The Impact of Trade Reforms on Employment and Welfare in ECOWAS Countries: The case of Senegal

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Abstract

This study evaluates the impact of the ECOWAS-CET and the EPA on youth employment and welfare in Senegal. The analysis is performed using the PEP-1-1 model, which is a static computable general equilibrium model. The simulation results indicate that applying the ECOWAS-CET instead of the WAEMU-CET tends, in Senegal, to generate an increase in youth and female employment at all qualification levels, and thereby increases welfare of all household groups. However, implementation of the EPA led to deterioration of this situation, with contrary effects on employment of all workers (especially youth and women) and overall welfare.

Keywords: ECOWAS, Senegal, trade, free trade, regional integration, EPA, employment, welfare, CGE Model

JEL Classification: F13, F43, C68, E24, E27

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I. Introduction

On 28 May 1975, the countries of West Africa founded the Economic Community of West African States (ECOWAS)\(^1\) with the goal of promoting cooperation and regional integration in order to raise the standard of living of their populations, to foster economic stability, to strengthen relations between member states and to contribute to progress and development of the African continent.

This community anticipated, among others, the creation of a common market by liberalizing intra-community trade and also establishing a common external tariff (CET).

In this vein, on October 25, 2013 in Dakar, the Extraordinary Summit of Heads of State and Government of ECOWAS adopted a CET to be applied starting January 1, 2015. For WAEMU member states, such as Senegal, going from the WAEMU-CET to the ECOWAS-CET was a major change in their trade policy with numerous effects on certain economic indicators.

Moreover, alongside application of the ECOWAS-CET, the member states of this community committed to a process for adoption of an economic partnership agreement (EPA) with the European Union (EU). This led to official validation of the initialed EPA, at the 45\(^{th}\) ordinary session of the conference of the Heads of State of ECOWAS, in Accra on July 10, 2014. Through this approval, the ECOWAS Heads of State have therefore opened the way towards the necessary steps for the signature, ratification, and implementation of the Agreement.

With regard to the trade-related provisions of the agreement, the EPA involves dismantling of customs tariffs on imports from the EU, by tariff line along a schedule over time as agreed upon between ECOWAS and the EU. As in the case of the ECOWAS-CET, it is also expected that implementation of the EPA induces diverse effects on the Senegalese economy.

Among the variables susceptible to be impacted by these trade reforms, we can highlight those dealing with employment and welfare.

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\(^{1}\) With the departure of Mauritania, there are now 15 member states in ECOWAS. They are Benin, Burkina Faso, Cape Verde, Côte d’Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Senegal, Sierra Leone and Togo.
The analysis of the effects of trade reforms on employment can be usefully applied to evaluating specific effects on women and youth, group which, in many countries, have particular difficulties in finding a formal and productive job.

From the budget perspective, tax revenues from trade (as a share of overall revenues) have become less important over the last twenty years. They do, however, remain an important source of budget receipts for most low and middle income countries. In fact, these tax receipts on trade generally represent about one-fifth of total tax receipts and often more (IMF, 2006).

In the particular case of this EPA, the dismantling of customs tariffs on EU imports into ECOWAS countries can be expected to cause a significant decline in public receipts. This reduces the capacity of governments to finance job creation programs and to provide social services to the poor, and leads to a deterioration in overall welfare (Fall and Thiaw, 2012).

The present study thus has the objective of evaluating the static effect of the aforementioned trade reforms on youth, welfare and government revenues for the case of Senegal while accounting for the country being an ECOWAS member. In terms of the specific question of employment, the study deals with the impact of all CET- and EPA-related reforms on youth employment in general, and in particular by gender (male or female) and rural/urban residence.

After the literature review in section 2, on the effects of reforms to customs tariffs, details on the changes evaluated in the present study are shown in section 3. Section 4 deals with the situation of employment and welfare in Senegal. Then, in section 5 we have the description of the methodological framework. Section 6 deals with the formulation of simulations and analysis of the results. Finally, the conclusion and policy recommendations are in section 7.

II. Literature review

Studies on the impacts of trade reforms generally lead to the observation of lost tax receipts in the case of dismantling tariffs. However, the debates on the impact of these reforms on growth and welfare have led to opposite points of view.
Some studies show that trade policies characterized by dismantling tariffs reduce growth and lead to reduced welfare, and also a worsening of poverty. As such, using a CGE model, Fofana et al. (2006) find that a unilateral tariff reduction in four ECOWAS countries\(^2\) does not lead to poverty alleviation, especially in rural areas. According to these authors, this result is due to a lack of rural development policy, mainly in favour of agriculture, the number one activity for subsistence commodities, employment and income of the poorest in West Africa.

For the case of Senegal, Fall and Thiaw (2012) used a dynamic CGE model to evaluate the economic and budgetary effects of an EPA based on the offer of access to the West African market formulated by ECOWAS with respect to the EU in November 2011. They reached the conclusion that the EPA would lead to a contraction of economic activity, a decline in demand for production factors, a decline in household income and reduced overall welfare, due to major losses in tax receipts.

Similarly, Berisha-Kraniqi et al. (2008) find a 46% loss in tax receipts in Senegal following a diversion of trade that would result from implementation of the EPA.

However, other studies find positive effects of trade liberalization on the economy. Among these works, Rampulla et al. (2007), who evaluated the proposed EPA for the case of Mali using a recursive dynamic CGE, show that the EPA certainly leads to a decline in tax receipts; they find that this decline is mitigated by indirect positive effects of the EPA on economic activity and growth and through dynamic effects.

Ba (2006), with a similar model applied to Mali, also found that the EPA would stimulate growth and reduce poverty, although fairly negligibly compared to the Millennium Development Goals (MDGs).

Annabi et al. (2006), who studied the impact of trade liberalization on economic growth and poverty in Senegal using a sequential micro-simulation with a CGE, found that in the short run the EPA leads to a slight increase in the poverty rate, inequalities and a decline in the agriculture and industrial sectors. However, in the long run, they find an accumulation of capital in the tertiary and secondary sectors which leads to a major decline in poverty which is

\(^2\) Benin, Burkina Faso, Guinea and Senegal.
accompanied by an increase in income inequality.

In applying a similar model, to study the dynamic effects of trade liberalization by gender and on poverty and inequality in Senegal, Cockburn et al. (2010) find that by improving productivity, trade liberalization leads to an increase in economic growth, poverty reduction, an increase in the wage gap between unqualified men and women and a decline in this gap between qualified men and women.

In the same vein, the results of the study by Calipel et al. (2007) suggest that Senegal should sign the EPA, in that it shows this policy to result in higher household incomes. They recommend, however, that the EPA be accompanied by fiscal transition policies and external budget support in order to compensate for the negative effects of the EPA on public savings.

The above works enable us to refer to some estimates, which diverge at times, of the impacts of trade liberalization on (in different cases) economic growth, income distribution, welfare or poverty in a number of countries in ECOWAS and Senegal in particular.

While also paying attention to the impacts of the EPA on most of the performance indicators mentioned above, the present study evaluated the effects of the EPA on employment of youth and women. One of the contributions of the present study, in the debate on the impact of trade reforms, is thus the introduction of the youth employment problem at a time where trade impacts on employment can be a major transmission channel between trade and poverty.

The other new contribution is to account for the West Africa Market Access Offer which was agreed upon on July 10, 2014, at the 45th ordinary session of the conference of the Heads of State of ECOWAS in Accra.

Moreover, in addition to trade liberalization policies evaluated in the above studies, this study also evaluates another important trade reform, that will be the basis of external tariffs prior to the implementation of the EPA in Senegal, in this case the shift from the WAEMU-CET to the ECOWAS-CET.
III. Brief overview of simulated trade reforms

3.1 The Common External Tariff of ECOWAS

In January 2006 in Niamey, at the 30th ordinary session, the conference of the Heads of State of ECOWAS considered implementing an ECOWAS-CET with a structure based on that of the WAEMU-CET. On October 25, 2013 in Dakar, at an “extraordinary summit”, these Heads of State and Government adopted a CET to be applied starting 1 January 2015. The ECOWAS-CET is an ad valorem tax with five tariff bands applied to five categories of imports from outside the community: category 0 has a 0% tariff; category 1 has a 5% tariff, category 2 has a 10% tariff, category 3 has a 20% tariff and category 4 has a 35% tariff (see Table 1). The WAEMU-CET only had four tariff bands.

The first particular thing about the ECOWAS-CET is in adding a fifth tariff band applied on category 4 products said to be “sensitive” or “specific goods for economic development”.

Moreover, many tariff lines were transferred from one category to another. As shown in Table 2, across 4868 HS10 tariff lines for Senegalese external trade, a 0% tariff rate applied to 256 lines in the WAEMU-CET as compared to just 86 lines in the ECOWAS-CET, a 66.4% reduction. Similarly, the number of tariff lines at the 5% rate decline by 2.3% from 1736 in the WAEMU-CET to 1697 under the ECOWAS-CET. Meanwhile, in going from the WAEMU-CET to the ECOWAS-CET, the number of tariff lines at 10% and 20% respectively increase by 7.9% and 1.5%.

In fact, the products withdrawn from the 0% and 5% categories were generally transferred into a category subject to higher tariff rates. Table 2 and Graph 1 signal a “protective” aspect of the ECOWAS-CET compared to the WAEMU-CET. This protection is especially on final consumer goods which comprise 91.8% of sensitive products. It can also be noted that food and beverages products represent about 74% of products in the 5th category, which according to the social accounting matrix amounted to about 18% of imports prior to implementing the ECOWAS-CET.
### Table 1: Categorizing products in the ECOWAS-CET

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>TYPE OF PRODUCTS</th>
<th>DESCRIPTION</th>
<th>RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Essential social goods</td>
<td>Products for health, cultural products, certain grains, etc.</td>
<td>0%</td>
</tr>
<tr>
<td>1</td>
<td>Products for basic needs, primary raw materials, capital goods, specific inputs</td>
<td>Goods entering into the production of other goods to facilitate the production of final goods</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>Inputs and intermediary products</td>
<td>Products which are somewhat more sophisticated than the second band, but not produced in sufficient quantity in the region and not likely to be manufactured in the short term</td>
<td>10%</td>
</tr>
<tr>
<td>3</td>
<td>Final consumer goods</td>
<td>Final products having reached the last stage of transformation</td>
<td>20%</td>
</tr>
<tr>
<td>4</td>
<td>Specific goods for economic development</td>
<td>Products which are sensitive due to their strategic aspects for development in the region</td>
<td>35%</td>
</tr>
</tbody>
</table>

Source: CEDEAO (2009); DGD (2014a) and DGD (2014b)

#### Graph 1: Number of tariff lines by WAEMU-CET/ECOWAS-CET tariff bands

<table>
<thead>
<tr>
<th>Tariff bands : Rate (%) of customs tariff</th>
<th>WAEMU-CET</th>
<th>ECOWAS-CET</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>256</td>
<td>86</td>
</tr>
<tr>
<td>5</td>
<td>1736</td>
<td>1697</td>
</tr>
<tr>
<td>10</td>
<td>995</td>
<td>1066</td>
</tr>
<tr>
<td>20</td>
<td>1879</td>
<td>1907</td>
</tr>
<tr>
<td>35</td>
<td>110</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using data from CEDEAO (2013), DGD (2014c) and DGD (unpublished)
Table 2: Change in tariff lines by tariff band from WAEMU-CET to ECOWAS-CET

<table>
<thead>
<tr>
<th>WAEMU-CET tariff bands</th>
<th>Total tariff lines by WAEMU tariff band</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>75 118 33 30</td>
</tr>
<tr>
<td>5%</td>
<td>11 1527 141 55 2</td>
</tr>
<tr>
<td>10%</td>
<td>13 771 204 7</td>
</tr>
<tr>
<td>20%</td>
<td>39 121 1618 101</td>
</tr>
<tr>
<td>Total of tariff lines by ECOWAS tariff band</td>
<td>86 1697 1066 1907 110</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using data from CEDEAO (2013), DGD (2014c) and DGD (unpublished)

3.2 EU-West Africa Economic Partnership Agreement

Trade relations between the EU and the ACP (African, Caribbean and Pacific Group of States) region are long standing. With the Treaty of Rome (1957), the European Economic Community (EEC) created a European Development Fund (EDF) for “overseas countries and territories”. After that, Yaoundé Conventions (1963 and 1969) and Lomé Conventions (1975, 1980, 1985 and 1990) set unilateral trade preferences accorded to the ACP by the EU.

However, these preferences were later found to be incompatible with WTO rules. Basically, the Most Favoured Nations clause (MFN), one of the main principles of the WTO, required the EU to either expand these non-reciprocal trade preferences to other developing countries outside of the ACP (or only among least developed countries), or simply to establish reciprocal free trade agreements with ACP countries.

By that point in time, the option for reciprocal preferences was adopted through the Cotonou Agreement in 2000 between ACP countries and the EU, this option being expected to be materialized by the signing of Economic Partnership Agreements between the EU and various sub-regional entities among ACP countries. The negotiators of an EPA between the EU and West Africa started in 2003 at Cotonou. They repeatedly failed to reach agreement for over a decade until finally on 10 July 2014 the EU-WA EPA was initialled, at the 45th ordinary session of the conference of Heads of State of ECOWAS at Accra.

The trade component of the agreement is based on the offer of market access to West
Africa for 75% (by tariff line) of its imports from the EU, with reductions over a period of 20 years. According to the sensitivity criteria of these products, ECOWAS retained four categories of products: A, B, C and D.

- Category A includes essential social goods, products for basic needs, primary raw materials, capital goods and specific inputs;
- Category B is comprised of inputs and intermediate products;
- Category C is comprised of final consumption goods;
- Category D includes sensitive products.

Products from categories A, B and C are the object of gradual dismantling of tariffs over the 20 years. Products in category D are those excluded from the tariff dismantling in the context of the EPA.

According to the external trade statistics of Senegal in 2011, imports in category A are primarily comprised of refined petroleum, and machinery and transportation materials. Imports in category B also include some machinery and transportation materials, in addition to chemical, metallurgical, and glass and pottery products. As for imports in category C, they are mainly basic food products, other food and beverages, machinery and transportation materials, chemical products and metallurgical products. Finally, imports in category D are mainly comprised of food and beverages, chemical products, machinery and transportation materials, metallurgical products and basic food products.

Graph 2 shows the structure of imports by area of activity. Of the 18 sectors considered in the study, Category A products account for 100% or more than 50% of total imports in two sectors; Category B products also account for the same proportion range in two other sectors, as well as Category C products. Finally, in nine sectors, imports are fully or more than 50% made of Category D products.
Graph 2: Structure of sectors by category of imported products

Source: Authors’ calculations using data from DGD (2014c), DGD (unpublished) and ANSD (unpublished)

It should be noted that in 2011, 44% of imports into Senegal were from the EU, 12% were from ECOWAS, and the other 44% were from countries other than those in the EU or ECOWAS (Graph 3). In terms of tax receipts, trade with the EU accounted for 45% of customs tariffs collected in 2011, and that with ECOWAS and the rest of the world respectively accounted for 1% and 54% of those tariffs (Graph 4).

Graph 3: Structure of imports into Senegal by origin (2011)

Source: Authors’ calculations based on data from DGD (2014c) and DGD (unpublished)
IV. State of employment and welfare in Senegal

In Senegal, job creation remains weak and the standard of living of populations has not progressed much. In 2011, 46.6% the population lived under the poverty line nationally, with a 57.3% poverty headcount ratio in rural areas as compared to 26.1% in Dakar and 41.2% in other urban areas (ANSD, 2013).

One of the determinants of the poor living indicators in West Africa is the high level of unemployment and low job creation, especially among youth, who are the majority (about two-thirds) of the population (ADB, 2011). In Senegal, the 15-34 age group accounts for 34.9% of the total population.

Youth employment is considered as the main priority by 41.9% of households in Dakar and 36.1% of households in other urban areas (ANSD, 2013). The youth (15-34) unemployment rate is much higher than among those over the age of 34, respectively 13.2% as compared to 7.2% (Graph 5). This situation reflects the difficulty of youth entering into the job market, especially the educated, who are most often first time job seekers. With equal qualification, firms very rarely prefer those with little or no working experience. Moreover, in the period considered, youth were generally the first to lose their jobs and had a hard time finding another one (OECD, 2009).
Compared to men, women face a less enviable situation on the job market: they are generally more often in unemployment and inactivity. In 2011, the female unemployment rate (13.4%) was much higher than that among men (7.9%). This discrimination is higher among young women, who face an unemployment rate of 18.2% as opposed to 9.4% among young men (Graph 6). At equal qualifications, employers tend to prefer men to women when hiring, because women are more likely to take an absence from work for reasons linked to pregnancy, nursing, child care and illnesses.

By rural/urban residence (Graph 7), unemployment is not as high among rural youth (9.9%) than urban youth (17.6%). This phenomenon is caused by a frequently early job search by rural youth of school going age from poor families, who prefer to leave their studies to look for work, as young as they are, in order to provide financially for their family.
Graph 7: Unemployment rate by age and urban/rural residence (2011)

Source: ANSD (2013) and authors' calculations

The preceding analysis highlights the difficult situation of youth and women on the labour market. They may be the most impacted by implementation of any economic policy that directly affects domestic firms, for example the ECOWAS-CET and the EPA, depending on the initial allocation scheme (or initial distribution scheme) of income paid to these work categories within the sector.

Graph 8: Share by sector of activity, wages paid to youth in 2011

Source: Authors' calculations using the SAM
V. Methodological framework

Application of the ECOWAS-CET on the one hand and implementation of the EPA on the other hand may affect many economic variables and sectors of activity, either in the same direction or in opposite directions. Considering the fact of economic interdependence and feedback effects among behaviours of economic agents, we use a CGE model for our methodological framework for the evaluation of the trade reforms addressed in this study.

CGEs are models which “account for both the structure of the economy as a whole and inter-relations between different economic agents” (Fofana et al. 2006). A social accounting matrix (SAM) which underlies the model was built for this purpose.
5.1 The model

The model used in the study is built using the PEP-1-1 model (Decaluwé et al., 2012). This is a static CGE which falls within neoclassic general equilibrium theory. It describes a small open economy for which world prices are exogenous. Producers maximize their profit under the constraint of available production technologies and consumers maximize their utility under a budget constraint. The supply-demand equilibrium on all markets is reached through relative price adjustments.

Producers have the possibility of selling their goods on domestic markets or to export them, depending on the elasticity of transformation of products for these two destinations; hence, the use of a constant elasticity of transformation function. Consumers have the choice to consume domestic goods or their imported substitutes. There is imperfect substitution between these products (Armington hypothesis), as represented by a CES-type utility function. Households draw their income from remuneration to production factors and different transfers received. Their savings is a fixed share of disposable income. The government draws its income from total tax revenues and different transfers received. Its distribution of expenditures is between transfers to non-public agents and public expenditures, which are exogenous here.

To account for the characteristics of the Senegalese economy and the specifics of the study, certain assumption of the base model were modified.

Rest of the World

The PEP-1-1 model only has one representative account for the rest of the world as an economic agent. In this study, to adequately deal with the ECOWAS-CET and the EPA, the ROW account was disaggregated into ECOWAS, the European Union (EU) and the Rest of the World (ROW). Domestic demand is thus a combination of domestic products (DD) and composite imported substitutes (IM), following the classical Armington assumption. But, among composite imports, consumers may choose between products originating from ECOWAS (IM-EC) and other imports (IM-xEC). Among the second of these, they may also choose between products from the EU or substitutes from the rest of the world (IM-R). These imperfect
substitutes are represented by nested CES functions (Graph 10). Parameters, variables and other equations are thus added to or removed from the model.

This work required use of data on ECOWAS, WAEMU and external trade of Senegal. This led to classifying 4866 Senegalese tariff lines, on the one hand per their belonging to one of the categories of the ECOWAS-CET, and on the other hand, per their belonging to one of the categories in the EPA. Then, each categorized tariff line was attributed to one of 18 sectors of activity retained in the study.

**Graph 10: Differentiation by origin of domestic demand**

Modelling the labour market

Relative to PEP-1-1, we introduce unemployment into the model for each segment of the labour market. The labour supply equation is then written as follows:

\[ LS_t = \left( \sum_j LD_{j,t} \right) + UN_t \]

where:
- \( L_{Si} \) is labour supply by type of workers;
- \( LD_{j,lt} \) is labour demand by sector for each type of worker;
- \( UN_{lt} \) is the number of unemployed.

In considering the unemployment rate (UNR) instead of the number of unemployed, the equation becomes:

\[
L_{Si} = \frac{\left( \sum_j LD_{j,lt} \right)}{1 - UNR_{lt}}
\]

To account for trade-offs between unemployment and wage rates, we introduce a wage curve equation into the model which is written as follows:

\[
W_L = A_t \cdot UNR_{lt}^{\varepsilon_t} \cdot PIXCON
\]

where:
- \( W_L \) represents the wage rate;
- \( A_t \) is a level parameter;
- \( \varepsilon_t \) is the wage elasticity with respect to unemployment, which is negative at -0.1;
- \( PIXCON \), the consumer price index.

### 5.2 The data

We used the SAM of Fofana et al. (2015) to build a SAM specific to the issues addressed in this study. The matrix from Fofana et al. (2015) came from the 2011 national accounts and the Senegal Poverty Monitoring Survey – ESPSII (ANSD, 2013). This SAM is not in the format of the PEP-1-1 model, and does not have an export account. To develop a complete matrix, we used data from the Supply and Use Table. The second change was to disaggregate this SAM using data from the ESPSII and STATA software to respond to the objectives of our study.

**The production factor accounts**

These include two production factors, labour and capital. However, labour was disaggregated into 24 accounts corresponding to 24 categories of workers, classified by the
level of education and training, their age and gender.

**Agent accounts**

These include accounts for taxes and margins and institutional accounts. Taxes and margins include 5 types of taxes: direct taxes, taxes on production, indirect taxes on domestic products, taxes on imports (by origin\(^3\)) and taxes on exports.

The different institutional accounts are: households, firms, government, ECOWAS, EU and the rest of the world.

There are 10 household types, distinguished by the initial consumption quintile (Q1, Q2, Q3, Q4 and Q5) and rural/urban residence.

**Accounts by sector of activity, production and exports**

The SAM includes as many sectors of activity as products. There are 18 sector accounts, the same as the number of product accounts, which follow the classical principles in differentiating them by origin and destination.

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### VI. Simulations and Results

#### 6.1 Description of simulations

Two scenarios are simulated: SIM-CET and SIM-EPA.

6.1.1. **Sim-CET: Scenario of going from the WAEMU-CET to the ECOWAS-CET**

The data in the base model accounts for the WAEMU-CET. Sim-CET thus consists in modelling the transition from the WAEMU-CET to the ECOWAS-CET. Table 3 shows the average customs tariff rates applied by type of product from outside ECOWAS prior to the simulation (WAEMU-CET), the trade-weighted average corresponding rates after the simulation (ECOWAS-CET) and the changes in these rates.

---

\(^3\) Since we envisage undertaking the scenarios of the ECOWAS-CET and the EPA, taxes on imports are disaggregated by origin (ECOWAS, EU, ROW) of the imported products.
Table 3: Change in customs tariff rate in going from WAEMU-CET to ECOWAS-CET

<table>
<thead>
<tr>
<th>SAM products</th>
<th>ECOWAS-CET</th>
<th>WAEMU-CET</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic food products</td>
<td>16.93</td>
<td>16.14</td>
<td>4.93%</td>
</tr>
<tr>
<td>Industrial or export-oriented agriculture</td>
<td>7.83</td>
<td>9.57</td>
<td>-18.18%</td>
</tr>
<tr>
<td>Livestock, hunting, forestry and fishing</td>
<td>10.61</td>
<td>10.88</td>
<td>-2.48%</td>
</tr>
<tr>
<td>Extraction</td>
<td>5.00</td>
<td>4.18</td>
<td>19.72%</td>
</tr>
<tr>
<td>Food and beverages</td>
<td>18.23</td>
<td>15.41</td>
<td>18.35%</td>
</tr>
<tr>
<td>Tobacco</td>
<td>17.78</td>
<td>15.56</td>
<td>14.29%</td>
</tr>
<tr>
<td>Cotton and textiles</td>
<td>17.63</td>
<td>16.86</td>
<td>4.54%</td>
</tr>
<tr>
<td>Leather</td>
<td>12.34</td>
<td>15.47</td>
<td>-20.20%</td>
</tr>
<tr>
<td>Wood and wood products</td>
<td>14.87</td>
<td>13.29</td>
<td>11.88%</td>
</tr>
<tr>
<td>Paper, cardboard</td>
<td>10.89</td>
<td>10.79</td>
<td>0.91%</td>
</tr>
<tr>
<td>Petroleum refining, coking</td>
<td>6.43</td>
<td>6.43</td>
<td>0.00%</td>
</tr>
<tr>
<td>Chemical products</td>
<td>7.54</td>
<td>6.96</td>
<td>8.36%</td>
</tr>
<tr>
<td>Rubber</td>
<td>13.53</td>
<td>11.98</td>
<td>13.00%</td>
</tr>
<tr>
<td>Glass and pottery</td>
<td>16.60</td>
<td>14.94</td>
<td>11.16%</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>13.14</td>
<td>11.16</td>
<td>17.67%</td>
</tr>
<tr>
<td>Machinery, equipment and transportation materials</td>
<td>9.23</td>
<td>8.53</td>
<td>8.22%</td>
</tr>
<tr>
<td>Various industries</td>
<td>17.08</td>
<td>16.37</td>
<td>4.29%</td>
</tr>
<tr>
<td>Services</td>
<td>17.19</td>
<td>15.94</td>
<td>7.84%</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using CEDEAO (2013) and DGD (unpublished)

6.1.2. Sim-EPA: EPA implementation scenario up to the end of dismantling process

The Sim-CET is the reference situation prior to simulating the EPA. Sim-EPA is done in consideration of the offer of access to the West African market. Since the model is static and tariff dismantling is progressive over time, the simulation is done up to the end of the 20-year period of the tariff dismantling processes. By that date, the tariff barriers on products of EU origin are completely dismantled, with the exception of those in category D.

Simulating implementation of the EPA thus amounts to not applying the ECOWAS-CET except: (1) on products of EU origin from category D (the tariff is generally zero for products in categories A, B and C from the EU) and (2) on all products imported from the rest of the world.

Table 4 shows the share of imports of EU origin subject to the ECOWAS-CET (category D) by the end of the tariff dismantling process of the EPA, by sector.
Table 4: Structure of sectors by EPA categories of imported products of EU origin

<table>
<thead>
<tr>
<th>Products</th>
<th>Category A</th>
<th>Category B</th>
<th>Category C</th>
<th>Category D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic food goods</td>
<td>0.00%</td>
<td>0.00%</td>
<td>40.66%</td>
<td>59.34%</td>
</tr>
<tr>
<td>Industrial or export-oriented agriculture</td>
<td>1.70%</td>
<td>0.00%</td>
<td>98.27%</td>
<td>0.03%</td>
</tr>
<tr>
<td>Livestock, hunting, forestry and fishing</td>
<td>31.64%</td>
<td>0.74%</td>
<td>62.23%</td>
<td>5.38%</td>
</tr>
<tr>
<td>Extraction</td>
<td>39.41%</td>
<td>0.97%</td>
<td>59.62%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Food and beverages</td>
<td>0.65%</td>
<td>0.00%</td>
<td>16.82%</td>
<td>82.54%</td>
</tr>
<tr>
<td>Tobacco</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Cotton and textiles</td>
<td>0.05%</td>
<td>0.02%</td>
<td>10.14%</td>
<td>89.79%</td>
</tr>
<tr>
<td>Leather</td>
<td>0.86%</td>
<td>0.00%</td>
<td>0.48%</td>
<td>98.66%</td>
</tr>
<tr>
<td>Wood and wood products</td>
<td>0.00%</td>
<td>0.66%</td>
<td>13.31%</td>
<td>86.03%</td>
</tr>
<tr>
<td>Paper, cardboard</td>
<td>0.00%</td>
<td>0.00%</td>
<td>14.64%</td>
<td>85.36%</td>
</tr>
<tr>
<td>Petroleum refining, coking</td>
<td>99.75%</td>
<td>0.00%</td>
<td>0.25%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Chemical products</td>
<td>15.73%</td>
<td>8.01%</td>
<td>44.96%</td>
<td>31.29%</td>
</tr>
<tr>
<td>Rubber</td>
<td>0.01%</td>
<td>3.87%</td>
<td>22.40%</td>
<td>73.73%</td>
</tr>
<tr>
<td>Glass and pottery</td>
<td>1.29%</td>
<td>34.40%</td>
<td>18.58%</td>
<td>45.73%</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>0.03%</td>
<td>11.32%</td>
<td>31.58%</td>
<td>57.07%</td>
</tr>
<tr>
<td>Machinery, equipment and transportation</td>
<td>18.95%</td>
<td>27.81%</td>
<td>20.78%</td>
<td>32.45%</td>
</tr>
<tr>
<td>Various industries</td>
<td>0.62%</td>
<td>19.61%</td>
<td>13.08%</td>
<td>66.70%</td>
</tr>
<tr>
<td>Services</td>
<td>20.35%</td>
<td>79.65%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using data from DGD (2014c), DGD (unpublished) and ANSD (unpublished)

6.2 Impacts of implementing the ECOWAS-CET

6.2.1 Effects of the ECOWAS-CET on prices

Implementation of the ECOWAS-CET leads to an increase in various price levels (Table 5). The internal general price index of imports rises by 1.57%. A change in the increase of this price index was expected, since the ECOWAS-CET involves higher overall collection of customs tariffs than under the WAEMU-CET (Table 3). This increase is basically due to the increase in imports from outside of the ECOWAS region (1.72%), with increased imports from both the EU (1.67%) and the rest of the world (1.78%).

It appears as though domestic prices increase by even more than imports: 3.33% for production consumed domestically and 2.78% for exports. This leads to an increase in average remuneration to labour (3.82%) and capital (4.13%). This increase, which itself results from increased demand for domestic products (c.f. effect on quantities) induces an increase in the
“price of value added” (3.93%), which is a main contributor to the base price of production and, as a result, the prices of products destined for export or the domestic market.

The combination of impacts on prices of imports and domestic products explains the average increase in prices of composite products (2.83%). The price increases differed by type of consumer of final products, with the average increase in prices being 3.04% for household consumption, 3.24% for public spending and 2.79% for investment goods.

Table 5: Changes in price indices following implementation of the ECOWAS-CET

<table>
<thead>
<tr>
<th>PRICE INDEX</th>
<th>CHANGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal price of imports (all origins)</td>
<td>1.57</td>
</tr>
<tr>
<td>Internal price of imports from outside ECOWAS</td>
<td>1.72</td>
</tr>
<tr>
<td>Internal price of imports from EU</td>
<td>1.67</td>
</tr>
<tr>
<td>Internal price of imports from the rest of the world (outside EU and ECOWAS)</td>
<td>1.78</td>
</tr>
<tr>
<td>Price of value added</td>
<td>3.93</td>
</tr>
<tr>
<td>Rate of return to capital</td>
<td>4.13</td>
</tr>
<tr>
<td>Average nominal wage rate</td>
<td>3.82</td>
</tr>
<tr>
<td>Average real wage rate</td>
<td>0.73</td>
</tr>
<tr>
<td>Base price of production</td>
<td>3.25</td>
</tr>
<tr>
<td>Price of exports</td>
<td>2.78</td>
</tr>
<tr>
<td>Price excluding taxes on production destined to the domestic market</td>
<td>3.33</td>
</tr>
<tr>
<td>Price including all taxes on production destined to the domestic market</td>
<td>3.32</td>
</tr>
<tr>
<td>Price of composite products (imports + local substitutes)</td>
<td>2.83</td>
</tr>
<tr>
<td>Price of household consumption</td>
<td>3.04</td>
</tr>
<tr>
<td>Price of public expenditures</td>
<td>3.24</td>
</tr>
<tr>
<td>Price of investment goods</td>
<td>2.79</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using simulation results

6.2.2 Effects of ECOWAS-CET on trade and production

Implementation of the ECOWAS-CET favours regional imports which become relatively more competitive due to the change, without negatively affecting imports from the rest of the world (Table 6). Imports of ECOWAS origin increased by 1.94%. Despite the increase in domestic prices of products from outside ECOWAS, as described above, these imports also increased (1.82%). This can be explained by the raise in domestic demand and especially increases in income which are greater than the increase in imports. Thus, we observe a trade creation and not a trade diversion effect.

Quantities exported decline somewhat (-0.55%) despite the similarly sized increase in overall production (0.46%). This small increase in production mainly feeds domestic demand for
domestic products (+0.62%).

The sectors of activity which manage a slight increase in the production index are those in which protection increased substantially or remained high with the ECOWAS-CET (agroindustry food and beverages, services, various industries, tobacco, etc.). The sectors where production declines are those where customs tariffs substantially declined relative to the WAEMU-CET (extractive industries, petroleum refining, etc.).

Table 6: Change in quantity indices following implementation of the ECOWAS-CET

<table>
<thead>
<tr>
<th>QUANTITY INDEX</th>
<th>CHANGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total imports (all origins)</td>
<td>1.83</td>
</tr>
<tr>
<td>Imports from ECOWAS</td>
<td>1.94</td>
</tr>
<tr>
<td>Imports from outside ECOWAS</td>
<td>1.82</td>
</tr>
<tr>
<td>Imports from EU</td>
<td>1.24</td>
</tr>
<tr>
<td>Import from ROW (outside EU and ECOWAS)</td>
<td>2.34</td>
</tr>
<tr>
<td>Nominal GDP at factor cost</td>
<td>4.44</td>
</tr>
<tr>
<td>Nominal GDP at market price</td>
<td>4.81</td>
</tr>
<tr>
<td>Real GDP at factor cost</td>
<td>0.49</td>
</tr>
<tr>
<td>Real GDP at market price</td>
<td>1.71</td>
</tr>
<tr>
<td>Production</td>
<td>0.46</td>
</tr>
<tr>
<td>Exports</td>
<td>-0.55</td>
</tr>
<tr>
<td>Products destined to the domestic market</td>
<td>0.62</td>
</tr>
<tr>
<td>Composite products (imports + local substitutes)</td>
<td>0.95</td>
</tr>
<tr>
<td>Investment</td>
<td>3.66</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using simulation results.

The result is a slight increase in real GDP at factor cost (0.49%). At market prices, the increase in GDP is much higher (1.71%) due to the increase in fiscal receipts that this trade reform involves. It should be noted that the effects on growth, and thus on other variables, would be larger if we considered dynamic effects, at least by accounting for capital accumulation, given that investments rise by 3.66%.

6.2.3 Impacts of ECOWAS-CET on the labour market

Applying the ECOWAS-CET, in addition to leading to a 3.82% increase in the remuneration rate for labour as mentioned above, brought a slight increase in demand for this factor (0.83%) along with a decline in the unemployment rate (-6.85%).

The sectors with increased production (listed above) see growth in their labour demand. As indicated above, these include imported substitutes which faced high customs tariffs under the WAEMU-CET and have even higher rates in the ECOWAS-CET (Graph 11).
In terms of intergenerational effects and gender, the ECOWAS-CET is much more favourable to employment of youth in general and young women in particular: the activities which increase their labour demand employ more young women and young men than older persons. However, in sectors which reduce demand, these categories of workers see smaller declines than the respective averages in these categories.

Overall, employment of young women increases by 1.40% and that of young men by 0.82%, as compared to 0.75% and 0.55% respectively among older women and men.

Relatively speaking, the unemployment rate declines less for both youth and women. The decline is respectively -6.85% and -6.76% for young women and young men and -7.58% and -7.79% for older women and men. However, that is due to the relatively higher initial levels of unemployment among youth compared to older people and women compared to men. Thus, the percentage point decline in the unemployment rate of youth and women is fairly large: 1.14 and 0.73 points respectively for young women and young men and 0.69 and 0.51 points respectively for older women and older men.
6.2.4 Impacts of ECOWAS-CET on household incomes and welfare

Household incomes

The ECOWAS-CET leads to a 4.27% increase in income across all households. This change is due to the increase in both labour income (4.68%) and capital income (4.13%).

Labour income increases through the combination of an increase in average remuneration to this factor (3.82%) and slight positive variation in labour demand (0.82%).

The change in the wage rate is somewhat higher for adults (3.88%) than for youth (3.75%). The wage rate also increased slightly more for men (3.84%) than for women (3.79%). However, the increase in labour demand having benefitted youth more than older people and women more than men, the increase in total labour income is highest among young women (5.15%), followed by older women (4.66%), young men (4.65%) and older men (4.46%).
**Household welfare**

Despite the 3.04% increase in the consumer price index, the purchasing power of households as a whole rose, both among rural and urban households, as well as across all income quintiles (see Graph 12). In fact, household incomes increase by more than the general price level of consumption. Hence, there is a 1.20% increase in household consumption.

**Graph 12: Impact of ECOWAS-CET on household purchasing power and incomes (in %)**

![Graph showing impact of ECOWAS-CET on household purchasing power and incomes.](Image)

Source: Developed by authors using simulation results

**6.2.5 Effects of ECOWAS-CET on public finances**

Total government revenues increase by 5.62%, mainly due to growth in tax receipts. There are also increases in customs tariff receipts on imports originating from ECOWAS (+3.67%), the EU (11.79%) and countries outside of the EU and ECOWAS (13.61%). Similarly, there are increases in other taxes such as internal taxes on products (3.12%), on production (4.29%) and on income of households (+4.29%) and firms (4.10%).

As for public consumption, it declines by 3.14% in real terms, simply due to the increase in prices, combined with the assumption of fixed public expenditures in nominal terms adopted in the model.
6.3 Impacts of implementing the EPA

6.3.1 Effects of the EPA on prices

One of the main direct consequences of dismantling tariffs as a part of the EPA is a 5.70% decline in the internal price index for imports of EU origin (Table 7).

Table 7: Changes in price indices following implementation of EPA

<table>
<thead>
<tr>
<th>PRICE INDEX</th>
<th>CHANGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal prices of imports (all origins)</td>
<td>-3.19</td>
</tr>
<tr>
<td>Internal prices of imports from ECOWAS</td>
<td>-0.73</td>
</tr>
<tr>
<td>Internal prices of imports from outside ECOWAS</td>
<td>-3.51</td>
</tr>
<tr>
<td>Internal prices of imports from EU</td>
<td>-5.70</td>
</tr>
<tr>
<td>Internal prices of imports from Rest of World (outside EU and ECOWAS)</td>
<td>-1.02</td>
</tr>
<tr>
<td>Price of value added</td>
<td>-6.81</td>
</tr>
<tr>
<td>Average rate of return to capital</td>
<td>-7.15</td>
</tr>
<tr>
<td>Average nominal wage rate</td>
<td>-6.64</td>
</tr>
<tr>
<td>Average real wage rate</td>
<td>-1.38</td>
</tr>
<tr>
<td>Base price of production</td>
<td>-5.91</td>
</tr>
<tr>
<td>Price of exports</td>
<td>-5.17</td>
</tr>
<tr>
<td>Prices excluding taxes of production destined to domestic market</td>
<td>-6.05</td>
</tr>
<tr>
<td>Prices including all taxes of production destined to domestic market</td>
<td>-6.02</td>
</tr>
<tr>
<td>Prices of composite products (imports + domestic substitutes)</td>
<td>-5.25</td>
</tr>
<tr>
<td>Price of household consumption</td>
<td>-5.28</td>
</tr>
<tr>
<td>Price of public expenditures</td>
<td>-5.92</td>
</tr>
<tr>
<td>Price of investment goods</td>
<td>-5.83</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using simulation results

The change in the composition of demand for imports of non-EU origin, due to increased competitiveness of products from the EU, leads to a decline in prices of imports from both ECOWAS (-0.73%) and other countries outside of the EU (-1.02%). Similarly, prices of domestic products decline throughout various levels of the production and distribution system, as a reaction to the relative competitiveness of these products vis-à-vis imports: the price index of value added declines by 6.81% following the decline in the average remuneration rate to labour (-6.64%) and average returns to capital (-7.15%); the price indices for exports and production for domestic markets respectively decline by 5.17% and 6.05%. These are associated with a decline in prices of composite products (5.25%), household consumption (5.28%), public consumption (5.92%) and investment goods (5.83%).
6.3.2 Effects of EPA on trade and production

Imports of EU origin increase by 8.66%, following a decline in their internal prices. However, this price decline leads to a strong trade diversion effect which is detrimental to imports from other countries (Graph 15 and Table 8). Reduced demand for product of ECOWAS origin sees volumes decline by 3.70% and those of the rest of the world by 14.45%—in other words, major trade diversion. Domestic demand for domestic products also declines by 1.10%; this promotes a slight shift in production oriented to exports, which increases by 1.07%.

**Graph 15: Impacts of EPA on price and domestic demand by product origin (change in %)**

![Graph 15: Impacts of EPA on price and domestic demand by product origin (change in %)](source)

Generally speaking, domestic production declines slightly, with a 0.96% decline in real GDP at factor cost and a larger 3.49% decline in real GDP at market prices, due to the decline in tax receipts.

At the sectoral level, the areas of activity which decline most are those most in competition with imported products. For example, the machinery, equipment and transportation materials sector registers a 2.25% decline in production, with the next-largest declines observed in other industries and in glass and pottery. However, the sectors which most intensively use liberalized inputs and those which are more export-oriented show growth in activity. The most affected in this respect is the extractive sector, with 2.06% higher
production. However, overall the decline in activity outweighs the benefits, leading to a 0.83% decline in the general production index.

As indicated above, these are only the static effects. It would not be without interest to explore the dynamic effects by accounting for the effects over time associated with the variation in demand for investment goods, which is negative (-7.54%).

Table 8: Change in quantity indices following implementation of the EPA

<table>
<thead>
<tr>
<th>QUANTITY INDEX</th>
<th>CHANGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total imports (all origins)</td>
<td>-3.43</td>
</tr>
<tr>
<td>Imports from ECOWAS</td>
<td>-3.70</td>
</tr>
<tr>
<td>Imports from outside ECOWAS</td>
<td>-3.39</td>
</tr>
<tr>
<td>Imports from EU</td>
<td>8.66</td>
</tr>
<tr>
<td>Share of imports from EU in total volume of imports</td>
<td>12.52</td>
</tr>
<tr>
<td>Imports from Rest of World (outside EU and ECOWAS)</td>
<td>-14.45</td>
</tr>
<tr>
<td>Nominal GDP at factor cost</td>
<td>-7.71</td>
</tr>
<tr>
<td>Nominal GDP at market prices</td>
<td>-8.59</td>
</tr>
<tr>
<td>Real GDP at factor costs</td>
<td>-0.96</td>
</tr>
<tr>
<td>Real GDP at market prices</td>
<td>-3.49</td>
</tr>
<tr>
<td>Production</td>
<td>-0.83</td>
</tr>
<tr>
<td>Exports</td>
<td>1.07</td>
</tr>
<tr>
<td>Production destined to domestic market</td>
<td>-1.10</td>
</tr>
<tr>
<td>Composite products (imports + domestic substitutes)</td>
<td>-1.75</td>
</tr>
<tr>
<td>Investment</td>
<td>-7.54</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations using simulation results

6.3.3 Impacts of EPA on labour market

Overall, the EPA leads to a 1.16% decline in labour demand and an increase in the unemployment rate by 1.5 percentage points (14.49% higher than the baseline unemployment rate).

Labour demand mainly declines in glass and pottery (-2.81%); other industries (-2.76%); production of machinery, equipment and transportation materials (-2.37%); and services (-2.29%). With the exception of the services sector, more than half of workers in these sectors are youth. In the glass and pottery and in the machinery and transportation equipment sectors, employment of young women is most affected (Graph 13).
Overall, youth are more negatively affected by the EPA than older persons, and females more so than males; employment of young women declines by 2.70% and that of young men by 1.61%, significantly higher than the declines among older women (1.48%) and older men (1.09%). A similar pattern holds for unemployment rates, already higher for youth and women, with increases among young women (+1.08 percentage points), young men (+0.71 percentage point), and older women (+0.67) and men (+0.51).

Remuneration to labour declines slightly less among youth (-6.50%) than among older workers (-6.73%) than among men (-6.67%). However, the overall impact on the income of different household groups depends on the relative dominance between the change in employment and the change in the labour remuneration rate.
6.3.4 Impacts of EPA on income and household welfare

**Household incomes**

As a whole, household incomes decline by 7.41%, with an 8.12% decline in labour income and a 7.15% decline in capital income. Due to the impact on demand and remuneration to different categories of labour, the decline in labour income is somewhat less among young women (8.94%) than among young men (-8.09%), and a similar difference holds between older women (-8.10%) and men (-7.76%).

**Household welfare**

The combined effect of the decline in household incomes and the increase in the unemployment rate led to a deterioration in households’ standard of living, despite the decline in consumer prices. The deterioration in welfare is seen here through reduced real household consumption, in both rural and urban areas, and also across all income quintiles (Graph 16). Across all households, this decline is 2.27%. The most affected households are those in rural areas in the second and fourth quintiles and the third quintile among urban households.

![Graph 16: Impact of EPA on purchasing power and household incomes](image)

Source: Authors’ calculations using simulation results
6.3.5 Impact of EPA on public finances

The total amount of budget receipts declined by 10.67%. This decline is especially linked to the decline in customs tariff receipts on imports from the EU (-35.07%) despite the increase in volume of these imports. Customs tariffs on imports originating from countries other than the EU also decline, due to the trade diversion effect faced by products of these countries. We thus have a 15.25% decline in customs receipts on imports originating from “outside EU and outside ECOWAS” and a 6.82% decline among those from the ECOWAS region.

Customs tariffs collected decline in all sectors, regardless of the extent of dismantling of barriers and the initial level of the barriers (Graph 14).

**Graph 14: Impact of EPA on customs tariffs by origin of imports and sector of activity**

Beyond customs tariffs, other sources of fiscal resources also decline due to the combined action of the decline in prices and quantities of products, in addition to the decline in the income of households and firms. These other fiscal receipts also decline by 5.89% for...
internal taxes on goods and services, 7.45% for taxes on household incomes and 7.15% for direct taxes on firms.

In terms of expenditures, there is 6.29% growth in public spending in real terms. This positive variation is basically a function of the assumption of a fixed public spending in nominal terms in a context of declining prices of goods and services consumed, which thus leads to an increase in the quantity consumed.

**VII. Conclusion and economic policy recommendations**

The objective of this study was to evaluate the impact of implementing the ECOWAS-CET and the EPA on employment and welfare in Senegal. The analysis is based on the results of a simulation which used a static general equilibrium model. The first simulation, which describes the change from the WAEMU-CET to the ECOWAS-CET, showed a number of very advantageous results for the Senegalese economy. Implementation of the ECOWAS-CET led to a trade creation effect; an increase in prices of products imported from countries outside of ECOWAS led to an increase in demand for domestic and regional products without reducing demand outside of ECOWAS. Real GDP at market prices thus grows by 1.71%; although only slightly, economic sectors become relatively more productive and increase their demand for labour, which leads to an appreciable 6.85% average reduction in the unemployment rate. An inter-sectoral analysis, however, shows mixed effects across sectors from the ECOWAS-CET. Its application is unfavourable to production in sectors such as agro industry, leather, extractive industries, etc., leading to a decline in labour demand in these sectors. Workers in these sectors are mainly in the youth category, although they are less affected by job reductions than their elders.

In sectors which benefit most from the ECOWAS-CET, for example food agriculture, livestock, hunting, forestry and fishing, food and beverages, etc., the changes in trade have a notable positive effect in favour of youth and women. The ECOWAS-CET thus favours
employment of youth and women at all qualification levels, and also acts positively on employment more generally. The labour income of households increases over time and their standard of living improves due to an increase in purchasing power.

However, the results of the second simulation indicate that implementation of the EPA negatively impacts real GDP at market prices, to the tune of 3.89%. The EPA has a sort of crowding out effect and thus causes a decline in domestic production (-0.83%), although some branches increase their output by reorienting towards exports.

This decline in activity leads to reduced demand for production factors, leading to a 14.49% average increase in unemployment. On the labour market, the main casualties of implementing the EPA are youth and women: employment of young women declines by 2.70% and that of young men declines by 1.61%, as compared to respective declines of 1.48% and 1.09% among older women and men. The same pattern applies for unemployment where the initial rates, which were already high for youth and women, and rise following implementation of the EPA.

Household income declines more than proportionally to the decline in consumer prices. This reduction in purchasing power (a 2.27% decline) thus implies deterioration in household welfare.

The results of the present study show that the greater risks faced by the Senegalese economy due to trade reforms are not only in the form of lost public receipts, but also in the uncompetitiveness of most sectors of activity.

On this point, we can imagine policies to accompany the trade reform which would directly impact the productivity of economic sectors in order to make them more competitive. The government should thus promote upgrading of firms which are most affected by application of these reforms.

Since gender or age criteria were not accounted for in the process of establishing which products are in the sensitive category with regard to tariffs, it will be necessary for the government to proceed with strengthening measures and mechanisms to promote new employment and facilitate access to skills acquisition among youth and women.
From the methodological perspective, it should be noted that study of the effects of the implementation of the EPA would be enhanced with a dynamic CGE model, which adds to the lessons that can be drawn from a static version in the present study. ECOWAS, and also other stakeholders in various EPAs which have been concluded or which remain in negotiation, by proposing a progressive dismantling of tariffs, wish to have a “sufficiently long transition period to ease the phase between external trade liberalization and adaptation of productive sectors in competition linked to the EPA” (Tiemtore, 2014; CRES, 2011). Thus, by proposing progressive dismantling of customs tariffs, ECOWAS states specifically targeted the effects that the EPA could bring over time. Most of the first products to be liberalized being inputs, the simulation of a dynamic shock which mimics progressive tariff dismantling would allow for liberalization of these inputs to contribute to reductions in production costs.

Moreover, a dynamic model can account for effects through capital accumulation and change in the supply of different categories of labour over time. Such a variant of the model would also make it possible to evaluate support policies such as PAPED (EPA Program for Development) which aims, among other things, to stimulate sustainable growth and development alongside application of the EPA. This will be one of the next directions of research.
References


