ARC'14
مؤتمر مؤسسة قطر السنوي للبحوث
QATAR FOUNDATION ANNUAL RESEARCH CONFERENCE
Towards World-class Research and Innovation

Using A Gravity Approach To Explain Food Imports For Improved Food Security In Qatar

10.5339/qfarc.2014.SSPP0392

Munshi Masudul Haq, Msc; Simeon Kaitibie; Samsul Huda; Noel Vock; Kep Coughlan; Kenzu Abdella; Marco Pollanen; Ahamed Moustafa

Corresponding author :
masud@qu.edu.qa
Qatar University, Doha, Qatar

Abstract

Today, food security is a global problem. The Qatar National Food Security Programme describes the dimensions of food security in Qatar in terms of food quality, physical availability, and affordability, alongside the resilience of the country's food supply to short-term trade shocks and long-term global supply risks. The world's richest country per capita, Qatar has a population of just over two million, but the country does not have sufficient arable land and irrigation water which are severely limiting local food production. Thus, over 90% of food consumed in Qatar is imported, making the country vulnerable to supply disruptions and price hikes. When the global food crisis of 2007-2008 occurred, food import dependent countries like Qatar were hit harder and policy makers as well as institutions such as the World Bank prescribed the adoption of greater diversification and management of food imports for enhanced food security. Therefore, it is vital to conduct research to understand how much, what and with whom Qatar trades and what are the determinants of the trade pattern between Qatar and its food import partner countries. This will allow Qatar to develop a better food import strategy in order to complement the proposed increase in domestic food production to attain increased resilience in food security.

Using food import and data other variables recorded from 2004 to 2013, we used a gravity model of bilateral trade to estimate the determinants of food import trade between Qatar and its trading partners. In its basic formulation, the gravity model suggests that the value of trade between any two countries is directly related to the sizes of the economies and inversely related to the distance between the two countries. We enhanced the predictive capacity of the gravity model by including other variables that are known to influence trade. Examples include dummy variables to capture regional integration, corruption perception, openness of the economy, and changes in foreign exchange rate regimes. In addition we used the Herfindahl Hirschmann Index to determine the extent of concentration in the import market for food. This allowed us to determine whether or not unusually large amounts of food items were imported from a few countries, a situation that would imply insufficient import market diversification. Preliminary results revealed that the Gross Domestic Product of countries from which Qatar imported food items is positively and significantly related to the value of food import by Qatar, suggesting that Qatar imported more food items from larger economies than from smaller countries. In addition, distance is negatively and significantly related to the value of trade, and hence Qatar imported more food items from nearby countries than from faraway countries. Both results are in conformance with economic theory underlying the gravity model. Among the remaining variables, we observed that Corruption Perception Index is positively related to the value of trade, implying that Qatar is importing more food items from less corrupt countries.