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Projecting Benin’s Food Gap for 2025

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Abstract

According to the Human Development Index of the World Health Organisation, Benin is one of the least developed countries in the world with an annual population growth of about 3 percent. Although malnutrition occurs especially in children, the food supply situation seems more or less satisfying at the moment. But how will the situation develop in the next 20 years if population growth remains unchanged, and agricultural productivity remains at its current low levels? Demand in 2025 will most likely be met exclusively through the extension of cropping areas, thus increasing tensions between farmers and livestock herds-men which depend on natural pasture and fallow land. It is well possible that an over-use of land resources will increase the need for food imports. With the assistance of BenImpact, an agricultural sector model for Benin, this question is analysed quantitatively. BenImpact is designed as a regionalised farm-household model for the whole of Benin, where income and agricultural prices are endogenous and trade between different departments within the country, neighbouring countries, and the world market is possible. The model is split into a demand and a supply module which are solved in iterative steps. In the supply part, regional prices are computed as the marginal cost of production at the production levels that would clear all markets with given demand quantities. Those regional prices and income are in turn used to compute regional demand quantities. Demand and supply are solved iteratively with the objective to maximise profits and minimise transport costs subject to land area restrictions, processing capacities and the availability of labour. The agricultural year is divided into four periods to illustrate seasonal changes and to ensure that food requirements can be satisfied throughout the year. Introducing a shock, here a significant rise in population as population is an exogenous variable, the results are compared in a comparative-static way with both the base year situation and the millennium development goals.

Keywords: Agricultural sector model, BenImpact, Benin, food security