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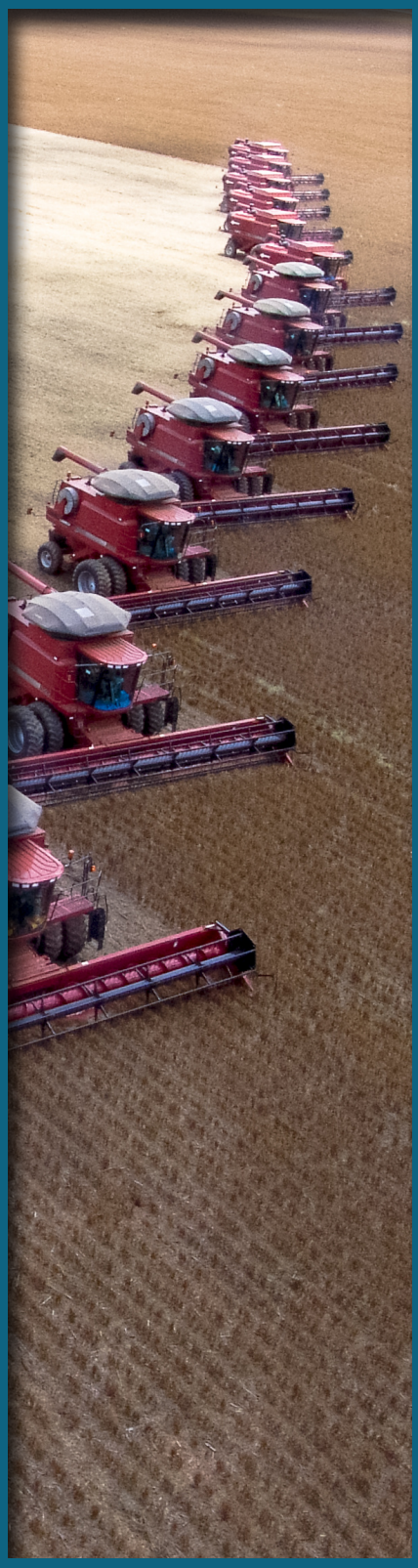

Do Differences in the Types of Commodities Exported Matter for Export Concentration?

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Abstract

This paper examines whether the type of commodity dominating a country's exports matters for export concentration. Using a dataset covering 173 countries, including 87 commodity-dependent developing countries, we estimate dynamic panel data models that control for a large set of determinants of export concentration. We find that GDP shares of energy exports and, to a lesser extent, GDP shares of minerals, are important determinants of export concentration. Our results imply that developing countries that are dependent on energy or minerals sectors face challenges that are different from those faced by countries dependent on the export of agriculture and manufacturing products. Economic and export diversification policies need to take these differences into account.

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List of acronyms

LDC	least developed country
LLDC	landlocked developing country
CDDC	commodity-dependent developing country
GDP	gross domestic product
UNCTAD	United Nations Conference on Trade and Development
SIDS	small island developing state

1. Introduction

Many developing economies are characterized by a highly concentrated export sector. In these countries, exports are often limited to a small number of products, and in several cases[1] one primary commodity accounts for more than half of a country's total export earnings (UNCTAD, 2019). In the developing world, export commodity dependence is pervasive. Almost two-thirds of developing countries are commodity-dependent, meaning that at least 60 per cent of their merchandise export revenues come from commodity exports[2]. Poor countries are particularly commodity dependent. Indeed, 85 per cent of Least Developed Countries (LDCs) and 81 per cent of Land-Locked Developing Countries (LLDCs) are commodity-dependent (UNCTAD, 2019). The total number of commodity-dependent countries increased slightly between 1998 and 2017, reaching 102 countries.

Commodity dependence can negatively affect development through different but related channels.[3] Commodity-dependent developing countries are vulnerable to different types of negative shocks. These include terms of trade shocks, and shocks from technological changes that reduce demand for some export commodities. Moreover, high volatility of commodity export prices introduces uncertainty in the economy. These shocks negatively affect the quantity and quality of public and private investment and total factor productivity, ultimately slowing down economic growth. Koren and Tenreyro (2007), Blattman, Hwang, and Williamson (2007), and Van der Ploeg and Poelhekke (2009) link the low and volatile economic growth performance[4] of countries with concentrated commodity exports to commodity price volatility. Additionally, given the importance of good institutions for development (Acemoglu et al., 2002, 2003; Rodrik et al., 2004), poor institutions are another conduit through which commodity dependence negatively affects development (Frankel, 2010; van der Ploeg, 2011).

Strong concentration of developing countries' exports on commodities and the negative link between commodity dependence and economic development have motivated research on the conceptual and empirical determinants of export concentration.[5] While interest in the analysis of export concentration goes back several decades (e.g. Michaely, 1958), only relatively recently have studies attempted to empirically identify the determinants

[1] UNCTAD (2019) shows that among the 50 countries with the highest measure of commodity dependence in the 2013-2017 period, 26 exported one product line (at 3 digits of the SITC classification) that represented more than 51 per cent of the country's total exports (See Table A1, page 43).

[2] Commodity dependence can then be defined as "high" export concentration on commodities. In this paper, we consider "high" to represent situations where more than 60 per cent of total merchandise export revenues come from commodity exports (See UNCTAD (2019) Section 2 for a discussion of data issues in calculating commodity dependence).

[3] The "natural resource curse" literature (Sachs and Warner 2001, Frankel, 2010, Van der Ploeg, 2011) identifies a negative relationship between commodity exports and economic growth. Significant work has been carried out attempting to identify the channels through which such a relationship is mediated.

[4] For a discussion of why macroeconomic volatility affects long-term growth and the level of development, see Aghion et al. (2010) and Barlevy (2007).

[5] The correlation between commodity dependence and the level of development (measured by GDP per capita) has been well established empirically. For a recent example, see UNCTAD (2019), which uses different static panel data models to show the (possibly non-linear) strong relationship between export concentration and income per capita. All the countries below the median income per capita and over the median export concentration index are commodity-dependent developing countries.

of export concentration. Such studies include Bebczuk and Berrettoni (2006), Klinger and Lederman (2009), De Benedictis, Gallegati and Tamberi (2009), Cadot, Carrère, and Strauss-Kahn (2011a,b), Agosín, Alvarez and Bravo-Ortega (2012), Parteka and Tamberi (2013) and Bahar and Santos (2018), among others. Cadot, Carrère, and Strauss-Kahn (2013) provides a recent survey of this literature. Using different datasets, measures of export concentration, and model specifications, these studies found that determinants of export concentration included: the level of development of a country (measured by GDP per capita), the size of the economy (measured by population or GDP size), trade barriers and costs, the terms of trade, export prices, composition of production factors including natural resource endowments, indicators of human and physical capital stock, and institutional quality.

Our paper tests whether the composition of exports matters for export concentration. Specifically, the paper examines whether the types of commodity exports a country depends on could have different impacts on export concentration. Using trade data disaggregated at the three digits of the Standard International Trade Classification (SITC), we classify all exported products into four groups, the first three being commodity groups: *Agricultural Products* (aggregating Food and Agricultural Raw Materials); *Energy*; *Minerals*; and *Non-commodities*. Using dynamic panel data models with data covering 173 countries and the period between 1995 and 2017, we find that countries with large energy, and to a lesser extent, minerals exports have more concentrated exports, even after controlling for many other determinants of concentration. The GDP share of agricultural exports does not seem to be a significant determinant of concentration. This result is robust to the use of different measures of export concentration, namely the Hirschman-Herfindahl Index, the Gini coefficient, and Theil's T index.[6]

This paper contributes to the literature in different ways. First, by decomposing commodity exports into different groups, our analysis goes further than previous findings in explaining how export composition affects concentration. Bebczuk and Berrettoni (2006) for example found that export concentration was positively correlated with the share of fuel exports in total exports, and negatively correlated with the share of manufactures on exports. Cadot et al. (2011a) found that the aggregated share of minerals and energy exports in total exports is an important determinant of export concentration, while controlling for GDP per capita in levels and squares. Unlike previous studies that used the ratios (aggregate or individual groups) of commodity exports over total exports, we use the value of exports of the three individual groups of commodities as a percentage of GDP as covariates. This attempts to address the problem arising from the fact that export shares of total exports are also used in the calculation of measures of concentration like the Hirschman-Herfindahl and Theil's T indexes of concentration. Additionally, our measures may capture better the effects of commodity dependence than trying to include directly difficult-to-quantify determinants like exchange rate overvaluation and exchange rate volatility,[7] while also accounting for the imperfect measurement of institutional quality across countries and time. In this regard, our results complement and extend those of Bahar and Santos (2018), who found that aggregate natural resources exports as a share of total exports are important determinants of the concentration of non-commodity exports.