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Reconciliation of nutrition databases and food supply databases for assessing the impact of food security public policy on nutritional quality.

Results of GloFoodS project: Reconcil

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Abstract: The evaluation of public policies in the field of agricultural and agri-food products is mainly carried out in monetary terms (evaluation of the consumer/producer surplus). Concerning food security, this assessment is mainly done in terms of the quantity of food or caloric intake, possibly disaggregated in some main components (protein, fat, carbohydrates); but the analysis of national nutrient availability is rarely performed. The Reconcil project propose to build a coherent database reconciling, HS6 trade databases such as those of UN/COMTRADE or COMEXT (Eurostat) and food composition tables. This will allow the evaluate trade policies not only with traditional indicators but also to assess the impact on the coverage of people's nutritional needs. The database is available upon request.

Keywords: International trade, Nutrition, databases

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1. Introduction

The issue of food and nutritional security in many developing countries is linked to the issue of the triple burden, with the co-existence of obesity, undernutrition and micronutrient deficiencies. In many countries dietary transitions initiated in the mid-70's were often reinforced by public policies that aimed at ensuring food security of the most vulnerable populations (Lobstein, 2002; Rayner et al., 2007). These policies have subsidized calorically dense food staples such as sugar, cereals and fats. Purchases of food available at low cost on foreign markets were made to the loss of local agriculture and erosion of traditional diet adherence (Thow, 2009). The evaluation of public policies in the field of agricultural products and food is done mainly in monetary terms (evaluation of consumers/producers surplus). Regarding food security, the assessment is essentially in terms of quantity of food or calories intake eventually disaggregated in the major components (protein, fat, carbohydrates); but analysis of the national (micro) nutrients availability is rarely done.

The objective of Reconcil project was to build and / or reconcile databases in order to simulate the impact of public policies on nutritional intakes of people nationwide.

2. Methodology

The first objective of the project is to reconcile data of international trade as UN/Comtrade (<https://comtrade.un.org/>) or Eurostat/Comext (<http://epp.eurostat.ec.europa.eu/newxtweb/>) databases at the 6-digit level of the harmonized system (HS6) and the food composition tables. Initially the exercise is done with the French database on nutrition composition of food (Ciqua) but it can be replicated with other national tables.

Two researchers from INRA were involved in the Reconcil project: a researcher in nutrition and a researcher in economics from MOISA (Markets Organisations Institutions and Strategy of Actors). The project has recruited a master student in computer sciences applied to social sciences to reinforce the team and a post-doctoral fellowship student has also helped to develop the last version of the database.

First, a code in visual basic has been written to browse the definition of items in both databases (Ciqua and HS6) and to match the codes in order to translate HS6 items in nutrients and micro-nutrients. Once the matching operated, then a more accurate analysis has been performed using the STATA software.

3. The databases

3.1 The Anses Ciqua (French food composition table)

Ciqua aims, within the Anses (Agence Nationale de Sécurité Sanitaire de l'Alimentation), at collecting, evaluating and publishing data on the nutritional composition of generic foods consumed in France (<https://ciqua.anses.fr>). The collected data, which are confidential, are then aggregated by Ciqua to produce average reference values for generic foods. The website presents a table of nutritional composition of foods. Ciqua database compiles the nutritional composition for 1624 food products

commonly consumed in France. It gives for 64 macro and micro-nutrients (ex: calories, proteins, carbohydrates, fats, vitamins, etc.) their quantity in grams per 100 grams of each of these 1624 foods.

3.2 The Harmonized System

The Harmonised System (HS) is a system for the classification, description and international coding of goods used for trade taxation and the collection of trade statistics. The HS system was developed by the World Customs Organization (WCO). It was established in 1988 by an international convention. The HS system is managed by the WCO through the Harmonized System Committee. The United Nations Statistical Commission has adopted HS as a commodity classification and it now covers 98% of world trade according to the WCO. All WTO Member States have adopted (in principle) the HS system and all commodity classification systems such as the European Union Combined Nomenclature are correlated to the HS.

In the HS6 classification each code corresponds to a product traded worldwide. The HS classification is divided into 99 chapters (at the 2-digit HS2 level). The first 24 chapters of the HS6 classification correspond to products from agriculture, fisheries and their processing, but chapters 6, 14, 23 and 24 do not concern edible products and are not taken into account.

3.3 The Reconcil database

Therefore, the Reconcil database gives for each HS6 code (corresponding to one or more Ciqua edible foods) an approximation of its composition in these 64 macro and micro nutrients. When an HS6 code corresponds to several Ciqua foods, Reconcil gives the average amount for each of the 64 nutrients and the standard deviation. The Reconcil database is available in Excel and STATA formats, upon request.

4. References

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