

Horticultural exports and food security in developing countries



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ABSTRACT

This article reviews the channels through which horticultural exports affect food security in developing countries. We describe the trends in horticultural export chains and investigate the macro- and micro-level effects on the different components of food security, including availability, access, utilization and stability. The available evidence suggests that horticultural exports contribute to food security in developing countries, particularly through the development of rural labor markets and female wage employment in companies. Important challenges remain; most notably the provision of secure employment at remunerative conditions and the sustainable use of water resources. Overcoming these challenges requires tighter national legislation but also private food standards may contribute. Empirical evidence that directly measures the impact of horticultural exports on food security and the underlying impact pathways is still completely missing and highly needed.

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1. Introduction

In the past two decades, exports of horticultural products (including fruits, vegetables and cut-flowers) from developing countries have increased tremendously. Horticultural exports from Latin-America more than tripled in the past 20 years, and exports from Africa and Asia more than quadrupled. This growth has resulted in horticulture being the most important product category in total agri-food exports for all developing regions.

Horticultural exports received a lot of attention from policymakers and researchers. Many developing country governments prioritize the development and modernization of the horticultural sector as an export diversification and poverty reduction strategy. Horticultural exports entail a high potential for poverty reduction because of the intensive use of low-skilled labor in production and post-harvest activities, and the high intrinsic value of produce (Aksoy and Beghin, 2005). Horticultural exports are often referred to as high-value exports, resulting in higher and less variable foreign exchange earnings than coffee, cocoa and other more traditional commodity exports (Carter et al., 1996).

Trade and welfare implications of horticultural exports have been debated intensively by researchers. Various studies document positive welfare effects for rural households. Other authors have questioned specific issues such as the exclusion of smallholder farmers from export chains (e.g. Dolan and Humphrey, 2000; Reardon et al., 2009); the exploitation of workers in export industries (e.g. Barrientos et al., 2003; Schuster and Maertens, 2016); land-grabbing by multinational export companies (e.g.

Amanor, 2012; Baglioni and Gibbon, 2013); the (over-)exploitation of water resources (e.g. Schwarz et al., 2015); and the environmental burden of overseas transport of off-season vegetables (e.g. Brenton et al., 2009).

In the scientific debate on horticultural exports, food security has received very little attention. In a related field on modern food supply chains, there are some recent studies investigating the food security implications of increased supermarket retail: Rischke et al. (2015) and Umberger et al. (2015) focus on urban consumers, and Chege et al. (2015) show that participation of Kenyan farmers in supermarket channels improves their food and nutrition security. Negash and Swinnen (2013) find that smallholder participation in biofuel production increases food security in Ethiopia. Despite the growing body of literature on the income and poverty effects of high-value exports, empirical evidence that measures the impact of horticultural exports on food security is completely missing. Such evidence is needed as higher incomes do not automatically improve food security (Bhattacharya et al., 2004; Larsen and Lilleor, 2014).

In this article we review the empirical literature and assess the channels through which horticultural exports affect food security at the macro- and micro-economic level. We first describe the trends in horticultural export chains in more detail. We then review the different components of food security, including availability, access, utilization and stability. For each of these components we investigate the macro- and micro-level effects and review the existing empirical evidence.

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2. Trends in horticultural exports

In all developing regions exports of fruits, vegetables and cut-flowers increased sharply during the past two decades (Fig. 1). In Africa, horticultural exports increased from 3.75 billion USD in 1995–16 billion USD in 2014, which amounts to an average annual growth of 7.54%. In developing Asia (including China and India), horticultural exports increased from 14.75 billion USD in 1995–66.5 billion USD in 2014, amounting to an average annual growth of 7.82%. In developing America, horticultural exports grew on average 6.32% annually; from 11.75 billion USD in 1995–40 billion USD in 2014. The sharpest growth has been realized since the turn of the millennium and Africa and developing Asia reached double digit annual growth rates during the past 15 years. As a result, horticultural exports are the most important agri-food export category, constituting respectively 32.8%, 26.8% and 24% of total agri-food exports in Africa, developing Asia and developing America. Some developing countries, e.g. South-Africa, Kenya, Ethiopia, Peru, Chile, Mexico, Thailand and China have become important suppliers of fruits, vegetables and cut-flowers in the international market. The largest share of horticultural produce exported from developing countries is destined for high-income countries.

This increased trade in horticultural produce between developing and high-income countries has been associated with: 1/ increased foreign direct investment; 2/ increased consolidation and vertical coordination; and 3/ an increase in public food safety regulations and the spread of private food standards (Maertens and Swinnen, 2007; McCullough et al., 2008; Mergenthaler et al., 2009; Reardon, 2015; Swinnen, 2007; Weinberger and Lumpkin, 2007). Foreign direct investment in horticultural production, processing and trade has expanded rapidly in developing countries. This sometimes includes large land-lease deals with multinational companies for horticultural export production. The degree of vertical coordination in horticultural export chains is usually high; arm's-length market relations and spot-market transactions hardly exist. The chains are usually dominated by a limited number of export companies and organized based on contract-farming with local (smallholder) farmers or on vertically-integrated estate production by companies, or a combination of both. In several countries, a shift has been observed in the organization of horticultural export chains with decreased importance of smallholder contract-farming and increased importance of vertically integrated estate farming – e.g. in Kenya (Gibbon, 2003; Humphrey et al., 2004; Jaffee and Masakure, 2005; Ouma, 2010), Senegal (Maertens and Swinnen, 2009), and Peru (Schuster and Maertens, 2013). In destination countries, public food safety regulations for trade in fruits and vegetables have become more stringent (Beghin et al., 2015). In addition, private food standards

focusing on food quality and safety, or social and environmental aspects of food production and trade have spread in horticultural sectors, with GlobalGAP as one of the most important ones.

Rural households in developing countries are connected to horticultural export chains and affected by horticultural export growth in two main ways (Maertens et al., 2012). First, rural households are affected through product markets, i.e. through the participation in contract-farming with export companies for the production and supply of produce. In some countries horticultural exports are to a large extent smallholder-based. This is the case e.g. for vegetable exports from Madagascar and Ghana, including respectively 9000 and 3000 contracted smallholders (Maertens et al., 2012; Minten et al., 2009). Also fruit export sectors in Cote d'Ivoire, and fruit and vegetable export sectors in China, Vietnam and the Philippines are largely based on contract-farming with smallholders (Verhofstadt et al., 2014; Miyata et al., 2009; Wang et al., 2009). Second, rural households are affected through labor markets, i.e. through participation in wage employment on the fields and the conditioning centers of export companies. Specific export sectors are predominantly based on estate production and include a large number of workers, e.g. an estimated 35,000 in the fruit sector in Ghana; 85,000 in Ethiopian flower industry; and 100,000 in the Peruvian horticultural sector (Jaffee, 2003; Schuster and Maertens, 2016; Staelens et al., 2014). Some sectors include a mixture of contract-farming and vertically integrated estate production; e.g. the Kenyan horticultural export sector with 12,000 contract-farmers and 50,000 workers (Legge et al., 2006; Jaffee, 2003).

Due to the shift from smallholder contract-farming to vertically integrated estate farming, and the need for labor-intensive post-harvest handling, participation in horticultural export chains through labor markets has become particularly important. Empirical studies have demonstrated that especially the poorest households are included in export chains through wage employment while contract-farming with horticultural companies is often biased to relatively better-off households with more land and capital and a higher level of education (Afari-Sefa, 2007; Asfaw et al., 2010; Ashraf et al., 2009; Kersting and Wollni, 2012; Maertens and Swinnen, 2009; Masakure and Henson, 2005; Narrod et al., 2009; Okello and Swinton, 2007). However, some studies do not observe this bias (Roy and Thorat, 2008; Minten et al., 2009; Kleemann et al., 2014). In addition, a large share of the workers in horticultural export companies is female (in some sectors up to 90%), while the majority of contract-farmers are men (Maertens and Swinnen, 2012).

3. Horticultural exports and food security

In this paper we follow the widely used definition of food security that resulted from the 1996 World Food Summit. It relates food security to four main pillars: 1) food availability, which entails a sufficient supply of food (both in terms of quantity and quality) in a specific area, 2) food access, which entails the ability to obtain food and which relates to available resources, markets and policies, 3) food utilization, which entails appropriate use of food in order to absorb nutrients and which relates to nutrition, safety and adequate sanitation, and 4) stability, which entails sustained food availability and access, and which relates to food resilience and environmental sustainability. In this section, we highlight each of these pillars in turn. We explain how horticultural exports affect food availability, access, utilization and stability based on existing empirical evidence and some new evidence from macro-economic statistics. This allows us to draw some conclusions on the contribution of horticultural exports to food security in developing countries, in an indirect way and

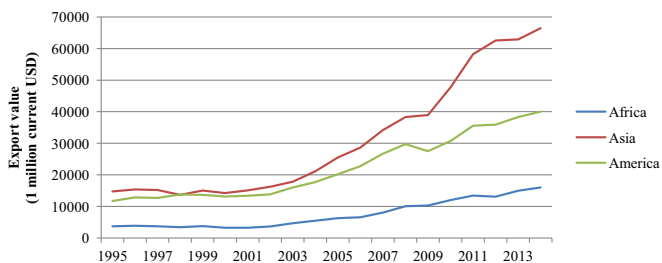


Fig. 1. Evolution of the export value of horticultural products for developing countries in Africa, Asia and America over the period 1995–2014. Horticultural products include the following SITC classification codes: 054 vegetables, 056 vegetables, roots, tubers, prepared or preserved, 057 fruits and nuts (excluding oil nuts), fresh or dried; 058 fruit, preserved and fruit preparations (no juices); 059 fruit and vegetable juices, unfermented, no spirit; 292 Crude vegetable materials (including 292.7 cut-flowers and foliage). Source: Authors' calculation based on UNCTADstat data.

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