



# Manufacturing exports and growth: When is a developing country ready to transition from primary exports to manufacturing exports?



Brandon J. Sheridan\*

North Central College, Department of Economics, 30 North Brainard St., Naperville, IL 60540, United States

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## ABSTRACT

Why do many developing countries still rely on primary goods as their main source of export income when evidence suggests they could earn higher returns by exporting manufactured goods? I use data for a wide cross-section of countries over the period 1970–2009 and find that although increasing manufacturing exports is important for sustained economic growth, this relationship only holds once a threshold level of development is reached. Specifically, I use an endogenous sample-splitting technique, known as regression tree analysis, to identify possible economic development thresholds in the relationship between the level of manufacturing exports and GDP per capita growth. The results imply that a country needs to achieve a minimum level of human capital before it is beneficial to transition from a reliance on primary exports to manufacturing exports.

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## 1. Introduction

Many developing countries are heavily dependent on primary products as their main source of export income.<sup>1</sup> However, several studies argue that countries that emphasize manufacturing exports will grow faster than those that emphasize exports of primary products (Hausmann et al., 2007; Jarreau and Poncet, 2012; Crespo-Cuaresma and Wörz, 2005; Berg et al., 2012). The underlying idea is that countries that export, particularly those that export products with a relatively high technological content, benefit from positive externalities that help their economies grow in ways that would otherwise not take place. The main sources of these positive externalities are likely to be knowledge spillovers and economies of scale. For example, by participating in the international market, a country may learn more efficient production techniques or benefit from increased specialization. Why, then, have more developing countries not grown their manufactured goods export sector? One possible explanation is that a country needs to be relatively developed before it can fully reap the benefits from increasing its manufactured exports. By its very nature, development is multifaceted and, thus, encompasses various aspects of an economy, such as income, education, investment, and trade. As in Azariadis and Drazen (1990), a critical mass of some combination of these variables may be necessary for a country to break out of an undesirable steady state. For example, a critical mass of skilled workers or a certain

\* Tel.: +1 (630)637 5249.

E-mail address: [bsheridan@noctrl.edu](mailto:bsheridan@noctrl.edu)

<sup>1</sup> Here, primary products generally refer to that class of goods which undergo minimal processing before being exported. Examples include oil, minerals, and agricultural products such as cocoa and coffee.

level of infrastructure may be necessary before a country is able to attract the business necessary to help it move from a point of relative stagnation to one of sustained growth. Many studies consider the possibility that a country needs to be relatively developed before it begins to see high rates of sustained growth, but these are often based on arbitrary definitions of development and sample splits, such as those based on median income. Few studies explore other development thresholds, and even less allow the data to endogenously determine the appropriate threshold or definition of development.<sup>2</sup> An innovation of this paper is to examine the growth effects of disaggregated exports and allow for endogenously-determined thresholds based not only on income, but also on investment, education, primary exports, and manufacturing exports. Identifying thresholds in the relationship between exports and economic growth may have important policy ramifications for developing countries, including providing insights about how countries might best prioritize their development goals in order to maximize long-run growth. Although numerous studies investigate the growth effects of export composition, none (to this author's knowledge) identifies thresholds in the relationship between disaggregated exports and economic growth. This paper aims to fill that gap by using regression tree analysis to endogenously identify potential thresholds in the development process.

## 2. Background

### 2.1. Exports and economic growth

A casual review of the relationship between exports and GDP would lead one to infer that the correlation between the two is positive (see [Michaely \(1977\)](#), [Feder \(1983\)](#), and [Greenaway et al. \(1999\)](#), among others). Intuitively, since exports are a component of GDP, increasing exports necessarily increases GDP, *ceteris paribus*. However, in addition, there are potential positive externalities created by exporting. An emphasis on exports, in addition to increasing GDP directly, may also lead to positive externalities in the non-export sector in the form of knowledge spillovers, such as more efficient management and production techniques ([Grossman and Helpman, 1991](#); [Edwards, 1993](#)). This, in turn, may lead to innovation and production expansion in the export and non-export sector, consequently raising incomes and propelling growth. Exports also provide the foreign exchange needed to purchase imports, which may provide further beneficial effects on economic growth ([Emery, 1967](#); [Thirlwall, 2000](#)). [Crespo-Cuaresma and Wörz \(2005\)](#) argue that significant positive externalities accrue to the exporting country as a result of competition in international markets, including increasing returns to scale, learning spillovers, increased innovation, and other efficiency gains, all of which can increase the rate of economic growth.

Perhaps unsurprisingly, many studies document a positive relationship between exports and economic growth ([Balassa, 1978](#); [Ram, 1985](#); [Edwards, 1993](#); [Crespo-Cuaresma and Wörz, 2005](#); [Mookerjee, 2006](#); [Rangasamy, 2009](#)). [Tyler \(1981\)](#) utilizes a production function framework for a sample of 55 developing countries and generally corroborates earlier results that there exists a positive relationship between export growth and economic growth. In contrast, I focus on the level of exports as opposed to export growth, following a simple model developed in the next section. [Feder \(1983\)](#) also employs a production function framework, but formally derives the externality effect of exports and finds that the export sector is more productive than the non-export sector. Furthermore, [Feder](#) shows this result is driven by positive production externalities that accrue to the export sector and, as such, countries that emphasize exports will grow faster than those that do not.

### 2.2. Disaggregated exports and economic growth

The main argument for a differing impact of manufacturing and primary exports on economic growth, according to [Fosu \(1996\)](#), is that primary exports are usually raw and unprocessed whereas manufactured goods are more technologically intensive, and therefore more likely to create positive spillovers. In the case of primary exports, the literature is somewhat mixed ([Syron and Walsh, 1968](#); [Eswaran and Kotwal, 1993](#); [Xu, 2000](#); [Fosu, 1996](#)). In theory, primary exports may exert a positive or negative effect. [Myint \(1958\)](#) describes primary exports as creating a “vent for surplus” in which resources that were previously unused (or perhaps underused) are employed to increase production of primary products, which are then exported. Consider, for example, a country that produces and sells rice domestically. The country can only consume so much rice on its own, so that exporting allows previously unused/underused land and labor to be utilized. In so doing, primary exports exert positive externalities on the non-export economy through an increase in demand for services and resources, which leads to increased economic growth for the economy as a whole. However, [Singer \(1950\)](#) explains that technological progress will benefit either producers in the form of profits or consumers in the form of lower prices which, in the case of primary products, usually means that less raw materials and labor will be utilized per unit of output. In turn, prices for these products fall, which leads to layoffs and lower wages for workers in the exporting country. Since workers are making less money, they must spend less and save less, which impedes economic growth. This issue is particularly pronounced in developing countries, in which a large share of total exports are derived from primary products. The [United Nations Conference on Trade and Development report \(2005\)](#) states that 75% of exports from Africa are primary products and 39 of 48 African developing countries have a range of primary products as their main source of exports (defined as 50% or more of total exports). Furthermore, 14 out of 20 Latin American developing countries also have primary products as their main source of exports.

<sup>2</sup> [Durlauf and Johnson \(1995\)](#), [Papageorgiou \(2002\)](#), [Foster \(2006\)](#), and [Minier \(1998, 2003\)](#) are notable exceptions. In addition to income, these authors also consider thresholds based on literacy rates, trade volume, export levels and export growth, democracy, and financial development, respectively.

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