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The role of sectoral FDI in promoting agricultural production and improving food security



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ABSTRACT

The aim of this paper is to examine the effects of foreign direct investments (FDI) on food security for 55 developing countries in a panel framework over the period 1995–2009. There are various measures of food security that can be used. Our first contribution is to build a composite indicator that synthesizes the food indicators used by the Food and Agriculture Organization to measure the food availability and food utilization. Second, our empirical study is based on a model composed of a food security equation and an agricultural production equation. Our results show that sectoral FDI have different effects on food security. FDI in the agriculture sector improves food security and FDI in the secondary and tertiary sector increases the food insecurity. We found a significant FDI's spillover through the agricultural production to food security. While the effect is positive with FDI in secondary sector, it is negative for FDI in the tertiary sector.

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1. Introduction

Food security is a big challenge to the economic decision-makers in developing countries (DCs) and it is closely linked to social stability in these areas, where poverty can reach very high levels. According to the State of Food Insecurity in the World's report of [FAO, IFAD, WFP \(2013\)](#), nearly 842.3 million people (12% of the world population) are chronically undernourished; the vast majority lives in developing countries.

The economic and social potential of developing countries does not necessarily lead to good results in improving food security. In fact, it faces to a global economic context, which is characterized by changes in growth, commodity prices, climate and trade. The [World Bank \(2008\)](#) as well as [FAO, WFP and IFAD \(2012\)](#) show that agricultural investment plays an important role in promoting agricultural growth, reducing poverty and hunger. [Liu \(2014\)](#) summarizes the results of FAO's case studies on the impacts of foreign agricultural investment on host communities and countries.²

The recourse to the attraction of foreign direct investments (FDI) can be an alternative for developing countries. The FDI inflows have grown greatly in these countries, from 16.7% of global inflows in the early 1990s to 52% in 2012. Among them, the lowest share is directed to Africa and the biggest share is directed to the East and the Southeast of Asia ([UNCTAD, 2013](#)).

According to these stylized facts, a positive relationship between FDI inflows and the food supply is expected. In fact, the empirical literature dealing with the impact of FDI on food security dates back to the 1980s. The focus was on the distinction between the dependency and the modernization effects. Indeed, foreign investments could play a positive role via their effect on agricultural productivity ([Hallam, 2011](#)) but they are also a source of economic and political dependency ([Jenkins and Scanlan, 2001](#); [Wimberley, 1991](#)). As far as we know, a number of empirical studies have used the aggregated FDI inflows (see [Wimberley, 1991](#); [Firebaugh, 1992](#); [Firebaugh and Beck, 1994](#); [Jenkins and Scanlan, 2001](#)). The sectoral approach of FDI is rarely used and when it is used, it concerns rather developed countries. In addition, the spillover effect of FDI has been seen in intra-industry rather than in inter-industry ([Vu and Noy, 2009](#)). So, there is a lack in the literature about this relation when we are focusing on sectoral FDI in developing countries. Another limit in the existing empirical works is the neglect of agricultural production, which is the main base of food security.

To our best knowledge, at disaggregated level, only [Mihalache-O'Keef and Li \(2011\)](#) analyzed the direct economic relationship between sectoral FDI and food security in a large sample. [Djokoto \(2012\)](#) investigated the effects of FDI on food security in one particular developing country, Ghana. On the other hand, a large economic literature deals with FDI spillovers. At the sectoral level, we could cite a recent work of [Tondl and Fornero \(2010\)](#) that examined the relationship between FDI and productivity in different economic sectors.

There is no study addressing the transmission channels between FDI and food security, especially through agricultural production channel. This paper tries to fill in this gap. Our contribution is at least twofold. First due to different measures of food security and consequently to a number of criticisms like the possible different typology of countries associated with each measure, we propose a composite indicator of food security.³ Second, we try to determine the channels by which FDI may affect food security, focusing on the agricultural production. We propose to answer the following questions: Does FDI has a positive impact on food security? Is agricultural production a pass-through from FDI to food security? Is this effect observed for all FDI or only FDI in specific sectors?

To answer these questions we rely on two equations, one for the macroeconomic determinants of food security and the other for the agricultural production determinants. These equations are linked by a simultaneous equation system and tested through three steps least square techniques (3SLS) for an unbalanced panel of 55 developing countries during the period 1995–2009. Our work confirms

² [Liu \(2014\)](#) shows that agricultural investments can generate a wide range of developmental benefits but these benefits are not expected to arise automatically. The case studies suggest that the disadvantages of large-scale land acquisitions may outweigh the few benefits to the local community according to the local rights and the quality of governance in particular.

³ For more information about the various indices and their limits, see [De Haen et al. \(2011\)](#) and [Masset \(2011\)](#).

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