineral and metal products | 8.4% | 6.5% | 7.9% | 6.3% | 8.5% | 7.7% | 5.6% | 10.6% | 7.7% |
| Vehicle equipment products | 8.3% | 11.9% | 12.6% | 6.4% | 1.8% | 1.2% | 2.3% | 3.3% | 1.9% |
| Electronic and machinery equipments | 22.7% | 28.8% | 28.9% | 25.5% | 29.2% | 13.6% | 24.7% | 36.7% | 36.7% |
| Manufactures nec | 2.4% | 4.6% | 1.7% | 1.5% | 0.8% | 7.0% | 2.6% | 2.6% | 1.7% |
| Other manufactured products | 9.0% | 9.3% | 9.6% | 8.3% | 5.9% | 4.0% | 6.7% | 4.9% | 6.6% |
| **Services** | **19.3%** | **13.4%** | **11.9%** | **18.8%** | **15.7%** | **19.2%** | **20.7%** | **12.5%** | **16.0%** |
| Transport and trade | 4.6% | 4.8% | 2.7% | 6.3% | 2.0% | 5.2% | 6.0% | 2.8% | 4.1% |
| Other services | 14.7% | 8.6% | 9.2% | 12.5% | 13.7% | 14.0% | 14.7% | 9.6% | 11.9% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

**Table A.9. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | **6.9%** | **14.1%** | **9.8%** | **12.9%** | **11.9%** | **25.6%** | **14.8%** | **16.0%** | **10.6%** | **9.3%** |
| Wheat | 0.2% | 1.0% | 0.7% | 0.1% | 2.0% | 1.9% | 1.8% | 3.6% | 0.4% | 0.5% |
| Cereals | 0.1% | 0.6% | 0.4% | 0.2% | 0.0% | 0.4% | 0.2% | 2.0% | 0.4% | 0.3% |
| Crops | 0.7% | 1.0% | 0.6% | 0.2% | 0.2% | 1.9% | 1.2% | 1.3% | 0.7% | 0.8% |
| Vegetables and fruits | 0.2% | 1.0% | 0.5% | 0.5% | 0.2% | 1.0% | 0.4% | 0.7% | 0.7% | 0.9% |
| Other agricultural products | 0.5% | 0.4% | 0.5% | 0.2% | 0.2% | 0.9% | 0.2% | 0.8% | 0.3% | 0.6% |
| Meat | 0.9% | 1.0% | 0.8% | 2.0% | 1.0% | 0.8% | 0.9% | 0.9% | 1.3% | 1.2% |
| Paddy and processed rice | 0.7% | 0.9% | 0.6% | 0.2% | 3.0% | 8.7% | 2.0% | 0.1% | 0.5% | 0.3% |
| Vegetables oils and fats | 0.6% | 1.1% | 1.1% | 0.8% | 0.2% | 2.2% | 0.8% | 1.4% | 0.4% | 0.4% |
| Raw milk and dairy products | 0.2% | 0.7% | 0.8% | 1.0% | 1.4% | 2.3% | 1.0% | 1.6% | 1.0% | 0.6% |
| Sugar | 0.3% | 1.3% | 0.2% | 0.1% | 0.2% | 0.1% | 0.5% | 0.4% | 0.2% | 0.4% |
| Beverages and tobacco products | 0.5% | 1.3% | 0.7% | 2.8% | 0.8% | 0.7% | 1.8% | 0.5% | 1.1% | 1.1% |
| Other food products | 1.9% | 3.8% | 3.0% | 4.8% | 2.8% | 4.8% | 3.9% | 2.7% | 3.6% | 2.3% |
| **Primary and Manufacturing** | **81.7%** | **67.5%** | **69.0%** | **48.5%** | **62.2%** | **61.8%** | **69.6%** | **69.0%** | **73.3%** | **71.7%** |
| Fishing | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% | 0.1% |
| Primary products | 8.1% | 1.0% | 1.4% | 0.3% | 0.2% | 6.9% | 1.2% | 3.3% | 3.9% | 4.1% |
| Textiles and wearing apparel products | 3.8% | 4.8% | 9.3% | 1.7% | 5.2% | 5.0% | 5.6% | 8.3% | 7.4% | 5.0% |
| Petroleum and chemical products | 12.8% | 15.5% | 17.7% | 7.4% | 15.9% | 15.0% | 13.5% | 11.8% | 11.6% | 11.8% |
| Mineral and metal products | 8.1% | 8.9% | 7.9% | 5.0% | 9.1% | 8.5% | 9.3% | 8.7% | 7.1% | 10.1% |
| Vehicle equipment products | 10.8% | 7.7% | 3.8% | 3.3% | 4.8% | 3.3% | 4.0% | 4.7% | 6.2% | 6.4% |
| Electronic and machinery equipments | 26.0% | 19.6% | 16.6% | 14.0% | 19.6% | 15.6% | 17.0% | 22.8% | 19.3% | 21.9% |
| Manufactures nec | 2.1% | 1.8% | 2.1% | 0.7% | 0.7% | 0.9% | 1.9% | 1.1% | 2.2% | 3.5% |
| Other manufactured products | 10.1% | 8.3% | 10.2% | 16.2% | 6.6% | 6.8% | 17.0% | 8.3% | 15.3% | 8.9% |
| **Services** | **11.4%** | **18.4%** | **21.2%** | **38.6%** | **25.8%** | **12.6%** | **15.6%** | **15.0%** | **16.2%** | **19.0%** |
| Transport and trade | 4.4% | 4.3% | 5.7% | 3.9% | 3.2% | 4.8% | 4.1% | 3.4% | 4.3% | 5.7% |
| Other services | 7.0% | 14.1% | 15.5% | 34.7% | 22.6% | 7.7% | 11.5% | 11.6% | 11.9% | 13.3% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

Source: Authors' calculations based on GTAP6.2 database.

**Table A.10. Macroeconomic variations from full trade liberalization in 2023**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| Exports (vol _ no intra) | 11.26 | 8.87 | 8.89 | 33.26 | 35.10 | 74.45 | 16.30 | 27.50 | 14.72 |
| Exports (vol) | 3.13 | 8.87 | 9.00 | 30.44 | 35.10 | 74.45 | 16.30 | 27.50 | 12.98 |
| GDP (vol) | 0.70 | 0.06 | 0.30 | 0.60 | 0.92 | 2.28 | 1.47 | 4.03 | 0.58 |
| Real return to capital | -0.17 | 0.13 | -0.25 | -0.36 | 4.98 | 1.40 | 1.37 | -1.86 | 2.27 |
| Real return to land | -31.50 | -7.47 | -10.28 | 35.34 | -7.42 | -2.26 | -21.54 | 14.19 | -11.73 |
| Real return to natural resources | 1.58 | -0.69 | 1.10 | -13.94 | -2.02 | -15.25 | -2.39 | -8.81 | -3.87 |
| Skilled real wages | 1.44 | 0.20 | -0.77 | -1.40 | 1.95 | 3.87 | 2.95 | 2.09 | 1.61 |
| Unskilled real wages | 0.84 | 0.21 | -0.70 | 1.58 | 0.34 | 0.51 | 2.11 | 3.46 | 1.17 |
| Unskilled real wages in agriculture | -2.43 | 3.50 | 0.46 | 13.42 | -2.88 | -0.88 | -7.76 | 9.88 | -3.22 |
| Unskilled real wages in non agricultural sectors | 1.05 | 0.13 | -0.86 | -0.37 | 1.42 | 1.37 | 2.30 | 1.76 | 1.67 |
| Welfare | 0.82 | 0.25 | -0.29 | 1.00 | 1.02 | 1.27 | 1.85 | 3.72 | 1.20 |

**Table A.10. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| Exports (vol _ no intra) | 15.26 | 24.94 | 27.58 | -1.30 | 11.95 | 17.63 | 17.51 | 42.32 | 19.01 | 10.63 |
| Exports (vol) | 15.26 | 24.88 | 25.39 | -1.30 | 11.95 | 17.63 | 17.89 | 41.82 | 18.71 | 12.05 |
| GDP (vol) | 1.34 | 0.49 | 1.30 | -0.23 | 1.73 | 0.85 | 0.49 | 2.57 | 0.29 | 0.30 |
| Real return to capital | -0.24 | -1.17 | -4.81 | -0.50 | 0.04 | -2.06 | -2.23 | 0.11 | 0.13 | -0.09 |
| Real return to land | 7.43 | 10.78 | 14.69 | -0.45 | -7.65 | -1.18 | 2.40 | 3.08 | 6.95 | -0.07 |
| Real return to natural resources | 7.28 | -1.72 | 0.79 | 0.61 | -1.79 | -4.38 | -0.33 | 9.07 | -4.92 | 1.26 |
| Skilled real wages | 0.14 | -5.80 | -0.28 | -0.47 | -2.60 | -0.98 | -1.52 | 0.38 | -0.74 | -0.53 |
| Unskilled real wages | 0.54 | 0.01 | 5.43 | -0.71 | -7.62 | -1.09 | 0.00 | -0.60 | 0.04 | -0.05 |
| Unskilled real wages in agriculture | 5.99 | 6.80 | 9.52 | -0.48 | -8.13 | -1.17 | 0.87 | 0.03 | 5.48 | 1.70 |
| Unskilled real wages in non agricultural sectors | 0.05 | -4.18 | 0.95 | -0.77 | -5.87 | -0.99 | -0.79 | -0.84 | -0.54 | -0.40 |
| Welfare | 1.26 | -0.41 | 1.72 | -0.64 | 0.25 | -0.48 | -0.43 | 0.52 | -0.03 | -0.02 |

Source: Authors' calculations based on GTAP6.2 database

**Table A.11. Production changes from full trade liberalization in 2023 (volume)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | -9.28 | 4.05 | -0.97 | 18.42 | -5.30 | -1.73 | -12.47 | 16.12 | -2.91 |
| Wheat | -1.33 | -10.24 | 16.09 | -5.52 | -13.01 | -4.02 | -82.44 | -18.99 | 13.64 |
| Cereals | -11.57 | 2.77 | -9.81 | 11.39 | -3.72 | -0.76 | -36.23 | -2.66 | -12.48 |
| Crops | -2.01 | -1.90 | 0.22 | -2.75 | 14.61 | -5.31 | -6.00 | -3.95 | -1.37 |
| Vegetables and fruits | -1.26 | 0.01 | 10.25 | 5.01 | -0.25 | -3.57 | -0.23 | -2.30 | 0.20 |
| Other agricultural products | -17.54 | 22.38 | 1.24 | 94.04 | -23.00 | -2.58 | -25.59 | 0.89 | -5.32 |
| Meat | -28.62 | 3.50 | 5.64 | 18.52 | 5.53 | 108.64 | -45.09 | 17.45 | 6.95 |
| Paddy and processed rice | -51.71 | 21.25 | -7.76 | 6.37 | 6.62 | -2.44 | -34.06 | 35.69 | -31.57 |
| Vegetables oils and fats | -6.47 | -5.67 | 1.97 | -15.25 | -9.90 | -78.84 | -1.14 | -2.77 | 41.64 |
| Raw milk and dairy products | -3.67 | 0.46 | -12.83 | 1.09 | -16.60 | -0.60 | -29.64 | 7.31 | 3.54 |
| Sugar | -55.08 | -13.55 | 30.34 | 31.43 | 28.54 | 1.54 | -71.37 | 139.58 | -5.20 |
| Beverages and tobacco products | 2.51 | 1.41 | -0.18 | 0.19 | -0.28 | 0.86 | 1.98 | -1.89 | -0.02 |
| Other food products | -1.22 | 2.59 | 0.26 | 2.63 | -5.50 | 0.83 | 0.86 | 6.23 | 3.21 |
| **Primary and Manufacturing** | 1.05 | -1.38 | -0.56 | -11.80 | 3.49 | 6.60 | 2.49 | 3.71 | 3.56 |
| Fishing | 0.08 | 1.68 | 0.81 | 2.03 | -1.15 | 0.65 | -1.86 | 1.73 | -0.75 |
| Primary products | 1.27 | -0.55 | 1.71 | -9.69 | -1.42 | -20.47 | -4.65 | -10.83 | -4.70 |
| Textiles and wearing apparel products | -7.09 | -21.99 | -29.31 | -20.65 | 28.20 | -7.07 | -8.33 | -22.76 | 30.22 |
| Petroleum and chemical products | 1.33 | 0.09 | 0.25 | -8.07 | -2.92 | 16.25 | 0.72 | -8.18 | 7.88 |
| Mineral and metal products | 1.44 | -0.80 | 1.42 | -13.31 | -2.12 | 16.39 | 1.80 | -11.23 | -2.00 |
| Vehicle equipment products | 1.73 | -2.23 | 1.34 | -12.13 | -13.92 | -2.58 | 19.25 | -18.03 | 3.16 |
| Electronic and machinery equipments | 2.03 | 0.70 | 3.61 | -19.92 | -2.38 | 7.01 | -0.23 | 32.79 | -0.06 |
| Manufactures nec | 1.42 | -3.60 | -2.92 | -13.54 | 9.03 | 0.86 | -1.00 | -22.98 | 1.48 |
| Other manufactured products | 0.84 | -1.37 | -2.64 | -8.61 | 10.58 | 3.19 | -1.00 | -7.97 | -2.60 |
| **Services** | 0.36 | 0.11 | 0.09 | -0.10 | -1.21 | 1.60 | 0.06 | 0.65 | -1.14 |
| Transport and trade | 0.74 | 0.04 | 0.95 | -1.64 | -1.16 | 3.09 | -1.29 | 0.49 | -1.23 |
| Other services | 0.33 | 0.12 | -0.05 | 0.06 | -1.21 | 1.27 | 0.18 | 0.68 | -1.12 |

**Table A.11. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | 10.44 | 21.16 | 12.01 | -0.51 | -3.59 | 0.53 | 0.31 | 3.39 | 14.18 | 4.82 |
| Wheat | 46.11 | -27.18 | -50.88 | -39.55 | -1.13 | 51.04 | -20.55 | 4.21 | 19.43 | -3.75 |
| Cereals | 9.87 | -4.66 | -2.04 | -0.94 | -3.09 | -0.07 | -1.51 | 4.25 | 8.04 | 2.97 |
| Crops | 14.31 | -1.09 | 37.29 | 0.67 | 55.96 | 21.22 | 8.10 | 3.46 | 1.91 | 0.87 |
| Vegetables and fruits | 18.16 | 3.35 | -3.54 | 1.38 | -2.68 | 2.26 | 7.06 | 2.56 | -1.86 | -1.44 |
| Other agricultural products | 7.00 | 3.03 | 5.34 | 0.64 | 5.21 | -1.98 | -2.53 | 2.62 | 18.81 | -6.52 |
| Meat | 12.68 | 213.90 | 28.15 | 8.86 | -26.82 | -6.46 | -1.19 | -28.86 | -7.41 | 18.53 |
| Paddy and processed rice | 31.43 | -22.62 | -8.26 | -5.30 | -52.04 | -5.31 | -10.90 | 5.63 | 42.83 | 35.87 |
| Vegetables oils and fats | -2.11 | -32.62 | -21.62 | -1.65 | -63.46 | -8.96 | -13.23 | 900.92 | -8.22 | -6.07 |
| Raw milk and dairy products | 5.71 | -16.61 | -20.01 | 28.78 | 47.51 | 56.67 | 24.03 | -2.08 | 4.63 | 15.59 |
| Sugar | 30.04 | 210.25 | 81.36 | 3.85 | 175.06 | -2.51 | -3.86 | 4.12 | 383.98 | 5.18 |
| Beverages and tobacco products | 3.77 | -3.42 | 2.69 | -0.35 | -21.24 | -2.29 | -2.27 | -1.78 | -4.33 | -0.69 |
| Other food products | 6.95 | -6.11 | -4.25 | -6.47 | -6.58 | 4.62 | -2.10 | -0.14 | -2.51 | 1.50 |
| **Primary and Manufacturing** | -1.96 | -23.49 | -20.22 | -0.55 | -3.16 | -0.49 | -5.54 | -6.73 | -4.20 | -2.84 |
| Fishing | 4.70 | 4.92 | 3.28 | -0.30 | -6.55 | 0.55 | -1.03 | -0.13 | -1.36 | 0.86 |
| Primary products | 5.49 | 0.63 | 6.11 | 0.79 | 5.02 | -1.38 | 4.89 | 8.88 | -2.78 | 1.47 |
| Textiles and wearing apparel products | -40.74 | -63.07 | -55.22 | -0.24 | -48.55 | -38.83 | -34.06 | -49.81 | 0.31 | -23.70 |
| Petroleum and chemical products | -0.85 | -6.79 | -21.39 | -0.42 | -41.08 | 9.70 | -8.60 | 2.09 | -3.83 | -2.27 |
| Mineral and metal products | 4.86 | -13.15 | -11.66 | -0.39 | -28.68 | -5.31 | -8.68 | 1.07 | -5.45 | -2.07 |
| Vehicle equipment products | -10.01 | -24.76 | -42.11 | -2.87 | -25.92 | -18.48 | -16.64 | -12.10 | -10.74 | -5.40 |
| Electronic and machinery equipments | -2.18 | -10.87 | -19.08 | 0.87 | 17.61 | 3.62 | -2.77 | 13.73 | -5.48 | -1.37 |
| Manufactures nec | -16.08 | -14.82 | -21.93 | -6.77 | -19.74 | -9.56 | -9.55 | -3.50 | -12.49 | -5.81 |
| Other manufactured products | -2.30 | -11.62 | -15.93 | 0.26 | -25.50 | -2.13 | -2.34 | 1.61 | -3.43 | -1.96 |
| **Services** | 0.49 | -1.75 | 1.72 | 0.31 | 0.82 | 0.53 | 0.62 | 1.99 | -0.30 | -0.03 |
| Transport and trade | 1.18 | 1.13 | 1.22 | 0.47 | 13.00 | 2.72 | 2.82 | 7.69 | -0.27 | 0.53 |
| Other services | 0.39 | -2.17 | 1.81 | 0.29 | -0.19 | 0.19 | 0.25 | 1.07 | -0.31 | -0.11 |

Source: Authors' calculations based on GTAP6.2 database

**Table A.12. Production changes from EPA in 2023 (volume)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | -1.31 | -0.03 | -0.05 | -0.13 | -0.01 | -0.01 | -0.02 | -0.15 | -0.05 |
| Wheat | 0.12 | 0.27 | -0.25 | 0.02 | -0.02 | -0.01 | 0.14 | 0.02 | -0.02 |
| Cereals | -0.65 | 0.10 | -0.02 | -0.10 | -0.02 | -0.01 | 0.03 | -0.03 | -0.03 |
| Crops | 0.67 | 0.31 | 0.04 | 0.19 | 0.97 | 0.01 | 0.18 | 0.45 | 0.34 |
| Vegetables and fruits | -0.08 | -0.01 | -0.03 | -0.09 | 0.00 | 0.06 | 0.01 | 0.00 | 0.00 |
| Other agricultural products | -2.59 | 0.01 | -0.05 | -0.20 | -0.02 | -0.02 | -0.05 | -0.05 | -0.04 |
| Meat | -2.33 | -0.08 | -0.09 | -0.26 | -0.12 | -0.07 | -0.14 | -0.60 | -0.12 |
| Paddy and processed rice | 1.72 | 0.12 | -0.09 | 0.20 | -0.02 | -0.02 | 0.01 | -0.35 | -0.02 |
| Vegetables oils and fats | 0.76 | -0.16 | -0.07 | 0.11 | -0.03 | -0.01 | -0.06 | -0.08 | -0.17 |
| Raw milk and dairy products | 0.61 | -0.05 | -0.06 | -0.07 | -0.21 | -0.02 | -0.06 | -0.29 | -0.15 |
| Sugar | -46.66 | 0.02 | -0.52 | -1.00 | -0.10 | -0.09 | -0.03 | -0.19 | -0.38 |
| Beverages and tobacco products | 0.79 | -0.07 | -0.06 | -0.03 | -0.01 | -0.02 | -0.02 | -0.04 | -0.05 |
| Other food products | 0.28 | -0.06 | -0.02 | -0.10 | -0.02 | -0.03 | -0.02 | -0.09 | -0.07 |
| **Primary and Manufacturing** | 0.30 | -0.01 | 0.01 | 0.06 | 0.01 | -0.02 | -0.02 | 0.01 | -0.01 |
| Fishing | -0.08 | 0.00 | -0.02 | -0.05 | 0.00 | -0.01 | 0.01 | -0.03 | -0.01 |
| Primary products | 0.23 | -0.06 | -0.11 | -0.04 | -0.12 | 0.01 | 0.03 | -0.06 | -0.07 |
| Textiles and wearing apparel products | 0.76 | 0.37 | 0.55 | 0.07 | 0.19 | 0.05 | -0.04 | 0.13 | 0.32 |
| Petroleum and chemical products | 0.31 | -0.03 | -0.01 | 0.04 | -0.02 | -0.05 | -0.01 | -0.04 | -0.02 |
| Mineral and metal products | 0.32 | -0.02 | 0.01 | 0.13 | -0.01 | -0.06 | 0.00 | 0.04 | 0.01 |
| Vehicle equipment products | 0.22 | -0.01 | -0.04 | 0.06 | -0.04 | -0.03 | -0.09 | 0.03 | -0.01 |
| Electronic and machinery equipments | 0.25 | -0.02 | -0.02 | 0.07 | -0.04 | -0.06 | 0.02 | -0.02 | -0.06 |
| Manufactures nec | 0.33 | -0.10 | -0.01 | 0.02 | 0.07 | 0.12 | 0.00 | 0.05 | 0.02 |
| Other manufactured products | 0.28 | -0.03 | 0.00 | 0.06 | -0.01 | -0.02 | -0.06 | 0.01 | -0.11 |
| **Services** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Transport and trade | -0.01 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.02 | 0.02 |
| Other services | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Table A.12. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| **Agri-Food** | 1.63 | 26.81 | 12.36 | -9.32 | -2.22 | -0.50 | -1.35 | -0.15 | 23.13 | -0.14 |
| Wheat | 1.42 | -15.92 | -7.76 | -4.13 | -1.09 | -4.80 | 0.12 | -0.10 | 0.61 | -0.08 |
| Cereals | 2.41 | -1.37 | -0.07 | -1.15 | -0.80 | 0.03 | -0.98 | -0.07 | 7.39 | -0.12 |
| Crops | 3.14 | -7.77 | -10.60 | -17.04 | 20.62 | 6.28 | 1.49 | 0.31 | 1.32 | 0.02 |
| Vegetables and fruits | -0.10 | -7.25 | -0.58 | -0.05 | -2.20 | -4.42 | 5.60 | -0.08 | 0.63 | -0.04 |
| Other agricultural products | 1.81 | 9.01 | 23.15 | -5.80 | -1.63 | -0.40 | -0.74 | -0.17 | 29.09 | -0.15 |
| Meat | 4.38 | 251.18 | 52.81 | -15.19 | -28.59 | -4.35 | -12.66 | -0.08 | -2.33 | -0.23 |
| Paddy and processed rice | 8.30 | -12.11 | -1.88 | -0.33 | 10.62 | 5.57 | 0.05 | -0.11 | 7.94 | -0.05 |
| Vegetables oils and fats | 0.48 | -14.03 | -5.10 | -7.74 | -4.40 | 3.01 | -10.42 | -0.64 | -1.33 | -0.20 |
| Raw milk and dairy products | -0.35 | -23.27 | -8.59 | -20.56 | -23.18 | -10.70 | -13.74 | -0.29 | -2.73 | -0.17 |
| Sugar | -0.10 | 261.43 | 147.14 | 1.03 | 8.36 | -9.63 | 31.70 | -1.22 | 590.17 | -0.32 |
| Beverages and tobacco products | -0.05 | -0.42 | 4.98 | -10.12 | -22.94 | -2.12 | -3.28 | -0.01 | -3.43 | -0.06 |
| Other food products | 1.01 | -2.03 | 0.41 | -8.54 | 2.46 | 0.85 | -1.74 | -0.13 | 0.46 | -0.15 |
| **Primary and Manufacturing** | -0.28 | -25.09 | -10.19 | 1.46 | -0.65 | 0.07 | 0.17 | 0.02 | -6.79 | 0.02 |
| Fishing | 0.75 | 7.77 | 6.11 | -1.30 | -1.58 | 0.30 | -1.17 | -0.02 | 0.15 | -0.04 |
| Primary products | -0.88 | -9.42 | -4.15 | 2.51 | 0.94 | 3.84 | 2.50 | 0.04 | -5.10 | -0.02 |
| Textiles and wearing apparel products | 3.66 | -42.10 | -25.75 | -3.23 | -6.28 | -1.77 | -0.47 | 0.08 | -10.40 | 0.18 |
| Petroleum and chemical products | 0.30 | -16.69 | -8.05 | -10.03 | -8.05 | -0.67 | -1.29 | -0.04 | -3.58 | -0.01 |
| Mineral and metal products | -1.57 | -23.72 | -8.42 | -4.62 | -8.96 | 0.07 | -0.29 | 0.02 | -8.09 | 0.10 |
| Vehicle equipment products | -0.82 | -21.36 | -9.99 | 6.27 | -6.49 | -7.12 | 3.03 | 0.02 | -8.32 | 0.01 |
| Electronic and machinery equipments | -1.32 | -21.87 | -12.05 | -2.87 | 6.77 | 3.18 | 1.29 | 0.02 | -6.94 | 0.00 |
| Manufactures nec | -0.38 | -36.19 | -4.66 | 14.16 | 3.56 | 4.14 | -1.38 | 0.03 | -5.32 | 0.08 |
| Other manufactured products | 0.51 | -16.28 | -6.76 | 3.22 | -2.46 | -1.58 | -0.94 | 0.01 | -6.31 | 0.00 |
| **Services** | 0.03 | -0.73 | 0.20 | -0.04 | -0.44 | 0.33 | 0.02 | 0.02 | -0.21 | 0.01 |
| Transport and trade | -0.14 | -1.19 | -0.87 | 1.93 | 1.52 | 1.95 | 1.24 | 0.05 | -1.27 | 0.02 |
| Other services | 0.05 | -0.66 | 0.39 | -0.35 | -0.60 | 0.08 | -0.19 | 0.01 | -0.09 | 0.01 |

Source: Authors' calculations based on GTAP6.2 database.

**Table A.13. Bilateral trade changes from full trade liberalization in 2023**

| | | Importers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **European Union – 27** | **United States** | **Rest of North and Central America** | **South America** | **China** | **India** | **Japan** | **Thailand** | **Rest of Asia** |
| **Exporters** | European Union – 27 | -3.0 | 6.7 | 20.2 | 33.2 | 20.0 | 44.5 | 13.6 | 31.9 | 5.3 |
| | United States | 6.9 | | -7.2 | 28.2 | 45.7 | 20.6 | 17.6 | 27.1 | 11.3 |
| | Rest of North and Central America | 16.1 | 2.6 | 12.2 | 64.9 | 22.4 | 22.9 | 72.4 | 47.6 | 15.0 |
| | South America | 11.2 | -12.0 | 57.1 | 17.8 | 193.2 | -41.7 | -6.1 | 25.2 | 6.3 |
| | China | 28.8 | 27.9 | 54.1 | 104.1 | | 157.8 | 41.0 | 94.9 | 28.5 |
| | India | 83.9 | 44.0 | 86.2 | 156.4 | 127.3 | | 49.3 | 102.4 | 74.7 |
| | Japan | 10.6 | 4.3 | 26.1 | 38.0 | 31.9 | 73.6 | | 34.3 | 22.5 |
| | Thailand | 18.7 | 11.9 | 32.2 | 55.6 | 51.8 | 88.6 | 48.5 | | 31.3 |
| | Rest of Asia | 2.4 | 3.0 | 17.4 | 54.8 | 35.1 | 97.8 | 3.6 | 30.5 | 6.8 |
| | South Africa | -1.9 | -9.7 | 10.4 | 51.8 | 1.1 | 274.8 | 19.6 | 35.7 | 19.4 |
| | SADC | 96.8 | -57.3 | 19.4 | 31.8 | 3.3 | 95.1 | 16.5 | 51.2 | 32.0 |
| | ESA | 17.9 | -26.6 | 19.4 | 30.5 | 38.9 | 159.5 | -4.3 | 23.2 | 142.8 |
| | Rest of ESA and SADC | -4.9 | 1.8 | -1.4 | 34.0 | -7.3 | -8.9 | 1.2 | -13.6 | 14.2 |
| | Nigeria | 6.9 | 1.4 | 37.9 | 44.1 | -5.9 | 0.6 | 18.4 | 50.3 | 59.9 |
| | Senegal | 0.4 | 12.8 | 12.1 | 52.4 | 81.2 | 38.6 | 71.0 | 85.5 | 21.2 |
| | WECA | 10.9 | 17.2 | 23.1 | 68.5 | 12.8 | 84.1 | 16.3 | 49.4 | 2.3 |
| | Rest of Africa | 41.7 | 36.3 | 45.9 | 56.8 | 38.0 | 3.5 | 52.1 | 82.6 | 41.8 |
| | Caribbean and Pacific | 44.8 | 4.9 | 13.4 | 42.5 | 6.6 | 29.5 | 25.9 | 21.4 | 2.7 |
| | Rest of the World | 10.3 | 1.4 | 19.8 | 26.2 | -4.7 | 105.0 | 15.6 | 5.9 | 12.7 |

**Table A.13. Continued**

| Exporters | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | Senegal | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|---|
| European Union – 27 | 20.2 | 4.6 | 20.4 | -0.8 | 0.9 | 1.1 | 3.0 | 11.8 | 6.6 | 7.3 |
| United States | 13.4 | 6.8 | 17.3 | -2.9 | -7.1 | 1.5 | -5.4 | 7.4 | 15.5 | 6.9 |
| Rest of North and Central America | 35.4 | 15.8 | 42.7 | 3.7 | 3.5 | 15.3 | 18.5 | 53.6 | 20.4 | 35.3 |
| South America | 27.7 | -5.7 | 15.7 | -23.8 | -8.8 | -8.2 | -2.2 | 12.5 | 11.0 | 8.2 |
| China | 92.0 | 70.3 | 84.9 | 11.8 | 51.3 | 33.3 | 40.4 | 461.6 | 36.0 | 30.7 |
| India | 92.4 | 99.5 | 79.7 | 40.4 | 70.4 | 55.9 | 64.5 | 138.3 | 76.8 | 59.5 |
| Japan | 23.9 | 51.3 | 17.0 | -3.3 | -12.6 | 85.5 | 8.7 | 1.3 | 6.8 | 5.1 |
| Thailand | 23.7 | 37.6 | 24.3 | -4.0 | 1.5 | -43.8 | -7.6 | 15.1 | 20.1 | 16.8 |
| Rest of Asia | 31.5 | 35.4 | 45.0 | -5.9 | 7.2 | 34.5 | 15.0 | 13.0 | 11.8 | 9.6 |
| South Africa | | 25.9 | 17.7 | -3.7 | 21.7 | 1.9 | 4.9 | 60.7 | 13.8 | 5.0 |
| SADC | -25.0 | 18.8 | 27.6 | -8.9 | 6.1 | 9.5 | 4.0 | 16.3 | 17.1 | 9.0 |
| ESA | 8.5 | 22.3 | -37.1 | -10.5 | 4.5 | -12.5 | -23.1 | -36.7 | 9.2 | 36.0 |
| Rest of ESA and SADC | -1.1 | -0.1 | -19.7 | 0.7 | -11.5 | -1.6 | 3.8 | -12.2 | 10.4 | 0.7 |
| Nigeria | 16.7 | 50.3 | 237.7 | 19.5 | | -18.9 | 7.7 | 43.7 | 3.1 | 27.3 |
| Senegal | 21.0 | 31.9 | 23.6 | 10.0 | -35.6 | | 14.1 | 28.0 | 41.5 | 18.8 |
| WECA | 23.7 | 87.1 | 27.9 | 13.5 | 51.4 | -5.2 | 24.6 | -6.2 | 35.5 | 13.8 |
| Rest of Africa | 71.8 | 55.3 | 50.4 | 33.3 | 98.5 | 70.2 | 44.5 | 19.9 | 38.3 | 67.0 |
| Caribbean and Pacific | 14.0 | 3.5 | 34.7 | -2.2 | 1.7 | -2.0 | 3.8 | 27.5 | 11.2 | 6.3 |
| Rest of the World | 10.8 | 2.8 | 25.7 | 0.8 | -12.1 | -5.4 | 0.3 | 8.9 | 19.2 | 20.6 |

Source: Authors' calculations based on GTAP6.2 database

**Table A.14. Senegal's export changes from full trade liberalization in 2023 (volume)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | 46.78 | 120.74 | 83.05 | 57.37 | -33.11 | -61.58 | -99.95 | -48.51 | 34.36 |
| Cereals | -0.52 | 40.18 | 18.78 | 79.36 | -26.56 | 215.82 | -45.58 | -1.08 | -24.99 |
| Crops | -10.74 | 24.35 | 64.82 | 118.02 | 115.18 | 187.52 | 32.85 | 174.94 | -43.39 |
| Vegetables and fruits | -9.63 | 23.75 | 23.61 | 129.94 | 79.38 | 115.43 | 5.43 | 442.44 | 27.07 |
| Other agricultural products | -0.67 | 93.14 | 36.19 | 221.95 | -58.32 | 57.56 | -24.26 | 80.84 | 25.37 |
| Meat | -32.81 | 48.47 | 31.50 | 428.44 | 599.07 | 767.56 | 86.12 | 2742.52 | 56.96 |
| Paddy and processed rice | -88.32 | 234.59 | 967.52 | 227.59 | 16.59 | 1911.30 | -99.99 | 120.04 | -84.44 |
| Vegetables oils and fats | -17.00 | 57.93 | 18.43 | 202.85 | -25.70 | -63.82 | 93.08 | 111.23 | 2499.06 |
| Raw milk and dairy products | -37.75 | 654.25 | 37.58 | 75.56 | 43.94 | 758.48 | 337243.24 | -37.81 | 60.53 |
| Sugar | -86.80 | -28.42 | 1.84 | 194.31 | -51.97 | 612.68 | 2.86 | -8.04 | -8.15 |
| Beverages and tobacco products | -3.23 | 5.17 | 94.06 | 64.17 | 135.67 | 57.02 | 7.34 | 156.40 | 71.81 |
| Other food products | -4.05 | 11.98 | 7.01 | 112.87 | 74.28 | 116.32 | -5.44 | 270.47 | 29.48 |
| Fishing | 1.48 | 6.64 | 3.46 | 57.69 | 40.89 | 85.42 | 13.73 | 218.52 | 35.70 |
| Primary products | 40.18 | 43.02 | 85.05 | 251.19 | 63.09 | -33.21 | 52.62 | 254.42 | 188.99 |
| Textiles and wearing apparel products | -31.86 | -36.55 | -10.30 | 78.16 | -30.52 | 208.59 | -31.69 | 3.01 | 7.78 |
| Petroleum and chemical products | 3.82 | 4.39 | 11.01 | 74.31 | 106.78 | 128.44 | 11.16 | 103.50 | 47.23 |
| Mineral and metal products | 22.11 | 27.04 | 49.07 | 129.26 | 101.92 | 245.35 | 41.56 | 99.42 | 105.93 |
| Vehicle equipment products | 5.10 | 16.55 | 12.74 | 161.20 | 728.75 | 543.53 | 32.66 | 514.56 | 86.18 |
| Electronic and machinery equipments | 23.59 | 24.12 | 20.57 | 78.23 | 113.13 | 128.98 | 32.66 | 116.49 | 46.75 |
| Manufactures nec | 10.29 | 6.37 | 14.34 | 99.36 | 98.33 | 130.73 | 18.15 | 151.32 | 43.72 |
| Other manufactured products | 20.09 | 15.02 | 37.68 | 176.40 | 144.30 | 282.08 | 18.32 | 143.55 | 78.01 |
| Transport and trade | 9.72 | 9.20 | 4.97 | 20.30 | 6.65 | -4.94 | 13.49 | 17.03 | 13.89 |
| Other services | 8.86 | 9.67 | 4.43 | 21.79 | 6.84 | -3.47 | 13.79 | 22.70 | 14.09 |

**Table A.14. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | -48.50 | -24.27 | 84.73 | 320.58 | 52.92 | -13.27 | -53.92 | 129.73 | -31.18 |
| Cereals | 14.10 | 52.60 | 37.70 | 8.50 | 167.34 | 29.62 | -3.61 | 34.97 | 1.66 |
| Crops | 69.46 | 32.95 | 367.04 | -7.92 | -1.42 | 15.90 | 87.60 | 57.78 | -15.84 |
| Vegetables and fruits | 25.21 | 16.25 | 102.55 | 5.20 | -49.46 | 44.24 | 269.10 | 188.13 | 72.23 |
| Other agricultural products | 79.37 | 110.82 | 106.67 | 6.47 | 61.19 | 26.76 | 1.20 | 96.68 | 12.66 |
| Meat | 1723.21 | 210.85 | 280.14 | 62.04 | -7.79 | 87.71 | 2011.46 | 286.98 | 12.60 |
| Paddy and processed rice | 86.30 | -41.46 | 164.09 | -11.82 | -90.52 | 36.14 | -49.98 | 38.85 | 17.52 |
| Vegetables oils and fats | 96.36 | 32.82 | 118.58 | 24.78 | -56.85 | 5.44 | 31.55 | 53.89 | 168.87 |
| Raw milk and dairy products | 823.28 | 218.01 | 266.25 | 16.96 | 11.10 | 144.93 | 177.84 | -20.27 | 5.75 |
| Sugar | -27.41 | 264.81 | 205.00 | 16.40 | 98.56 | 35.55 | -24.50 | 487.15 | 119.04 |
| Beverages and tobacco products | 0.12 | 58.73 | 114.70 | 3.29 | 127.97 | 13.71 | 69.83 | 2450.57 | 17.51 |
| Other food products | 29.64 | 86.80 | 73.84 | 9.80 | -47.05 | 10.39 | 72.38 | 79.11 | 34.23 |
| Fishing | 12.86 | 85.34 | 58.22 | 0.09 | 45.61 | 13.47 | 26.86 | 28.55 | 18.18 |
| Primary products | 65.89 | 204.98 | 206.91 | 21.40 | 221.15 | 18.37 | 754.98 | 21.39 | 49.12 |
| Textiles and wearing apparel products | 28.09 | 70.87 | 12.82 | 25.57 | -27.20 | -1.85 | -82.03 | -1.09 | -8.97 |
| Petroleum and chemical products | 57.03 | 14.73 | 26.92 | 8.45 | 24.55 | -0.84 | 97.48 | 25.90 | 8.36 |
| Mineral and metal products | 63.02 | 119.63 | 61.55 | 26.88 | 7.86 | 27.35 | 98.17 | 54.92 | 25.54 |
| Vehicle equipment products | -27.32 | 17.74 | 30.67 | 21.39 | 34.09 | 4.05 | 104.11 | 19.26 | 24.59 |
| Electronic and machinery equipments | 31.16 | 37.17 | 25.66 | 26.75 | 32.32 | 9.08 | 79.52 | 23.71 | 25.10 |
| Manufactures nec | -6.23 | 114.24 | 120.47 | 22.53 | 243.64 | 31.16 | 18.51 | 49.17 | 10.32 |
| Other manufactured products | 30.46 | 139.28 | 161.57 | 31.31 | 202.19 | 65.18 | 128.79 | 147.46 | 34.67 |
| Transport and trade | 12.50 | 6.56 | 9.58 | 7.38 | -21.14 | -1.64 | -9.75 | 9.35 | 7.94 |
| Other services | 11.47 | 4.86 | 11.39 | 6.43 | -4.28 | -1.85 | -13.39 | 9.18 | 6.50 |

Source: Authors' calculations based on GTAP6.2 database

**Table A.15. Senegal's export changes from EPA in 2023 (volume)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | 30.31 | 34.17 | 33.90 | 33.54 | 34.06 | 33.64 | 34.39 | 34.08 | 34.09 |
| Cereals | 4.01 | 5.78 | 5.85 | 5.61 | 5.81 | 6.02 | 5.90 | 5.85 | 5.81 |
| Crops | 7.92 | 9.97 | 9.07 | 9.42 | 13.86 | 8.79 | 9.75 | 10.38 | 11.54 |
| Vegetables and fruits | 6.83 | 9.28 | 8.74 | 9.64 | 10.38 | 10.51 | 10.36 | 10.31 | 10.29 |
| Other agricultural products | 5.14 | 11.21 | 10.86 | 10.28 | 11.08 | 10.59 | 11.05 | 10.89 | 10.80 |
| Meat | 7.21 | 20.72 | 20.90 | 20.23 | 20.26 | 20.84 | 20.56 | 20.86 | 20.72 |
| Paddy and processed rice | 8.43 | 16.35 | 16.65 | 16.40 | 16.54 | 16.41 | 16.58 | 15.55 | 16.60 |
| Vegetables oils and fats | 11.82 | 13.82 | 14.28 | 14.04 | 15.23 | 15.05 | 14.84 | 15.09 | 15.10 |
| Raw milk and dairy products | 37.79 | 40.93 | 41.28 | 40.85 | 40.89 | 40.95 | 41.07 | 40.40 | 39.37 |
| Sugar | -78.16 | 9.73 | 8.74 | 7.98 | 8.82 | 7.67 | 8.73 | 7.17 | 8.68 |
| Beverages and tobacco products | 3.61 | 4.20 | 4.20 | 4.12 | 4.24 | 4.14 | 4.18 | 4.19 | 4.17 |
| Other food products | 5.24 | 7.22 | 6.98 | 6.93 | 6.98 | 7.26 | 6.77 | 7.08 | 7.00 |
| Fishing | 3.36 | 3.65 | 3.60 | 3.79 | 4.16 | 4.05 | 4.13 | 4.08 | 4.12 |
| Primary products | 10.27 | 10.26 | 10.76 | 10.10 | 10.50 | 9.83 | 10.81 | 10.82 | 10.73 |
| Textiles and wearing apparel products | 14.23 | 17.12 | 15.64 | 13.77 | 15.41 | 13.85 | 15.60 | 15.75 | 14.20 |
| Petroleum and chemical products | 6.27 | 6.64 | 6.78 | 6.74 | 6.83 | 5.92 | 6.82 | 6.98 | 6.86 |
| Mineral and metal products | 13.56 | 14.54 | 14.29 | 14.21 | 14.38 | 12.35 | 14.62 | 14.20 | 14.17 |
| Vehicle equipment products | 11.85 | 12.00 | 11.70 | 12.15 | 12.45 | 12.25 | 12.47 | 12.42 | 12.41 |
| Electronic and machinery equipments | 13.06 | 13.05 | 13.15 | 12.98 | 12.59 | 12.98 | 13.03 | 12.85 | 12.99 |
| Manufactures nec | 13.68 | 13.15 | 13.44 | 13.51 | 13.73 | 13.72 | 13.65 | 13.58 | 13.69 |
| Other manufactured products | 13.38 | 13.62 | 13.85 | 13.74 | 12.82 | 13.32 | 13.70 | 13.86 | 14.09 |
| Transport and trade | 6.29 | 6.22 | 6.29 | 6.15 | 6.30 | 6.12 | 6.19 | 6.28 | 6.28 |
| Other services | 5.82 | 5.69 | 5.77 | 5.63 | 5.75 | 5.61 | 5.68 | 5.74 | 5.75 |

**Table A.15. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | 40.24 | 64.81 | 61.11 | -11.39 | 28.85 | 20.75 | 33.02 | 97.04 | 33.35 |
| Cereals | 8.69 | 31.62 | 20.17 | -10.34 | 267.06 | 2.19 | 5.61 | 31.63 | 5.58 |
| Crops | 18.56 | 76.90 | 30.66 | -75.47 | 77.01 | 5.77 | 9.12 | 55.07 | 9.46 |
| Vegetables and fruits | 15.01 | 44.69 | 32.59 | -8.78 | -36.28 | 21.72 | 8.46 | 23.07 | 9.43 |
| Other agricultural products | 19.59 | 77.35 | 90.62 | -37.25 | 92.36 | 11.68 | 9.98 | 108.29 | 10.42 |
| Meat | 38.62 | 218.37 | 59.38 | -54.88 | 22.88 | -26.53 | 20.27 | 38.51 | 19.86 |
| Paddy and processed rice | 18.62 | 52.82 | 45.20 | -5.02 | 7.64 | 52.95 | 15.86 | 45.15 | 16.25 |
| Vegetables oils and fats | 18.47 | 34.25 | 31.97 | -34.95 | 492.11 | -7.81 | 14.42 | 34.83 | 13.82 |
| Raw milk and dairy products | 46.14 | 42.37 | 70.39 | -40.34 | -28.60 | 72.81 | 40.00 | 35.78 | 40.63 |
| Sugar | 22.69 | 21.07 | 42.47 | -6.30 | 109.91 | 20.63 | 8.24 | 88.12 | 8.24 |
| Beverages and tobacco products | 6.42 | 16.68 | 15.87 | -13.92 | 318.34 | -0.12 | 4.13 | -4.21 | 4.09 |
| Other food products | 10.98 | 27.92 | 17.77 | -23.32 | 29.33 | 1.03 | 6.70 | 14.09 | 6.53 |
| Fishing | 7.98 | 30.91 | 19.17 | -11.89 | 70.49 | -1.97 | 4.01 | 7.14 | 3.49 |
| Primary products | 12.01 | 35.41 | 20.68 | -32.11 | 274.75 | -3.89 | 10.95 | 2.05 | 10.89 |
| Textiles and wearing apparel products | 27.12 | 37.15 | 16.82 | 0.25 | 971.33 | 30.54 | 13.65 | 18.47 | 15.60 |
| Petroleum and chemical products | 8.97 | 16.86 | 10.65 | -7.00 | 178.42 | 4.99 | 6.58 | 7.94 | 6.73 |
| Mineral and metal products | 15.82 | 34.35 | 22.65 | -0.05 | 160.31 | 2.06 | 13.67 | 15.04 | 14.37 |
| Vehicle equipment products | 16.86 | 19.89 | 12.70 | 4.03 | 161.18 | 3.07 | 11.98 | 10.99 | 11.60 |
| Electronic and machinery equipments | 14.94 | 18.05 | 12.81 | -3.20 | 137.23 | 4.30 | 12.80 | 14.75 | 13.08 |
| Manufactures nec | 16.41 | 43.41 | 18.31 | -12.32 | 1277.90 | 24.00 | 13.41 | 14.71 | 13.53 |
| Other manufactured products | 20.78 | 30.14 | 19.76 | -1.01 | 495.27 | 7.58 | 13.27 | 15.79 | 13.78 |
| Transport and trade | 7.57 | 20.65 | 13.57 | -3.45 | -1.75 | 0.86 | 6.17 | 10.33 | 6.24 |
| Other services | 7.17 | 18.63 | 13.98 | -2.93 | 0.40 | 0.62 | 5.64 | 10.24 | 5.73 |

Source: Authors' calculations based on GTAP6.2 database

**Table A.16. Senegal's import changes from full trade liberalization in 2023 (volume)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | -13.67 | 7.04 | 60.75 | 31.74 | 377.06 | 112.52 | 8053.94 | 57.92 | 141.78 |
| Cereals | -48.74 | -18.23 | -8.68 | -13.01 | 31.47 | 22.37 | 26.56 | -9.50 | 44.18 |
| Crops | 16.76 | -19.70 | 46.31 | -19.31 | 76.29 | 137.56 | 35.81 | -6.54 | 153.90 |
| Vegetables and fruits | 40.73 | 19.00 | 40.43 | 5.84 | 59.03 | 72.35 | 44.78 | 3.74 | 41.99 |
| Other agricultural products | -1.67 | -32.03 | 24.22 | -38.62 | 90.92 | 58.42 | 37.40 | 8.45 | 45.30 |
| Meat | 2.14 | 46.13 | 125.63 | 0.75 | 508.31 | 353.13 | 284.10 | 95.11 | 119.31 |
| Paddy and processed rice | -72.13 | -75.95 | 60.62 | 2.41 | 74.92 | 51.46 | 862.53 | -49.29 | 169.94 |
| Vegetables oils and fats | 43.85 | -26.47 | 37.56 | -46.18 | 75.56 | 110.93 | -2.84 | -27.88 | 41.43 |
| Raw milk and dairy products | -38.40 | 54.32 | 492.20 | 163.67 | 403.55 | 451.65 | 362.42 | 584.55 | 345.03 |
| Sugar | -52.30 | 174.56 | 208.67 | 95.22 | 477.92 | 310.89 | 852.96 | 157.98 | 240.89 |
| Beverages and tobacco products | 21.55 | 18.63 | 33.20 | 10.14 | 39.08 | 37.23 | 32.00 | 26.17 | 32.85 |
| Other food products | 12.20 | 19.80 | 42.08 | 14.42 | 58.04 | 54.88 | 64.31 | 31.07 | 44.14 |
| Fishing | 13.54 | 36.13 | 48.93 | 10.84 | 11.93 | 35.87 | 4.77 | 12.19 | 12.12 |
| Primary products | 42.07 | 44.29 | -4.33 | -5.34 | 30.14 | 354.76 | 30.15 | 19.72 | 5.61 |
| Textiles and wearing apparel products | 3.34 | -2.02 | -4.16 | -40.11 | 56.42 | 5.04 | -7.27 | -34.44 | 21.64 |
| Petroleum and chemical products | 1.41 | 3.03 | 22.38 | -5.58 | 5.11 | 74.27 | 6.43 | -7.83 | 11.60 |
| Mineral and metal products | 0.51 | 4.45 | 22.20 | -25.00 | 8.54 | 55.85 | -14.98 | -0.42 | -14.58 |
| Vehicle equipment products | 9.93 | 5.99 | 25.38 | -11.33 | -3.78 | 61.60 | 26.50 | 1.11 | 12.26 |
| Electronic and machinery equipments | 1.47 | -0.46 | 14.40 | -23.65 | 3.67 | 34.76 | -7.71 | 36.79 | -4.36 |
| Manufactures nec | 10.08 | 3.94 | 29.34 | -5.04 | 37.82 | 43.81 | 2.03 | -16.18 | 4.53 |
| Other manufactured products | 4.02 | -4.42 | 26.24 | -4.50 | 56.39 | 71.05 | -0.10 | 0.02 | 0.02 |
| Transport and trade | -4.90 | -5.96 | -1.45 | -18.18 | -5.34 | 15.82 | -12.16 | -11.40 | -12.12 |
| Other services | -4.99 | -6.09 | -1.65 | -18.85 | -4.49 | 10.40 | -11.20 | -18.40 | -12.38 |

**Table A.16. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | 95.07 | 111.73 | -50.34 | -84.27 | 12.71 | 65.30 | 222.47 | 3.42 | 119.70 |
| Cereals | 7.95 | -1.49 | -7.26 | -1.16 | 23.33 | 11.62 | 33.22 | 1.63 | 6.48 |
| Crops | 13.99 | 17.00 | -17.90 | 152.79 | 215.33 | 62.48 | 107.77 | 14.20 | 23.40 |
| Vegetables and fruits | 34.67 | 18.81 | 4.40 | -21.62 | 104.67 | -15.59 | 64.09 | 25.80 | 3.81 |
| Other agricultural products | 8.63 | -5.57 | -15.37 | -7.37 | 60.60 | 2.32 | 61.03 | 10.61 | 12.82 |
| Meat | 72.27 | -23.69 | 65.55 | -9.18 | 67.95 | 25.18 | 412.39 | 124.26 | 102.18 |
| Paddy and processed rice | 42.58 | 47.43 | 4.33 | -13.00 | 440.28 | 10.67 | 121.89 | 21.54 | 43.35 |
| Vegetables oils and fats | 6.54 | 22.18 | 21.57 | -20.82 | 141.65 | -19.77 | 96.44 | 12.37 | 7.08 |
| Raw milk and dairy products | 305.19 | 522.92 | 320.27 | 103.20 | 327.63 | 129.91 | 799.73 | 380.83 | 162.23 |
| Sugar | 183.83 | 173.64 | 140.50 | 20.54 | 232.99 | 92.59 | 337.42 | 163.96 | 53.25 |
| Beverages and tobacco products | 28.63 | 28.09 | 12.19 | 19.82 | 57.34 | 13.83 | 51.04 | 31.00 | 17.66 |
| Other food products | 27.63 | 25.29 | 14.35 | 6.44 | 80.47 | 6.44 | 87.80 | 33.82 | -2.83 |
| Fishing | 13.39 | 3.74 | 12.08 | 20.78 | 5.53 | 27.30 | 30.76 | 10.86 | 23.18 |
| Primary products | 18.57 | 61.25 | 32.04 | -19.06 | -19.35 | 21.91 | 24.31 | 7.70 | 30.12 |
| Textiles and wearing apparel products | -35.71 | -50.70 | -28.79 | 8.52 | 238.78 | -53.89 | 59.54 | -0.26 | -52.72 |
| Petroleum and chemical products | -4.03 | 16.91 | -1.91 | 3.09 | 24.21 | -1.80 | 17.87 | 8.29 | -11.14 |
| Mineral and metal products | -26.22 | -25.90 | -8.58 | -10.85 | 36.16 | -11.14 | 68.81 | -12.58 | -29.59 |
| Vehicle equipment products | 25.83 | 18.84 | 17.91 | 47.18 | 78.46 | -4.35 | 28.50 | 50.87 | -24.08 |
| Electronic and machinery equipments | -5.96 | -4.11 | -11.81 | -7.11 | 45.09 | -3.97 | 49.68 | 11.26 | -13.46 |
| Manufactures nec | 3.96 | 3.92 | -22.48 | 25.64 | 58.47 | -20.25 | 45.55 | 3.32 | -19.14 |
| Other manufactured products | -4.56 | -5.36 | -2.50 | -7.99 | 41.61 | -7.04 | 95.88 | 4.85 | -20.61 |
| Transport and trade | -8.10 | -3.03 | -5.46 | -4.46 | 48.65 | 6.89 | 20.71 | -7.10 | -4.78 |
| Other services | -8.80 | -4.49 | -7.43 | -3.70 | 10.00 | 6.08 | 23.95 | -7.19 | -4.18 |

Source: Authors' calculations based on GTAP6.2 database

**Table A.17. Senegal's import changes from EPA in 2023 (volume)**

| | European Union – 27 | United States | Rest of North and Central America | South America | China | India | Japan | Thailand | Rest of Asia |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | 8.857 | -31.4 | -31.1 | -30.9 | -31.2 | -31 | -31.2 | -31.2 | -31.2 |
| Cereals | 9.294 | -4.58 | -4.57 | -4.42 | -4.59 | -4.51 | -4.56 | -4.53 | -4.56 |
| Crops | 39.82 | -6.1 | -5.85 | -5.64 | -7.06 | -5.68 | -5.79 | -6.9 | -6.68 |
| Vegetables and fruits | 48.68 | -22.3 | -22.3 | -22.1 | -22.3 | -22.3 | -22.3 | -22.3 | -22.3 |
| Other agricultural products | 17.54 | -10.3 | -10.4 | -10.1 | -10.4 | -10.2 | -10.3 | -10.3 | -10.4 |
| Meat | 82.46 | -25.9 | -26 | -25.6 | -26 | -26 | -25.9 | -26.2 | -26 |
| Paddy and processed rice | 78.56 | -6.58 | -6.61 | -6.45 | -6.68 | -6.46 | -6.54 | -5.96 | -6.61 |
| Vegetables oils and fats | 26.12 | -24 | -24.1 | -23.9 | -24.2 | -24 | -24.1 | -24.1 | -24.1 |
| Raw milk and dairy products | 14.02 | -42.9 | -42.9 | -42.7 | -42.9 | -42.8 | -42.9 | -42.7 | -42.9 |
| Sugar | 5.824 | -12.6 | -12.6 | -12.3 | -12.6 | -12.4 | -12.5 | -12.7 | -12.6 |
| Beverages and tobacco products | 25.59 | -13.3 | -5.81 | -5.72 | -5.83 | -5.74 | -13.3 | -5.81 | -5.84 |
| Other food products | 13.31 | -20.5 | -12.2 | -12.1 | -12.2 | -12.1 | -20.5 | -12.3 | -12.2 |
| Fishing | 14.17 | -6.49 | -6.54 | -6.4 | -6.55 | -6.44 | -6.48 | -6.51 | -6.53 |
| Primary products | 73.45 | -6.63 | -6.73 | -6.33 | -6.69 | -6.63 | -6.65 | -6.86 | -6.72 |
| Textiles and wearing apparel products | 72.4 | -37.3 | -14.5 | -14.6 | -14.5 | -14.5 | -37.2 | -14.7 | -14.4 |
| Petroleum and chemical products | 9.992 | -16.8 | -8.99 | -8.66 | -8.99 | -8.79 | -17 | -9 | -8.91 |
| Mineral and metal products | 22.32 | -29 | -13.1 | -12.8 | -13.1 | -12.9 | -29 | -13.1 | -13.2 |
| Vehicle equipment products | 12.83 | -28.6 | -15.7 | -15.4 | -15.7 | -15.5 | -28.5 | -15.6 | -15.6 |
| Electronic and machinery equipments | 9.132 | -18.9 | -11.2 | -11.2 | -11.3 | -11.3 | -19.6 | -11.4 | -10.9 |
| Manufactures nec | 16.21 | -22.9 | -12.9 | -12.8 | -12.7 | -12.7 | -22.9 | -12.9 | -12.9 |
| Other manufactured products | 16.63 | -24.3 | -12.8 | -13.1 | -13.3 | -13.2 | -24.3 | -13.3 | -13.4 |
| Transport and trade | -3.28 | -3.19 | -4.08 | -3.92 | -4.08 | -3.92 | -3.16 | -4.05 | -4.06 |
| Other services | -3.65 | -3.52 | -4.37 | -4.22 | -4.37 | -4.21 | -3.5 | -4.35 | -4.35 |

**Table A.17. Continued**

| | South Africa | SADC | ESA | Rest of ESA and SADC | Nigeria | WECA | Rest of Africa | Caribbean and Pacific | Rest of the World |
|---|---|---|---|---|---|---|---|---|---|
| Wheat | -34.8 | -59.59 | -51.6 | 13.5 | -29.238 | -9.64 | -30.8 | -56.23 | -30.9 |
| Cereals | -6.1 | -27.67 | -17.6 | 10.94 | 9.1258 | -1.22 | -4.41 | -18.27 | -4.48 |
| Crops | -9.84 | -50.09 | -27.3 | 37.69 | 245.15 | 4.489 | -5.45 | -34.02 | -5.61 |
| Vegetables and fruits | -23.7 | -46.41 | -39 | -4.29 | 85.188 | -18.1 | -22.1 | -36.08 | -22.2 |
| Other agricultural products | -12.9 | -41.78 | -33.8 | 22.09 | 43.544 | -3.79 | -10.1 | -40.56 | -10.2 |
| Meat | -30.3 | -69.07 | -54 | 31.75 | 43.24 | 3.14 | -25.6 | -43.88 | -25.8 |
| Paddy and processed rice | -10.1 | -45.32 | -33.6 | 21.69 | 115.48 | 5.102 | -6.25 | -25.11 | -6.44 |
| Vegetables oils and fats | -26.7 | -53.12 | -42 | 14.78 | 58.155 | -9.26 | -23.8 | -43.19 | -24 |
| Raw milk and dairy products | -45.3 | -65.81 | -61.6 | -16 | 56.84 | -27.3 | -42.6 | -53.37 | -42.8 |
| Sugar | -15.9 | -42.42 | -32.1 | 11.24 | 151.66 | -4.1 | -12.3 | -27.46 | -12.4 |
| Beverages and tobacco products | -6.74 | -17.18 | -11.8 | 3.783 | 50.565 | -1.93 | -5.75 | -8.093 | -5.73 |
| Other food products | -13.9 | -28.72 | -21.6 | 3.67 | 80.774 | 8.446 | -12 | -18.44 | -12.1 |
| Fishing | -8.24 | -22.03 | -15.9 | 2.562 | -3.7156 | 23.31 | -6.44 | -9.705 | -6.47 |
| Primary products | -8.64 | -36.58 | -23.3 | -0.96 | -3.0476 | 11.19 | -6.85 | -8.369 | -6.82 |
| Textiles and wearing apparel products | -15.7 | -59.09 | -38.6 | 6.755 | 137.26 | 2.194 | -14.4 | -28.52 | -14.6 |
| Petroleum and chemical products | -10 | -33.19 | -21.8 | -5.03 | 54.469 | 0.44 | -8.83 | -14.58 | -8.44 |
| Mineral and metal products | -15.4 | -40.83 | -23.6 | -3.72 | 47.033 | 1.792 | -12.9 | -22.7 | -12.6 |
| Vehicle equipment products | -18 | -40.57 | -28.3 | 1.839 | 92.654 | -0.43 | -15.5 | -24 | -15.5 |
| Electronic and machinery equipments | -13.8 | -36.88 | -24.2 | -0.35 | 50.529 | 0.523 | -11.1 | -19.65 | -11 |
| Manufactures nec | -14.7 | -45.77 | -21.6 | 4.104 | 121.51 | -0.18 | -12.8 | -19.6 | -12.8 |
| Other manufactured products | -14.7 | -38.16 | -25.4 | 2.861 | 70.918 | 0.053 | -13.2 | -21.88 | -13.2 |
| Transport and trade | -5.42 | -16.84 | -11 | 7.487 | 5.8395 | 2.45 | -3.93 | -8.61 | -4.01 |
| Other services | -5.85 | -17.45 | -12.2 | 5.417 | 1.7679 | 1.396 | -4.22 | -9.099 | -4.32 |

Source: Authors' calculations based on GTAP6.2 database

**Table A.18. Real effective exchange rate variations from full trade liberalization in 2023**

| Region | Real effective exchange rate (in %) |
|---|---|
| European Union – 27 | 0.30 |
| United States | 0.88 |
| Rest of North and Central America | -1.54 |
| South America | 5.40 |
| China | -2.45 |
| India | -6.19 |
| Japan | 1.42 |
| Thailand | 2.11 |
| Rest of Asia | 0.62 |
| South Africa | 0.80 |
| SADC | 0.57 |
| ESA | 2.65 |
| Rest of ESA and SADC | -0.41 |
| Nigeria | -4.11 |
| Senegal | -1.49 |
| WECA | -2.30 |
| Rest of Africa | -6.89 |
| Caribbean and Pacific | 0.20 |
| Rest of the World | -0.36 |

Source: Authors' calculations based on GTAP6.2 database

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