

Special session – GTAP Conference June 2019

Proposed by **Mustapha Sadni Jallab (IDEP)**

With the support of

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On February 2019, the United Nations Economic Commission for Africa (ECA) launches a project consisting in the design, administration, and moderation of two online courses on economic modelling (partial equilibrium and general equilibrium) with a focus on the African Continental Free Trade Area (AfCFTA). The project will be led by the African Institute for Economic Development and Planning (IDEP), with the support of the African Trade Policy Centre (ATPC) and the International Food Policy Research Institute (IFPRI), and will have the following main characteristics:

- A free online course on economic modelling, accessible to anybody registered on a dedicated platform, will be based on technical resources (*capsules*) designed by IFPRI with the support of ECA, and uploaded on dedicated platforms.
- A free **supervised** online course (*Small Private Online Course - SPOC*) on economic modelling, for selected African trainees only, where participants will be chosen primarily from doctoral programs of African Universities, but also from government agencies, African think tanks, national and regional institutes, and other private or public research centers. This online course will be based on the same resources as the free online course, but trainees will be supervised.

The technical resources (*capsules*) will be freely accessible online to any interested user, within Africa or outside of Africa, who has registered on the platform. So, anyone interested by economic modelling, in particular on trade issues, will be able to follow this course without supervision by IFPRI, ATPC or IDEP, but still being assessed through Multiple Choice Questionnaires and quantitative exercises at the end of each module that will validate the learning process. All *capsules* and materials will be developed in English and in French (two versions).

The course will include examples and exercises based on questions of interest for African researchers and policymakers, including the study of relevant trade agreements for African countries, within the continent or with the rest of the world. These examples and exercises will in particular focus on the AfCFTA. Data will come in priority from the GTAP database with systematic reference.

The online course includes the delivery, from April 1st, 2019, to May 26th, 2019, of a first curriculum, entitled *Introduction to economic modelling*, with 2 modules and lasting 8 weeks and of a second curriculum, entitled *Economic modelling: advanced issues*, with 2 modules and also lasting 8 weeks. This second curriculum will be delivered, from September 2nd, 2019, to October 27th, 2019. Both curricula will be proposed in English and in French.

The purpose of this special session is to present this course, with in particular, a demonstration of the contents of the platform, and the presentation by 2-3 African researchers of the applications realized during this course and of the projects which they will realize at the end of the course.

African Continental Free Trade Area (AfCFTA) and youth labour market in Senegal: analysis of the impact on the demand for youth labour using a microsimulated computable general equilibrium approach

Research project proposed by

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In the context of increased globalization, whose benefits for African countries remain weakly representative compared to developed countries that are major exporters, it seems unanimous that regional integration remains the driving force that will lead Africa towards a path of inclusive growth. It is in this context that the African Union Summit approved the project to establish an African Continental Free Trade Area (AfCFTA), which is one of the flagship projects of Agenda 2063.

According to the Economic Commission for Africa (ECA), AfCFTA will reach an African market of 1.2 billion people, representing a gross domestic product (GDP) of \$2.5 trillion in all 55 African Union member states. In terms of the number of countries participating, it will be the largest free trade area in the world since the creation of the World Trade Organization (WTO). AfCFTA is also a very dynamic market. Africa is projected to have 2.5 billion people by 2050, or 26 per cent of the world's working-age population, and to grow at twice the rate of the developed world's economy.

Thus, in the face of this rising demography characterised by a young population of working age, one of the major concerns, also included in Agenda 2063, is to create employment opportunities for young people. To this end, the AfCFTA aims to create more jobs by promoting the development of more labour-intensive trade. Indeed, extractive resource exports, on which African trade is currently based, require a smaller labour force than manufactured and agricultural products, which will be the main beneficiaries of the AfCFTA (ECA, 2018).

However, given the heterogeneity of the economies concerned, it is clear that knowledge of the transmission channels of the impact of the implementation of the AfCFTA on the labour market for all countries remains limited.

The objective of this work is thus to assess, in the case of Senegal, the impact of the implementation of the AfCFTA on the demand for labour, particularly young workers.

This research aims to go beyond the macroeconomic framework in which most of the work to assess the impact of trade reform on an economy is carried out. First, a dynamic computable general equilibrium (CGE) model is used to simulate the effects of the AfCFTA on labour demand by type throughout the economy (Senior Engineer and Related Occupations, Middle Manager, Supervisory Officer, Skilled Worker, Semi-Skilled Worker, General Labourer, General Labour, Employer, Own Account or Independent, Family Help and Paid or Unpaid Apprentice). Then, through a microsimulation module (MMS), for each sector, the volume required to meet labour demand by skill (ship engineers, mechanical engineers, meteorologists, civil aviation engineers, electrical engineers, production planning department employees, farmers and skilled workers in the agricultural, forestry and fisheries sectors, fixed machinery and installation operators, electronics technicians, etc.) will be quantified.

Methodological process

In labour market modelling, the macro model distinguishes for each branch the 10 socio-professional categories mentioned above. To each of these categories, it is possible to associate professions. However, the list of professions varies from one category to another with different profiles by sector. For this reason, it is technically impossible to integrate all the professions by category and for all sectors directly into the database of the macro model, i.e. the MCS. We will therefore build a microsimulation module (MMS) that is linked to the macroeconomic model from a top-down perspective. The module of microsimulation of professions will allow us to simulate the changes in demand for professions induced by the implementation of the AfCFTA and therefore by the changes in the activities of the main sectors benefiting from the AfCFTA. The model will be constructed using data from the Senegal Poverty Monitoring Survey, ESPS 2011, which covered 168201 individuals. The "employment" section will identify the branches of the main activity carried out by the individual. By using the individual file, particularly in the "employment" section and considering the list of branches of activity, for each of these branches, the workforce on the socio-professional categories are first informed. Then to each category, we will associate the corresponding professions. For each profession, the number of employees and the total payroll paid will be integrated. Then a calculation of the shares of the workforce and salaries of each profession in the socio-professional category to which it belongs will be carried out. These calculated shares become the allocation keys for the projections and remain constant for the years to be projected. After simulation, we obtain the variations on jobs by branch and category. Based on the keys representing the shares of professions in the socio-professional categories, the MMS makes it possible to calculate the variations in the number of employees corresponding to the demand for the profession of the branches by age and sex.